



# Study on the impacts of the COVID-19 pandemic on the aviation market

Final Report



**EUROPEAN COMMISSION**

Directorate-General for Mobility and Transport

Directorate E — MOVE

Unit E.1 — Aviation Policy

*Contact:* Rafal Rowinski

*E-mail:* [MOVE-COVID-STUDY@ec.europa.eu](mailto:MOVE-COVID-STUDY@ec.europa.eu)

*European Commission*

*B-1049 Brussels*

# **Study on the impacts of the COVID-19 pandemic on the aviation market**

Final Report

Directorate-General for Mobility and Transport

Study on the impacts of the COVID-19 pandemic on the aviation market

2023

EN

## LEGAL NOTICE

This document has been prepared for the European Commission however it reflects the views only of the authors, and the European Commission is not liable for any consequence stemming from the reuse of this publication. More information on the European Union is available on the Internet (<http://www.europa.eu>).

PDF

ISBN 978-92-68-06105-3

doi: 10.2832/779263

MI-05-23-268-EN-N

---

Manuscript completed in December 2023

First edition

The European Commission is not liable for any consequence stemming from the reuse of this publication.

Luxembourg: Publications Office of the European Union, 2023

© European Union, 2023



The reuse policy of European Commission documents is implemented by the Commission Decision 2011/833/EU of 12 December 2011 on the reuse of Commission documents (OJ L 330, 14.12.2011, p. 39). Except otherwise noted, the reuse of this document is authorised under a Creative Commons Attribution 4.0 International (CC-BY 4.0) licence (<https://creativecommons.org/licenses/by/4.0/>). This means that reuse is allowed provided appropriate credit is given and any changes are indicated.

For any use or reproduction of elements that are not owned by the European Union, permission may need to be sought directly from the respective rightholders. The European Union does not own the copyright in relation to the following elements:

Cover, Photo by Anna Shvets on Pexels



# Study on the impacts of the COVID-19 pandemic on the aviation market





# Study on the impacts of the COVID-19 pandemic on the aviation market

---

Prepared by:

Steer  
14-21 Rushworth Street  
London  
SE1 0RB

+44 20 7910 5000  
[www.steergroup.com](http://www.steergroup.com)

Prepared for:

European Commission  
Rue de Mot  
Brussels  
Belgium

Client ref: MOVE/E1/SER/2021-361/SI2.854630  
Our ref: 24104101

## Contents

	Executive Summary .....	vi
	Résumé .....	xiv
	Kurzfassung .....	xxiii
<b>1</b>	<b>Introduction.....</b>	<b>1</b>
	Objectives of the study.....	1
	Scope of study .....	1
	Background.....	2
	Structure of this report.....	5
<b>2</b>	<b>Methodological approach.....</b>	<b>6</b>
	Stakeholder consultation .....	6
	Research limitations / robustness of findings .....	8
<b>3</b>	<b>What happened .....</b>	<b>13</b>
	Passenger demand .....	13
	Air cargo .....	37
	Public aid provided during the pandemic .....	41
	Summary.....	57
<b>4</b>	<b>Airline impacts.....</b>	<b>59</b>
	Airline commercial and financial situation prior to the pandemic.....	59
	Market impacts of the pandemic .....	63
	Impacts on airline commercial and operational models.....	74
	Financial impacts of the pandemic.....	78
	Outlook to 2030.....	112
	Summary.....	116
<b>5</b>	<b>Airport impacts .....</b>	<b>118</b>
	Airport commercial and financial situation prior to the pandemic .....	118
	Market impacts of the pandemic .....	120
	Airport capacity .....	121
	Impact on airport charges .....	131
	Impact on quality of service .....	138
	Financial impacts of the pandemic.....	140

	Sources of financing .....	149
	Outlook to 2030.....	151
	Summary.....	156
<b>6</b>	<b>Impacts for other businesses and air transport customers.....</b>	<b>158</b>
	Groundhandling.....	158
	ANSPs.....	170
	Impacts for the travel sector .....	173
	Impacts for airport retailers .....	174
	Impacts for airport investors.....	176
	Impacts on OEMs.....	178
	Impacts on connectivity .....	182
	Impact on passengers.....	196
	Impact on competitiveness .....	206
	Role of public financing in greening/digitalisation.....	209
	Summary.....	212
<b>7</b>	<b>Social impacts .....</b>	<b>215</b>
	Social impacts by sectors.....	215
	Cross-sector topics .....	229
	Conclusions on social impacts.....	233
<b>8</b>	<b>Impacts on the EU aviation regulatory acquis.....</b>	<b>235</b>
	Introduction.....	235
	Air Services Regulation.....	235
	Groundhandling Directive .....	240
	Slots Regulation.....	251
	Airport Charges Directive .....	274
	Other impacts on the EU regulatory acquis .....	292
<b>9</b>	<b>Conclusions and Recommendations.....</b>	<b>299</b>
	Outlook to 2030.....	300
	Conclusions.....	302
	Recommendations.....	307

## Figures

Figure 2.1: Stakeholder engagement strategy .....	7
Figure 2.2: Number of completed questionnaires received back by Steer .....	7
Figure 3.1: Change in total passenger demand by Member State – EU27+3.....	13
Figure 3.2: COVID-19 stringency index in Europe.....	14
Figure 3.3: Forward bookings, UK to Portugal, 2021.....	15
Figure 3.4: Change in domestic passenger demand by Member State, EU27+3 .....	17
Figure 3.5: Average passenger demand by market, EU27+3.....	18
Figure 3.6: Domestic air travel by Member State, EU27+3, percentage of 2019 levels.....	19
Figure 3.7: Change in Intra-EU passenger demand by Member State, 2020 vs.2019, EU27+3 .	20
Figure 3.8: Intra-EU passenger numbers by Member State, EU27+3, percentage of 2019 levels .....	21
Figure 3.9: Change in Extra-EU passenger demand by Member State, EU27+3 .....	22
Figure 3.10: Extra-EU passenger numbers by Member State, EU27+3, percentage of 2019 levels .....	23
Figure 3.11: International air travel recovery by passenger segment, UK, 2000-2019.....	24
Figure 3.12: Air traveller return to usual - travel plans after COVID-19.....	25
Figure 3.13: Cumulative uptake (%) of double-vaccinated, EU/EEA .....	27
Figure 3.14: Number of flights by airline, percentage change vs. 2019.....	28
Figure 3.15: Percentage change vs. 2019 in seats of selected regional airlines.....	29
Figure 3.16: Percentage change vs. 2019 in movements of selected regional airlines.....	30
Figure 3.17: Top airlines operating in Europe, average daily seats, 2019 vs 2021.....	31
Figure 3.18: Business aviation flights by Member State, 2020/2021, percentage of 2019 levels .....	34
Figure 3.19: Proportion of growth in business aviation movements between 2020-2021 by Member State.....	35
Figure 3.20: Business aviation fleet composition, 2019-2021.....	37
Figure 3.21: Freight and mail loaded and unloaded, tonnes, January 2020 – present, EU27+3 (exc. Sweden).....	38
Figure 3.22: European cargo trends, March 2020 – December 2021 .....	40
Figure 3.23: Economy-wide take-up of short-time work or temporary unemployment benefits, April 2020.....	42
Figure 3.24: State-aid distributed by air transport sector .....	51
Figure 3.25: Airline State aid per 2019 passenger .....	52



Figure 3.26: Distribution of public aid .....	54
Figure 3.27: Type of state aid granted by Member State, EU27+3 .....	56
Figure 3.28: Type of aid distributed by stakeholder type, EU27 .....	56
Figure 4.1: Net profit margins, European airlines/airline groups, 2019.....	60
Figure 4.2: Cash to operating cost ratio, 2019 .....	61
Figure 4.3: Gearing ratios of European airlines, 2019 .....	62
Figure 4.4: Debt to asset ratio of airlines, 2019 .....	62
Figure 4.5: European air transport supply and demand data, EU27+3, 2018-2021.....	67
Figure 4.6: European passenger yield and load factors, EU27+UK, 2018-2021 .....	68
Figure 4.7: Yield and load factor: Intra EU27+3 (including domestic) 2018-2021.....	69
Figure 4.8: Yield and load factor: Extra-EU+3, 2018-2021 (1) .....	70
Figure 4.9: Yield and load factor: Extra-EU+3, 2018-2021 (2) .....	71
Figure 4.10: Market concentration on city pairs between EU27+3 2018-2021 (passenger-weighted average).....	72
Figure 4.11: Seat capacity, intra EU27+3, 2018-2021 by airline type (2019 = 100) .....	73
Figure 4.12: Market concentration on European city-pairs by EU27+3 in 2019 and 2021 .....	74
Figure 4.13: 2020/2021 airline revenues, percentage change vs. 2019.....	79
Figure 4.14: Airlines – Breakdown of revenues and passengers by cabin class, 2019 vs. 2021. 80	
Figure 4.15: Cost reductions in 2020/2021 (to date) vs. 2019 .....	84
Figure 4.16: Percentage change in staff costs, 2020/2021 (to date) vs. 2019 .....	86
Figure 4.17: Percentage change vs. 2019 in capital expenditure .....	87
Figure 4.18: Change in current assets held by selected European airlines, 2021 vs. 2019 .....	90
Figure 4.19: Cash held by airlines, 2020-2021, percentage change compared to 2019 levels ..	91
Figure 4.20: Change in non-current assets held by selected European airlines, 2020/2021 vs. 2019 .....	92
Figure 4.21: Change in current liabilities of selected European airlines, 2020/2021 vs. 2019 ..	93
Figure 4.22: Change in non-current liabilities of selected European airlines, 2020/2021 vs. 2019 .....	94
Figure 4.23: Cash to operating cost ratio, 2019-2021 .....	95
Figure 4.24: Non-current borrowing of selected European airlines, percentage change vs. 2019 totals .....	96
Figure 4.25: Borrowing as percentage of 2019 revenues for airlines, 2019-2021 .....	98
Figure 4.26: Maturity profiles of airline borrowings .....	98
Figure 4.27: Share price evolution of selected airlines, relative to baseline of January 1, 2020	99

Figure 4.28: Gearing ratio of selected European airlines, 2019-2021 (to date).....	100
Figure 4.29: Total sale and leaseback events .....	104
Figure 4.30: Fleet (in service and in storage) under leasing by airline, 2018-2021 .....	105
Figure 4.31: Evolution of wet and dry lease of EU27 operating airlines .....	106
Figure 4.32: Airline fleets: sale-and-lease-back events, 2018-2021 .....	107
Figure 4.33: Net profit margins, selected airlines, 2019 - 2021 .....	109
Figure 4.34: Lufthansa 2019 results waterfall .....	110
Figure 4.35: Lufthansa 2020 results waterfall .....	110
Figure 4.36: Lufthansa 2021 results waterfall .....	111
Figure 4.37: Ryanair 2019 results waterfall .....	111
Figure 4.38: Ryanair 2020 results waterfall.....	112
Figure 4.39: Ryanair 2021 results waterfall.....	112
Figure 4.40: European airline debt repayment adjusted EBITDA outlook to 2030, € billion, 2019 prices.....	113
Figure 4.41: European airline debt repayment adjusted EBITDA outlook to 2030 – Growth scenarios, € billion, 2019 prices.....	114
Figure 4.42: European airline debt repayment adjusted EBITDA outlook to 2030 – Airport charge scenario, € billion, 2019 prices .....	115
Figure 4.43: European airline debt repayment adjusted EBITDA outlook to 2030 – Fuel cost scenario, € billion, 2019 prices .....	116
Figure 5.1: Airport net profit margins, 2019.....	118
Figure 5.2: Return on capital employed, airports, 2019.....	119
Figure 5.3: Gearing ratio of airports, 2019 .....	119
Figure 5.4: Cash to operating cost ratio, airports, 2019 .....	120
Figure 5.5: Airport charges per passenger, Amsterdam airport, 2009-2021 (nominal).....	133
Figure 5.6: Amsterdam airport charges per passenger, pre/post-crisis (nominal) .....	134
Figure 5.7: Bucharest airport charges per passenger, 2009-2021 (nominal).....	134
Figure 5.8: Bucharest airport charge per passenger, assuming pre/post-crisis load factors (nominal).....	135
Figure 5.9: Airport revenues, percentage of 2019 levels .....	140
Figure 5.10: Top 50 European airports, loss revenue versus loss in traffic, 2020 vs. 2019.....	141
Figure 5.11: Aeronautical revenues of selected airports, percentage change vs. 2019 .....	141
Figure 5.12: Non-aeronautical revenues, percentage change vs. 2019 .....	142
Figure 5.13: Aeronautical/non-aeronautical revenue split .....	142

Figure 5.14: Airport cost reductions, percentage change vs. 2019 .....	143
Figure 5.15: Change in staff costs for airports, percentage change vs. 2019 levels.....	144
Figure 5.16: Cash held by airports, percentage change vs. 2019 .....	146
Figure 5.17: Airport cash to operating cost ratio, 2019 - 2021 .....	147
Figure 5.18: Airports' capital expenditure, percentage change vs. 2019 .....	147
Figure 5.19: Airport net profit margins, 2019-2021 .....	148
Figure 5.20: Non-current borrowing of airports, percentage change vs. 2019.....	150
Figure 5.21: European airport debt repayment adjusted EBITDA outlook to 2030, € billion, 2019 prices.....	152
Figure 5.22: European airport debt repayment adjusted EBITDA outlook to 2030 (by size), € billion, 2019 prices.....	153
Figure 5.23: European airport debt repayment adjusted EBITDA outlook to 2030 – Growth scenarios, € billion, 2019 prices.....	154
Figure 5.24: European airport debt repayment adjusted EBITDA outlook to 2030 – Airport charge scenario, € billion, 2019 prices .....	155
Figure 6.1: Revenue changes for groundhandling companies, 2020/2021 vs. 2019 levels.....	158
Figure 6.2: Net profit margin of groundhandling companies, 2019-2021.....	159
Figure 6.3: Groundhandling company cost reductions, 2020/2021 vs. 2019.....	160
Figure 6.4: Staff cost reductions for groundhandling companies, 2020/2021 vs. 2019.....	160
Figure 6.5: En route (total) service units (TSU)s in the SES .....	171
Figure 6.6: Airbus aircraft in service, stored and retired (worldwide), 2018-2021 (to date) ...	179
Figure 6.7: Airbus deliveries by aircraft type.....	180
Figure 6.8: Airbus and Boeing backlog .....	181
Figure 6.9: Change in direct routes operated and average weekly frequencies.....	183
Figure 6.10: Domestic passengers flying directly, change between 2019 and 2021.....	185
Figure 6.11: Intra-EU+3 passengers flying directly, change between 2019 and 2021 .....	187
Figure 6.12: Extra-EU+3 passengers flying directly, change between 2019 and 2021.....	188
Figure 6.13: Change in PSO passenger traffic, EU27+3, 2018- 2020 .....	194
Figure 6.14: Fare evolution between EU27+3 and world regions, 2018-2021 Q3 (2019 = 100) .....	198
Figure 6.15: Fare evolution between EU27+3 and Europe by carrier type, 2018-2021 Q3 (2019 = 100) .....	199
Figure 6.16: Intra-Europe fares by EU country – 2019 vs 2021 evolution (Q1-Q3).....	200
Figure 6.17: Intercontinental fares by EU country – 2019 vs 2021 evolution (Q1-Q3).....	201

Figure 6.18: Evolution of minimum and maximum fare levels on selected Intra-EU routes, 2011-2021.....	203
Figure 6.19: Additional costs per passenger estimations.....	205
Figure 6.20: Top 150 intra-EU routes, by train journey duration.....	209
Figure 7.1: Airline employment changes, 2021, 2020 vs. 2019.....	216
Figure 7.2: Airport employment changes, 2021 vs. 2019.....	220
Figure 7.3: Ground staff employment status as a result of the pandemic, selected Member State.....	225
Figure 7.4: Member State employment changes, 2021 vs. 2019.....	227
Figure 7.5: Slot coordinator employment changes, 2021 vs. 2019.....	228
Figure 7.6: Gender diversity changes, 2020 vs 2019.....	231
Figure 8.1: Groundhandling policy intervention problem tree (pre-pandemic).....	244
Figure 8.2: Airports in scope of the GH Directive.....	245
Figure 8.3: Expected future trends in Groundhandling Directive.....	246
Figure 8.4: Slots problem tree (pre-pandemic).....	259
Figure 8.5: Airport charges policy intervention problem tree (pre-pandemic).....	276
Figure 8.6: Airports in scope of the ACD (2019-2021).....	277
Figure 8.7: Current and future expected changes to airports in scope of ACD, EU27+3.....	280

## Tables

Table 2.1: Stakeholder engagement methods, approach and target stakeholders.....	6
Table 2.2: Availability of Eurostat data (latest available dataset).....	8
Table 2.3: Evidence gap.....	11
Table 3.1: Top regional airlines operating in Europe, seats and flights, 2019-2021.....	29
Table 3.2: Percentage change vs. 2019 levels in flights operated by selected FSCs and LCCs... ..	31
Table 3.3: Top 30 airports by passengers, EU27+3, 2019 vs 2021.....	32
Table 3.4: Top 30 airports by cargo tonnes, 2019 vs 2021.....	33
Table 3.5: Top 30 business aviation airports, 2020/2021.....	35
Table 3.6: Cargo tonnage and movements comparison April 2019/April 2020 – Largest 15 European airports.....	39
Table 3.7: Employment support measures by EU Member State.....	43
Table 3.8: Air transport sectoral support provided by MS.....	46

Table 3.9: Non-EU+3 public support, in addition to payroll support .....	49
Table 4.1: Airlines ceasing operations in 2020 and 2021 .....	63
Table 4.2: Airlines established in Europe in 2020/2021 .....	65
Table 4.3: Route profitability index versus 2019 – Indicative of change in passenger revenues per flight .....	72
Table 4.4: Airline responses to the impact of fleet changes made due to the pandemic on connectivity .....	75
Table 4.5: Airlines – Changes in ancillary revenues approaches .....	77
Table 4.6: Airlines – Changes in revenue management and distribution approaches .....	77
Table 4.7: Examples of secondary slot trades, €2020 prices .....	81
Table 4.8: Slots on airline balance sheets .....	81
Table 4.9: Slot valuation assumptions .....	83
Table 4.10: Comparison of airline revenue and operating cost changes (2019 vs 2020) .....	85
Table 4.11: Expected airline's greening investments by 2030 .....	88
Table 4.12: Expected airline's digitalisation investments by 2030 .....	89
Table 4.13: Credit ratings of selected European airlines, Feb 2020 vs. Feb 2021 .....	101
Table 4.14: Airline debt servicing on future financial performance .....	102
Table 4.15: Impact of debt service costs on the profitability/viability of networks .....	102
Table 4.16: European airline debt repayment adjusted EBITDA outlook to 2030 – Growth scenarios, € billion, 2019 prices .....	115
Table 5.1: Changes to airport capacity during the pandemic .....	122
Table 5.2: Capex investment impacts .....	124
Table 5.3: Airport responses to investments in greening to 2030 .....	126
Table 5.4: Airport responses to planned investments in digitalisation to 2030 .....	129
Table 5.5: Average aeronautical revenue yield per passenger at selected airports, 2019 – 2021 (nominal) .....	132
Table 5.6: Comparison of airport revenue and operating cost changes (2019 vs 2020/2021) .....	145
Table 5.7: Financial performance of airports groups and the aviation segment of groups, percentage change vs. 2019 .....	149
Table 5.8: Credit ratings of selected airports pre/post-crisis .....	151
Table 5.9: European airport debt repayment adjusted EBITDA per passenger outlook to 2030 (by size), €, 2019 prices .....	153
Table 5.10: European airport EBITDA outlook to 2030 – Growth scenarios, € billion, 2019 prices .....	155

Table 5.11: European airport debt repayment adjusted EBITDA outlook to 2030 – Growth scenarios, € billion, 2019 prices.....	156
Table 6.1: Stakeholder responses on groundhandling companies ceasing operations/declaring bankruptcy.....	161
Table 6.2: Airline responses on the quality of service of groundhandling companies.....	164
Table 6.3: Airport responses to quality of service of groundhandling companies.....	165
Table 6.4: Airline responses on the pricing policy of groundhandling companies.....	167
Table 6.5: Groundhandling company response to pricing policy of groundhandling companies .....	168
Table 6.6: Airport responses to pricing policy of groundhandling companies.....	169
Table 6.7: Changes to airport concessions since 2020 .....	177
Table 6.8: PSO routes operated in EU27, 2020 vs. 2018 .....	192
Table 6.9: Impact of European airline closures on passengers .....	196
Table 6.10: Impact of the pandemic on pricing policy of airlines.....	202
Table 7.1: Short-time work/employee protection measures used by airlines, 2020-2021.....	216
Table 7.2: Possible changes to pilot employment and working conditions .....	218
Table 7.3: Airport responses to use of furlough/employee protection measures, 2020-2021	220
Table 7.4: ISA employment changes, 2021 vs. 2019 .....	227
Table 7.5: Member State responses to the ability of competent authorities to ensure effective monitoring and enforcement .....	229
Table 7.6: Summary of employment impacts.....	233
Table 8.1: Stakeholder responses on carriers benefitting from temporary licences .....	237
Table 8.2: National approaches to airports falling out of scope of Groundhandling Directive	247
Table 8.3: Stakeholder views on whether Directive 96/67 need addressing.....	250
Table 8.4: European changes on Slot Regulation usage rules .....	255
Table 8.5: Airports changing coordination status.....	261
Table 8.6: Funding of European slot coordinators .....	264
Table 8.7: Summary of problem drivers and whether they remain valid .....	266
Table 8.8: Fit for 55 proposal objectives, additional factors emerging since the pandemic and the Slots Regulation objectives.....	271
Table 8.9: Airports in scope of the ACD by Member State, EU27+3 .....	277
Table 8.10: 2017-2021 traffic concentration through ACD in-scope airports, 2017-2021.....	278
Table 8.11: MS and ISA responses to airports falling below ACD passenger threshold.....	279
Table 8.12: Impact of the pandemic on the risk of abuse, according to stakeholders .....	281



Table 8.13: Impact on ISA funding.....	283
Table 8.14: CAR funding mechanisms for ACD duties .....	284
Table 8.15: MS and ISA response to flexibility of ACD within Article 6(2).....	286
Table 8.16: Authorities' experiences of business ceasing operations .....	292
Table 8.17: Pre/post-crisis seats available for selected airlines, Q2/Q3 2020 .....	295
Table 9.1: Table of synthesis.....	299

## Appendices

- A Passenger demand by Member State**
- B State aid tables**
- C Connectivity tables**
- D Projection tool**
- E Additional data**

## Disclaimer

*“The information and views set out in this study are those of the author(s) and do not necessarily reflect the official opinion of the Commission. The Commission does not guarantee the accuracy of data included in this study. Neither the Commission nor any person acting on the Commission’s behalf may be held responsible for the use which may be made of the information contained therein.”*

## Glossary

Acronym	Definition
A4E	Airlines for Europe
AAS	Amsterdam Airport Schiphol
ACD	Airport Charges Directive (2009/12/EC)
ACD	Airport Coordination Denmark
ACF	Airport Coordination Finland
ACI	Airports Council International
ACL	Airport Coordination Limited, the national slot coordinator of the UK
ACL International	The national slot coordinator of Poland, Ireland and Luxembourg (part of ACL)
ACN	Airport Coordination Norway
ACNL	Airport Coordination Netherlands
ACS	Airport Coordination Sweden
ADP	Aéroports de Paris
AECFA	The national slot coordinator of Spain
AENA	Spanish airport operator
Aeronautical revenue	The part of an airport's revenue derived from a number of charges levied on airlines for the use of airport infrastructure and services by passengers and aircraft, for example landing charges, passenger charges, aircraft parking charges, etc
AIRE	Airlines International Representation in Europe (formerly IACA)
ANA	Airport operator and national slot coordinator of Portugal
AOC	Air Operator Certificate
APU	APU – Auxiliary Power Unit. A fuel-powered generator within the aircraft used for aircraft start-up.
ASA	Airport Services Association
Assoclearance	The national slot coordinator of Italy
ATC	Air Traffic Control
ATM	Air Transport Movements. Landings or take offs of aircraft engaged in the transport of passengers or freight on commercial terms.
ATM	Air Traffic Movements
BDF	German Airlines Association
BSC	Belgium Slot Coordination The national slot coordinator of Belgium
CAGR	Compound Annual Growth Rate
Capex	Capital expenditure
Charter or leisure airlines	These airlines provide charter aircraft specifically for the holidays they sell or are sold by tour operators and/ or respond to ad-hoc demand as opposed to providing a year-round schedule.
CI	Centralised Infrastructure
CMA	UK Competition and Markets Authority
CO <sub>2</sub>	Carbon dioxide
COHOR	The national slot coordinator of France
CTK	Cargo Tons Kilometre
DG MOVE	Directorate General for Mobility and Transport for the European Commission

Acronym	Definition
DGAC	French Civil Aviation Authority
DGCA	Directorate General of Civil Aviation
DTA	Directorate of Air Transport France
Dual-till framework	Regulatory framework which focuses solely on costs associated with providing the aeronautical services for which the charges are regulated
EASA	European Aviation Safety Agency
EBAA	European Business Aviation Association
EBITDA	Earnings Before Interest, Taxes, Depreciation, and Amortization
EBITDA margin	EBITDA as a percentage of total revenues
EC	European Commission
ECA	European Court of Auditors
ECAC	European Civil Aviation Conference
ECN	European Competition Network
ECTAA	European Travel Agents and Tour Operators Association
EDF	European Disability Forum
EEA	European Economic Area, includes EU countries and also Iceland, Liechtenstein and Norway
EEA	European Express Association
EFTA	European Free Trade Area
ENAC	Italian Civil Aviation Authority
ERAA	European Regions Airline Association
ETF	European Transport Workers Federation
EU	European Union (in the sense of EU27)
EU ETS	EU Emission Trading System
EU+4	European Union (EU27), plus Iceland, Norway, Switzerland and the United Kingdom
EUACA	European Airport Coordinators Association
Ex-ante regulation	In the context of airport regulation relates to the determination of price controls or KPIs, based on forecasted or intended expenditure, rather than actual expenditure
FBO	Fixed base operators
FLUKO	The national slot coordinator of Germany
FSC	Full-Service Carrier. The full-service carrier business model is based on sustaining global route networks. As such, full-service carriers are based at one or more hub airports where their passengers can connect between a variety of flights. Traditionally full-service carriers were national carriers. Most of them are members of one of the three global airline alliances. Full-service carriers are also known as network airlines.
FTE	Full Time Equivalent (employees)
GA	General aviation (GA) can be defined as a civil aircraft operation that is not a commercial air transport flight operating to a schedule. General aviation flights range from gliders and powered parachutes to corporate jet flights.
GDP	Gross Domestic Product
GH	GH - Groundhandling
GHG	Greenhouse gas emissions
GSE	Ground Support Equipment
GVA	Gross Value Added
HBD	Historic Baseline Date

Acronym	Definition
HBD	Hand-back date
Hub-and-spoke network	In hub-and-spoke networks, airlines and alliances route their traffic through one or more key airports ('hubs'), with feeder traffic from other airports in the network (the 'spokes') supplementing local origin and destination traffic at the hubs.
IAG	International Consolidated Airlines Group
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
IFR	Instrument Flight Rules
IMF	International Monetary Fund
ISA	Independent Supervisory Authority
JNUS	Justified non-use of slots
JV	Joint Venture
LBA	National Civil Aviation Authority of Germany
LCC	Low-Cost Carrier. Low-cost carriers apply a business model that relies on reducing operating costs (for example, by using dense economy-only seating, not providing free in-flight meals, not facilitating connections to other flights, discouraging carriage of hold baggage) to provide passengers with relatively cheap tickets. The model has so far been very successful on short-haul routes.
LH Group	Lufthansa Group
Light-handed regulation	Regulatory regime which encourages voluntary agreements and allows airport discretion in how it meets regulatory targets
LTOs	Landings and Take-Offs
MPA	Market Power Assessment or determination.
MPPA	Million Passengers Per Annum
MS	Member State
MTOW	MTOW - Maximum Take-off Weight. The maximum weight at take-off that the aircraft is certified to operate safely.
NAJV	North Atlantic Joint Venture
NCA	National Competition Authority
NEB	National Enforcement Body
NOx	Nitrogen oxide
NUTS3	Nomenclature of Territorial Units for Statistics
OAG	Official Airline Guide
OL	Operating Licence
OSO	Operational Management Committee Schiphol
Pax	Passengers
PKM	Passenger kilometres
PM	Particulate matter
Price cap regulation	Regulatory regime where the airport is allowed to recover its forecast, efficient costs through the regulated charges, plus an additional return as a profit or reserve component
PRM	Persons with disabilities and persons with reduced mobility
PSO	Public Service Obligation
PTD	Package Travel Directive

Acronym	Definition
RAB	RAB - Regulated Asset Base is the historic efficient investment in regulated assets by the Regulated company, against which the company is allowed to earn a return
Rate of return regulation	Allowing charges to increase up to a cap that represents an acceptable profit margin for the airport
SACP	Stand-alone credit profile
SAF	Sustainable Aviation Fuels
SAL	Slot Initial Allocation List
SCA	Slot Coordination Austria - the national slot coordinator of Austria
Scarcity Rents	In an airport context, a situation in which the market demand for flights from a particular airport is greater than the market supply, thus causing higher ticket prices
SCS	Slot Coordination Switzerland - the national slot coordinator of Switzerland
SDR	Special Drawing Rights
Self-handling	Where airlines service their ground handling requirements themselves and do not procure these services (in whole or in part) from third parties
Self-supply	Where airlines service their ground handling, de-icing or internal presentation requirements themselves and do not procure these services (in whole or in part) from third parties
SES	Single European Sky
Single-till framework	Regulatory framework which has regard to all costs and revenues at an airport (both aeronautical and non-aeronautical)
SITA	Information technology company
SLA	Service Level Agreement
Slots	Rights allocated to allow airlines and other aircraft operators to schedule a landing or departure at an airport during a specific time period. Slots are allocated to airports operating at 'Level 3 (coordinated)' which are defined as those where demand for airport infrastructure significantly exceeds the airport's capacity
SME	SME – Small and Medium-sized Enterprise
SMP	Significant market power is deemed to exist when an undertaking either individually or jointly with others, enjoys a position equivalent to dominance, that is to say a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and consumers
SRD	Series Return Deadline
SWD	Staff Working Document
SWG	Slot Working Group
TFEU	TFEU - Treaty on the Functioning of European Unions
ToR	Terms of Reference
Traficom	Finnish Transport and Communications Agency
Transfer traffic	Passengers connecting between their origin airport and destination airport through an intermediate airport.
TUPE	TUPE - Transfer of Undertakings (Protection of Employment) Regulations
UAE	United Arab Emirates
VAIL	Virgin Atlantic International Limited
VOC	VOC – Volatile Organic Compound

Acronym	Definition
WAC	Weighted Average Cost of Capital. The WACC reflects the rate of return on the different sources of capital financing made available to the entity, including debt and equity, and the weighting of each in its overall capital structure
WASG	Worldwide Airport Slot Guidelines (renamed WSG as of June 2020)
WLU	Workload Unit. One workload unit equals one passenger or 100 kg of cargo
WSG	Worldwide Slot Guidelines

Please note that other three-letter abbreviations not listed are likely to be specific IATA airport identifiers (e.g. FRA for Frankfurt airport). ICAO four-letter airport identifiers have not been used.



## Executive Summary

### Introduction

Aviation has been one of the industry sectors most impacted by the COVID-19 pandemic, with reduced levels of activity, changes in operational processes and temporary restrictions on travel impacting the willingness of passengers to use air travel. While recovering from these impacts and becoming more resilient, aviation needs, at the same time, to adjust and adapt to the necessary changes to fulfil the 2050 Climate Neutrality objective to contribute to the decarbonisation of the European Union (EU) economy while maintaining the highest levels of safety and security as well as high social standards.

The objectives of the study are therefore to:

- Identify and evaluate structural changes in the EU aviation ecosystem triggered, influenced or accelerated by the COVID-19 crisis; and
- Understand how these changes interact with the principles and objectives of the Smart and Sustainable Mobility Strategy and the existing aviation internal market legal framework.

### Methodology

The methodology of this study to address the task specifications was based on:

- Stakeholder consultation using a number of approaches to engage with interested parties, collect information about their specific situation, and obtain their views on the impacts of COVID-19, through questionnaires and interviews;
- Desktop research to identify and collect up-to-date information on impacts and experience of the legislation (including emergency legislation), followed by analysis of this material to assess effects;
- A workshop, providing a forum for discussion of emerging findings; and
- Development of a set of forward projections to inform the analysis to 2030.

The study team was able to obtain inputs from a range of stakeholders including major European airports and airlines, air carrier and airport groups and associations, groundhandling companies, worker representatives, Member States, Independent Supervisory Authorities, slot coordinators, Air Navigation Service Provider representatives, aircraft manufacturing stakeholders, passenger and travel representatives. Quantitative analysis was undertaken using industry recognised sources such as Eurostat, Official Airline Guide (OAG), IATA charges manual, Cirium and MIDT.

### *Research findings*

This study was commissioned in the autumn of 2021 and finalised in summer 2022. Some stakeholders considered it premature to assess the full impact of the pandemic on the aviation industry in Europe. Moreover, during the study period, a number of events – in particular the war in Ukraine - impacted the outlook for the European aviation industry, which add further uncertainty to the prospects and timing of recovery of the sector over the period till 2030 covered by the study.

### *The European aviation internal market*

The COVID-19 health crisis has been a reminder that Member States, especially in times of distress, are geared to take decisions to suit their needs first, with relevant consideration for

European interests following. This national approach to travel restrictions and the availability (or not) of financial assistance to the industry and its staff, has led to divergent and different outcomes across Europe. These have led to strong impacts on staff, especially where low skilled and/or working in countries with no or poor employment support schemes.

Crucially, whilst industry, authorities and staff agilely adapted to the crisis and its changing episodes, they all faced quite unique and localised sets of rules and circumstances. We present the impacts of the crisis in this report, to the extent that we know them, but we must not overlook that not all organisations had access to the same government support, and that they operated in different legal contexts.

This health pandemic has thrown a harsh light on the fact that there has been a major difference in treatment between “domestic” and “intra-EU” flows, which is contrary to the objective of free movements of goods and persons within the European Union: in 2020 and 2021 there was no Single aviation Market which meant there was no European domestic market to base the industry recovery on, in contrast to the situation in USA or China.

### *Market structure*

The aviation industry in Europe faced its biggest demand crisis ever in 2020 and 2021. A radically different environment post-pandemic could have been expected, but there have been only a limited number of airline bankruptcies and changes to the European air transport market structure. Due to the characteristics of the pandemic and in particular Member States travel restrictions, the part of sector most negatively impacted has been international commercial passenger traffic.

With extra-EU and business purpose journeys most impacted by the travel restrictions and/or availability of alternatives, as expected there have been some winners and losers: Ryanair and Wizzair emerge from the crisis in a relatively strong position as they are more focussed on leisure/VFR markets and had better finances pre-pandemic. For airports, whilst the volumes of passenger traffic sharply decreased, there has not been too much change to the ranking of the top 20 European airports.

Only a limited number of European airlines and airports went bankrupt during the pandemic, usually as a result of pre-existing factors. The limited bankruptcies are explained, to an extent, by the significant amounts of public support which has been distributed across the EU to the industry. For airlines, the provisions set out in Regulation 2020/696 surrounding operating licences also helped.

### *Public aid*

Significant amounts of company specific support were distributed all over Europe (€45.5 billion), but with enormous disparities between recipients of the aid, conditions attached to it (if any), type of aid, nationality of the recipient, etc. Airlines have received the vast majority of this aid (€38.8 billion). Airports access to support also varied widely across Member States, but where available was much lower (€6.7 billion) than that of airlines, but significantly higher than that of groundhandling companies (€90 million). Many stakeholders expected aid to “trickle-down” but apart from where conditions were attached to aid, there were few reports that aid was shared.

Specifically on airlines, low-cost carriers typically did not receive the same amount of aid relative to their size as compared to network airlines: they had more robust financial positions pre-pandemic but unsurprisingly perhaps, national interests were at the forefront of the

support distributed (although not universally true). Most airlines emerge from the crisis having survived but with significant debts to reimburse: indeed, state aid was mostly provided to them in the form of reimbursable support.

#### *European competitiveness*

Some non-EU carriers were able to maintain important levels of capacity including on routes to the EU, often explained by generous national support schemes provided by e.g. US, Turkey and Gulf (although not everywhere), as well as large domestic markets to rely on.

#### *Airline financials*

The crisis has also led to a significant decline in passenger revenues in 2020 and 2021. Airlines sought to shore up balance sheets through increasing their cash held. Airlines are now more highly leveraged than pre-crisis as a result of taking on non-current debts at a greater rate than increases in equity.

Airlines responded to lower demand for air travel by reducing their fleet in use, mainly by parking aircraft. They indicated that investments in greening and digitalisation are expected to continue to 2030, most notably fleet renewal which is a source of lower operating costs (better fuel efficiency) and will assist in meeting environmental targets.

Profitability for passenger airlines fell significantly in 2020 and has recovered slightly in 2021, although they are predominantly still unprofitable. With the impact of loan repayments, potential impacts of increases in airport and air traffic management charges and/or fuel prices, the recovery of airlines to pre-pandemic profitability levels is unlikely to happen before 2030.

#### *Airport financials*

Airports tried to preserve as much demand as possible and launched programmes of freezing airport charges, and incentives as they competed for traffic. They nonetheless faced significantly reduced revenues and undertook operational cost cutting measures and liquidity preservation to respond to the impact of the pandemic. Airports also focussed on capital expenditure: in this area, airports decisions very much depended on their individual circumstances with some able to accelerate projects and make the most of reduced traffic, whilst the vast majority postponed investments (in capacity and greening). Few cancellations were observed.

Airports reported significant losses in 2020. By 2021, interim results indicate that they have rebounded somewhat, but the response has been mixed between them, with some of the largest recovering back to profitability (albeit sometimes at group level only). Airport debt increased significantly during the crisis, but no stakeholders who took part in consultation highlighted a concern on the sustainability of their level of debt, due to their ability to maintain strong credit ratings. However, these loans will still need to be repaid over time.

#### *Impact on groundhandling companies*

Hardly any public aid has reached third-party groundhandling companies in 2020 and 2021 in Europe (apart from job support schemes). Where Member States provided social protection/job support schemes this has been heavily utilised because the groundhandling activity is very labour intensive. With staff costs representing approximately 60% of total operating costs, and with limited social protection, staff has been the immediate adjusting variable with up to 60-70% of the workforce furloughed on average.

Apart from one notable market exit at a large European airport, the industry has stayed as it was with respect to industry structure. However, beyond the lack of market impacts, the European groundhandling industry is in a worse financial situation than it was pre-pandemic with a higher level of debt and heightened staff recruitment and retention concerns.

#### *Impact on ANSPs*

The dramatic drop in traffic demand as a result of the COVID-19 crisis had a major impact on the service units required for flights in the Single European Sky. Where traffic falls, ANSPs' revenues fall following a similar pattern. Where ANSPs made costs savings, they were primarily focussed on staff costs, reduction of maintenance and postponement of capital expenditure.

The significant drop in air traffic coupled with the limited ability of ANSPs to reduce expenditure required ANSPs to manage the gap in revenues in different ways using either their own resources, loans or injection of equity by their owners (which usually are the Member States).

Pandemic traffic losses in 2020 and 2021 will result in €7.6 billion in costs that have not been reimbursed by revenues collected that will need to be charged to airspace users through adjustments to the unit rates, starting from 2023 (i.e. between €1.5 billion and €1.1 billion to be recovered per year on top of normal annual costs). This will result in a significant increase of en-route unit rates in 2022 as well as in future years when these adjustments will be applicable.

#### *Impact on connectivity*

Due to the prevalence of international travel restrictions as a result of the pandemic, domestic connectivity has been relatively better retained than cross-border connectivity. This fact however hides national disparities and that leisure markets generally suffered far less than business markets. Some previously commercially viable routes are now operated under PSO.

Intra-EU, around 20% of routes were lost but the frequencies reduced by two-thirds. Northern Europe and Eastern Europe Member States were much more impacted than tourism-driven destinations (such as Greece, Spain, Italy). Extra-EU connectivity was significantly affected with key European intercontinental hubs recording a third of routes cut. Overall, this was of the order of -23% in 2020 and -31% in 2021 compared with a two-thirds reduction in frequencies.

#### *Impact on passengers*

During the pandemic, the impact of airline insolvencies on the passengers concerned was in most cases limited as very few passengers were flying at the time of operation cessation and/or many airlines had already suspended operations many months prior to closing. The pricing policies for passengers have in general not changed other than full flexibility has been granted regarding rebooking. A large number of passengers also experienced delays with their airline ticket reimbursements.

The European trajectory to carbon pricing, under the current state of the proposals, coupled in particular with inflation, debt repayment or ATM costs will result in a significant increase of operating costs. Due to low profit margins in the sector (pre- and post-pandemic), it is expected that a significant pass-through to the passengers of additional costs will take place.

#### *Social impacts*

Air transport employment has been significantly affected by the pandemic, but there are some differences in terms of job losses and/or changes to working conditions across the different parts of the aviation sector as the impacts are not the same for all categories of staff.

Employment impacts varied based on the part of the industry concerned, the relationship between jobs and level of traffic, the type of employment contract (employed, self-employed, etc.), the national job protection framework as well as other national measures for employment protection (if any) and possible conditions attached to them.

There are some significant concerns across the entire industry (airlines, airports, groundhandling companies and their suppliers) about how services will be delivered when traffic returns to 2019 levels due to resourcing gaps, especially in labour-intensive and low-paid sectors such as groundhandling, security, airport retail and airline cabin crew. This is likely to translate into quality-of-service issues, especially at peak-times and will have a negative effect on the entire aviation value chain.

### *Outlook to 2030*

Airport and airlines in Europe will incur significant increases in costs (user charges, fuel and environmental costs) as they also start to pay back COVID-19 associated borrowing, which may in part be passed onto customers and part absorbed, depending on the strength of consumer demand to fly. This is compounded by passenger demand remaining below 2019 levels until at least 2024 and the impact this will have on both airline and airport revenues. On freight, the trend of the past decades of some full-service carriers to reduce their freighter fleet is expected to be reversed: the pandemic appears to have “triggered a change in the way the freighter business is perceived and offered by large airlines” (as it would be more challenging for smaller carriers to do so).

Airports will likely wish to increase aeronautical tariffs and also seek new streams of non-aeronautical revenues from both passengers and other ventures to try and close this gap in funding. Any increases in aeronautical charges will be charged to airlines and this will further increase their costs. EBITDA levels for European airports are expected to return to 2019 levels in 2029 (2026 without the impact of COVID-19 related financing expenditure) with the additional cost of financing to the airport sector estimated to reduce operating surplus by -€45.3 billion over the period 2022-2030.

Going forward, discussions with stakeholders indicate that the competition between small airports (or airports focussing on business passengers) to attract airlines is likely to increase as further airline consolidation is expected (and return of the business passengers may not happen to the same extent as before). Travel agents expect the trend in further consolidation seen before the pandemic to continue even further driven by new debts and weaker finances of airlines. As a result, they think that large airline groups will continue to push for direct distribution to the detriment of indirect distribution through neutral channels, and fear that this will reduce passenger and travel professionals’ transparency.

Airlines’ EBITDA levels are not expected to return to 2019 levels until 2029 with and without the impact of COVID-19 related financing expenditure, however the total additional cost of financing to the airline sector is estimated to have reduced EBITDA by -€43.4 billion over the period 2022-2030. Note that this does *not* factor in potential changes in revenues (due to changes in consumer habits) or costs due to increased charges levied by airports or increases in fuel and other costs.

On digitalisation, the expectation of the vast majority of stakeholders is that investments will continue due to their increasing importance. Areas considered will be data management, maintenance, flight operations and customer services, as digital technologies not only facilitate a rapid transformation towards a more sustainable future but lower operational costs (by increasing the efficiency of airline operations and improving passenger experience). The importance of these investments in order to reduce emissions and ensure compliance with environmental regulations and targets supporting European policy such as Fit for 55 was highlighted in consultation. Investments at airports will need to focus on electric ground equipment support, renewable energy generation and/or using renewable energy as well as provisions for future electric and hydrogen aircraft. On the airline side, investment in electric and hydrogen aircraft will represent a key lever to support the decarbonisation of the industry. European airlines' cumulated investment until 2030 is estimated to be in the range of €140 to €170 billion.

For other parts of the aviation eco-system, we expect businesses to continue increasing pressure on their suppliers to minimise costs. For passengers and cargo customers, we expect higher fares coupled with service-quality issues as soon as the traffic returns to 2019 levels (and at peak-times) due to resourcing gaps. In addition, a new trend in recruitment independent of the pandemic that has been perceived by many stakeholders is the fact that aviation may no longer be a sector that naturally attracts young people due to the conflict between environmental concerns of the young and aviation perceived as being one of the worst polluters.

## **Policy findings**

### *Air Services Regulation*

The introduction of the temporary framework on the operation of air services adopted in May 2020 as per Regulation (EU) 696/2020 was a beneficial experience particularly where it allowed airlines in temporary financial difficulty to keep their operating licence. The framework also allowed Member States to refuse, limit or impose conditions on traffic rights for reasons related to the COVID-19 pandemic, although it quickly became apparent that banning traffic rights was perhaps counterproductive.

Only a handful of Member States that normally operate PSOs reported using emergency legislation during the pandemic: Italy, Sweden and France. They highlighted some positives (that there was competition for each contract) or that the guidance was satisfactory but suggested that Article 16(12) was quite rigid during a crisis and may benefit from added flexibility to better reflect the operational reality faced by the airlines and authorities

### *Slots*

The emergency legislation that was put in place by the EU early in 2020 has resulted in waivers or part-waivers of slot usage rules which, in effect, have nearly “frozen” the slot landscape to where it was pre-pandemic. Despite the co-legislators' attempt to better balance the interests of providing certainty and slot protection on the one hand and facilitating entry and expansion of those air carriers able to operate air services on the other, in practice there was little change in slot holdings. Despite this apparent lack of change in slot holdings at constrained airports comparing 2019 to 2022, the industry has been very dynamic to react to constant changes in demand due to the possibility of using ad hoc slots, which however does not give the airlines that operated the slots any prospect of entering the market long term. The



pandemic has also provided real-life experience of the use of Justified Non-Utilization of Slots (JNUS) provisions.

On the core legislative text, the views of the stakeholders do not seem to have changed much compared to what they were before March 2019 when Steer undertook its Fact-Finding Study for DG MOVE. i.e. with the majority supporting that the need to revise the Slot Regulation remains as the rules are no longer fit for purpose.

### *Airport charges*

Views on airport charges legislation remain polarised across stakeholder groups in Europe and probably even more entrenched as a result of the acute financial situation of airports and airlines. There will not be an easy middle ground going forward in agreeing any changes to European legislation.

There is little sign of a significant change to the two problems reported in the SWD: the pandemic has not erased the issues that were present in the area of airport charges previously, it only temporarily removed them when there was less traffic. This does not mean that there have not been some noticeable changes at some individual airports or airlines, but in general terms, we see a limited evolution in market shares rather than a completely different situation now.

There is little doubt that the level of charges is set to increase across Europe, sometimes moderately, sometimes significantly, in the context of strong underlying inflation, still a pressing need for investments in capacity and digitalization as per pre-pandemic, as well as the new factor of the urgent need for greening investments. The factors that have emerged in the pandemic are important to consider as part of this review. They have (or will very soon have) a direct impact on the charges setting framework.

These factors make a possible intervention on airport charges as relevant as before especially considering the important issue of cost recovery. At the same time consideration for the new post-pandemic context needs to be properly ensured, meaning that draft policy intervention changes done pre-pandemic cannot be assumed to still stand “as is” today.

### *Groundhandling*

European emergency legislation (Regulation 2020/696) played a role during the pandemic and only one market exit was reported, although only a handful of licences were extended in Europe. The main reasons derive from a lack of flexibility in the text with a six-month direct award being insufficient and the fact that most licence renewals happened after the end of the period during which emergency legislation applied.

Pre-pandemic there was no appetite from Member States to change the competitive landscape of groundhandling. In terms of policy views going forward, it remains unclear how much the groundhandling industry is calling for the European Commission to address the Directive although it seems that they are less reserved on the topic than they were in 2019. This is where the lack of engagement of groundhandling companies in this study becomes limiting. Staff representatives on the other hand are as disappointed as ever that workers’ jobs and working conditions are most impacted by changes in the industry and are keen to remind European authorities of the need to improve social protection in the sector. For airlines and airports, no significant change in position was noted compared to 2019 on the need for future groundhandling legislation.



## Résumé

### Introduction

L'aviation a été l'un des secteurs les plus touchés par la pandémie de COVID-19, avec des niveaux d'activité réduits, des changements dans les processus opérationnels et des restrictions temporaires sur les déplacements qui ont eu un impact sur la disposition des passagers à utiliser le transport aérien. Tout en se remettant de ces effets et en devenant plus résiliente, l'aviation doit, dans le même temps, s'ajuster et s'adapter aux changements nécessaires pour atteindre l'objectif de neutralité climatique à l'horizon 2050 afin de contribuer à la décarbonation de l'économie de l'Union européenne (UE) tout en maintenant le niveau le plus élevé de sûreté et de sécurité ainsi que des normes sociales élevées.

Les objectifs de l'étude sont donc de :

- Identifier et évaluer les changements structurels dans l'écosystème de l'aviation de l'UE déclenchés, influencés ou accélérés par la crise du COVID-19 ; et
- Comprendre comment ces changements interagissent avec les principes et les objectifs de la Stratégie de mobilité durable et intelligente et le cadre juridique existant du marché intérieur de l'aviation.

### Méthodologie

La méthodologie de cette étude pour répondre aux spécifications des tâches est basée sur :

- Une consultation des parties prenantes en utilisant un certain nombre d'approches pour dialoguer avec les parties intéressées, collecter des informations sur leur situation spécifique et obtenir leur point de vue sur les impacts de COVID-19, par le biais de questionnaires et d'entretiens ;
- Une recherche documentaire pour identifier et collecter des informations actualisées sur les impacts et l'expérience de la législation (y compris la législation d'urgence), suivie d'une analyse de ce matériel pour en évaluer les effets ;
- Un atelier, offrant un forum de discussion sur les points émergents de l'étude ; et
- L'élaboration d'un ensemble de projections prospectives pour éclairer l'analyse jusqu'en 2030.

L'équipe chargée de l'étude a obtenu des contributions de la part d'un éventail de parties prenantes, notamment les principaux aéroports et compagnies aériennes européens, les groupes et associations de transporteurs aériens et d'aéroports, les sociétés d'assistance en escale, les représentants des travailleurs, les États membres, les autorités de surveillance indépendantes, les coordinateurs de créneaux, les représentants des fournisseurs de services de navigation aérienne, un constructeur et leur représentant, les représentants des passagers et du secteur des voyages. L'analyse quantitative a été réalisée à l'aide de sources reconnues par l'industrie telles qu'Eurostat, le Guide officiel des compagnies aériennes (OAG), le manuel des redevances IATA, Cirium et MIDT.

### Résultats

Cette étude a été commandée à l'automne 2021 et finalisée au printemps 2022. Certaines parties prenantes ont estimé qu'il était prématuré d'évaluer l'impact complet de la pandémie sur l'industrie aéronautique en Europe. En outre, au cours de la période d'étude, un certain nombre d'événements - en particulier la guerre en Ukraine - ont eu une incidence sur les perspectives de l'industrie aéronautique européenne, ce qui ajoute une incertitude

supplémentaire aux perspectives et au calendrier de reprise du secteur au cours de la période couverte par l'étude (jusqu'en 2030).

### *Le marché intérieur européen de l'aviation*

La crise sanitaire du COVID-19 a rappelé que les États membres, en particulier en période de détresse, sont disposés à prendre des décisions adaptées à leurs besoins d'abord, en tenant compte des intérêts européens ensuite. Ces approches nationales des restrictions de voyage et de la disponibilité (ou non) d'une aide financière à l'industrie et à son personnel a conduit à des résultats divergents et différents à travers l'Europe. Celles-ci ont eu de fortes répercussions sur le personnel, en particulier lorsqu'il est peu qualifié et/ou travaille dans des pays où les programmes de soutien à l'emploi sont inexistantes ou médiocres.

Surtout, alors que l'industrie, les autorités et le personnel se sont adaptés avec agilité à la crise et à ses épisodes changeants, ils ont tous été confrontés à des ensembles de règles et de circonstances assez uniques et localisés. Nous présentons les impacts de la crise dans ce rapport, dans la mesure où nous les connaissons, mais il ne faut pas oublier que toutes les organisations n'ont pas eu accès au même soutien gouvernemental et à des contextes juridiques différents.

Cette pandémie sanitaire a jeté une lumière crue sur le fait qu'il y a eu une différence de traitement majeure entre les flux « domestiques » et « intra-UE », ce qui est contraire à l'objectif de libre circulation des biens et des personnes au sein de l'Union européenne : en 2020 et 2021, il n'y a pas eu de marché unique de l'aviation, ce qui signifie qu'il n'y pas eu de marché intérieur européen sur lequel la reprise de l'industrie puisse s'appuyer, contrairement à la situation aux États-Unis ou en Chine.

### *Structure du marché*

L'industrie aéronautique en Europe a été confrontée à sa plus grande crise de demande jamais enregistrée en 2020 et 2021. On aurait pu s'attendre à un environnement post-pandémique radicalement différent, mais il n'y a eu qu'un nombre limité de faillites de compagnies aériennes et de changements dans la structure du marché européen du transport aérien. En raison des caractéristiques de la pandémie et en particulier des restrictions de voyage imposées par les États membres, la partie du secteur la plus touchée a été le trafic commercial international de passagers.

Les voyages extra-UE et les voyages à des fins professionnelles étant les plus touchés par les restrictions de voyage et/ou la disponibilité d'alternatives, comme prévu, il y a eu des gagnants et des perdants : Ryanair et Wizzair sortent de la crise dans une position relativement forte car ils étaient plus concentrés sur les marchés loisirs/VFR et avaient de meilleures finances avant la pandémie. Pour les aéroports, si les volumes de trafic passagers ont fortement diminué, le classement des 20 premiers aéroports européens n'a pas trop changé.

Seul un nombre limité de compagnies aériennes et d'aéroports européens ont fait faillite pendant la pandémie, généralement en raison de facteurs préexistants. Le nombre limité de faillites s'explique, dans une certaine mesure, par les montants importants de soutien public qui ont été distribués à l'industrie dans toute l'UE. Pour les compagnies aériennes, les dispositions du règlement 2020/696 entourant les licences d'exploitation ont également été utiles.

### *Aides publiques*

Des montants importants d'aides spécifiques aux entreprises ont été distribués dans toute l'Europe (45,5 milliards d'euros), mais avec d'énormes disparités entre les bénéficiaires de l'aide, les conditions qui y sont attachées (le cas échéant), le type d'aide, la nationalité du bénéficiaire, etc. Les compagnies aériennes ont reçu la grande majorité de ces aides (38,8 milliards d'euros). L'accès des aéroports aux aides a également considérablement varié d'un État membre à l'autre, mais là où elles étaient disponibles, elles ont été bien inférieures (6,7 milliards d'euros) à celle des compagnies aériennes, mais nettement supérieures à celle des sociétés d'assistance en escale (90 millions d'euros). De nombreuses parties prenantes s'attendaient à ce que l'aide « ruisselle », mais à part là où des conditions étaient attachées aux aides, il y a eu peu de rapports indiquant que l'aide fut partagée.

En ce qui concerne plus particulièrement les compagnies aériennes, les transporteurs à bas coût n'ont généralement pas reçu le même montant d'aide par rapport à leur taille que les compagnies aériennes de réseau : ils avaient une situation financière plus solide avant la pandémie, mais sans surprise peut-être, les intérêts nationaux ont été au premier plan de l'aide distribuée (bien que ce ne soit pas universellement vrai). La plupart des compagnies aériennes sortent de la crise en ayant survécu mais avec des dettes importantes à rembourser : en effet, les aides de l'État leur ont été majoritairement accordées sous forme de soutien remboursable.

#### *Compétitivité européenne*

Certains transporteurs non européens ont pu maintenir des niveaux de capacité importants, y compris sur les liaisons vers l'UE, ce qui souvent s'explique par de généreux régimes de soutien nationaux fournis par exemple par les États-Unis, la Turquie ou les pays du Golfe (cependant pas partout), ainsi que de grands marchés intérieurs sur lesquels s'appuyer.

#### *Finances des compagnies aériennes*

La crise a également entraîné une baisse significative des revenus des passagers en 2020 et 2021. Les compagnies aériennes ont cherché à consolider leurs bilans en augmentant leur trésorerie détenue. Les compagnies aériennes sont désormais plus fortement endettées qu'avant la crise en raison de leur endettement non courant à un rythme supérieur à l'augmentation des fonds propres.

Les compagnies aériennes ont réagi à la baisse de la demande de transport aérien en réduisant leur flotte en service, principalement en maintenant des avions au parking. Les transporteurs ont indiqué que les investissements dans la décarbonation et la numérisation devraient se poursuivre jusqu'en 2030, notamment par le renouvellement de leur flotte qui est une source de coûts d'exploitation inférieurs (meilleur rendement énergétique) et qui contribuera à atteindre les objectifs environnementaux.

La rentabilité des compagnies aériennes de passagers a considérablement chuté en 2020 et s'est légèrement redressée en 2021, bien qu'elles soient pour la plupart encore non rentables. Avec l'impact des remboursements de prêts, les impacts potentiels des augmentations des redevances aéroportuaires et du contrôle du trafic aérien et/ou des prix du carburant, il est peu probable que les compagnies aériennes retrouvent leurs niveaux de rentabilité d'avant la pandémie avant 2030.

#### *Finances des aéroports*

Les aéroports ont essayé de préserver autant que possible la demande et ont lancé des programmes de gel des redevances aéroportuaires et des incitations alors qu'ils se disputaient

le trafic. Ils ont néanmoins fait face à des revenus considérablement réduits et ont pris des mesures de réduction des coûts opérationnels et de préservation de la liquidité pour répondre à l'impact de la pandémie. Les aéroports ont également mis l'accent sur les dépenses d'investissement : dans ce domaine, les décisions des aéroports ont fortement dépendu de leur situation individuelle, certains étant capables d'accélérer les projets et tirer le meilleur parti de la réduction du trafic, tandis que la grande majorité a reporté les investissements (en capacité et en verdissement). Peu d'annulations ont été observées.

Les aéroports ont signalé des pertes importantes en 2020. En 2021, les résultats intermédiaires indiquent qu'ils ont quelque peu rebondi, mais la réponse a été mitigée parmi eux, certains des aéroports les plus importants redevenant rentables (bien que parfois au niveau du groupe uniquement). La dette des aéroports a augmenté de manière significative pendant la crise, mais aucune partie prenante ayant participé à la consultation n'a exprimé d'inquiétude quant à la soutenabilité de leur niveau d'endettement, en raison de leur capacité à maintenir de bonnes cotes de crédit. Cependant, ces prêts devront encore être remboursés au fil du temps.

#### *Impacts sur les sociétés d'assistance en escale*

Pratiquement aucune aide publique n'est parvenue aux entreprises tierces d'assistance en escale en 2020 et 2021 en Europe (en dehors des dispositifs d'aide à l'emploi). Lorsque les États membres ont fourni des régimes de protection sociale/de soutien à l'emploi, ceux-ci ont été largement utilisés parce que l'activité d'assistance en escale est à forte intensité de main-d'œuvre. Dans un secteur à forte intensité de main-d'œuvre avec des coûts de personnel représentant environ 60 % des coûts d'exploitation totaux, avec une protection sociale limitée, le personnel a été la variable d'ajustement immédiate avec jusqu'à 60 à 70 % de la main-d'œuvre mise à pied en moyenne.

Hormis une sortie notable du marché dans un grand aéroport européen, l'industrie est restée telle qu'elle était en ce qui concerne sa structure. Cependant, au-delà de l'absence d'impacts sur le marché, l'industrie européenne de l'assistance en escale est dans une situation financière pire qu'elle ne l'était avant la pandémie, avec un niveau d'endettement plus élevé et des préoccupations accrues en matière de recrutement et de rétention du personnel.

#### *Impacts sur les fournisseurs de services de navigation aérienne*

La chute spectaculaire de la demande de trafic à la suite de la crise de la COVID-19 a eu un impact majeur sur les unités de service requises pour les vols dans le ciel unique européen. Là où le trafic chute, les revenus des fournisseurs de services de navigation aérienne (ANSP) chutent selon un schéma similaire. Là où les ANPS ont réalisé des économies, elles ont principalement été concentrées sur les frais de personnel, la réduction de la maintenance et le report des dépenses en capital.

La baisse significative du trafic aérien associée à la capacité limitée des ANSP à réduire leurs dépenses a obligé les ANSP à gérer l'écart de revenus de différentes manières en utilisant soit leurs propres ressources, soit des prêts, soit l'apport de fonds propres par leurs propriétaires (qui sont généralement les États membres).

Les pertes de trafic pandémiques en 2020 et 2021 entraîneront 7,6 milliards d'euros de coûts non remboursés par les revenus perçus qui devront être imputés aux usagers de l'espace aérien via des ajustements des tarifs unitaires, à partir de 2023 (soit entre 1,5 milliard d'euros et 1,1 milliard à récupérer par an en plus des coûts annuels normaux). Cela entraînera une

augmentation significative des taux unitaires en route en 2022 ainsi que dans les années à venir lorsque ces ajustements seront applicables.

#### *Impacts sur la connectivité*

En raison de la prévalence des restrictions sur les voyages internationaux à la suite de la pandémie, la connectivité nationale a été relativement mieux conservée que la connectivité transfrontalière. Ce fait cache cependant des disparités nationales et le fait que les marchés des loisirs ont généralement beaucoup moins souffert que les marchés des affaires. Certaines routes auparavant commercialement viables sont désormais exploitées sous OSP.

A l'intérieur de l'UE, environ 20 % des liaisons ont été perdues mais les fréquences ont été réduites des deux tiers. Les États membres d'Europe du Nord et d'Europe de l'Est ont été beaucoup plus touchés que les destinations axées sur le tourisme (telles que la Grèce, l'Espagne, l'Italie). La connectivité extra-UE a été considérablement affectée, les principaux hubs intercontinentaux européens enregistrant un tiers de liaisons suspendues. Globalement, celle-ci a été de l'ordre de -23% en 2020 et -31% en 2021 par rapport à une baisse des fréquences des deux tiers.

#### *Impacts sur les passagers*

Pendant la pandémie, l'impact de l'insolvabilité des compagnies aériennes sur les passagers concernés a été dans la plupart des cas limité car très peu de passagers volaient au moment de la cessation des opérations et/ou de nombreuses compagnies aériennes avaient déjà suspendu leurs opérations plusieurs mois avant la fermeture. Les politiques de tarification pour les passagers n'ont en général pas changé si ce n'est qu'une flexibilité totale a été accordée en matière de changement de réservation. Un grand nombre de passagers ont également connu des retards dans le remboursement de leurs billets d'avion.

La trajectoire européenne de tarification du carbone dans l'état actuel des propositions, couplée notamment à l'inflation, au remboursement de la dette ou au coût de gestion du trafic aérien, se traduira par une augmentation significative des coûts d'exploitation. En raison des faibles marges bénéficiaires du secteur (avant et après la pandémie), on s'attend à ce qu'une répercussion importante sur les passagers des coûts supplémentaires sur les passagers ait lieu.

#### *Impacts sociaux*

L'emploi dans le transport aérien a été considérablement affecté par la pandémie, mais il existe certaines différences en termes de pertes d'emplois et/ou de modifications des conditions de travail dans les différentes parties du secteur de l'aviation, car les impacts ne sont pas les mêmes pour toutes les catégories de personnel. Les impacts sur l'emploi varient en fonction du secteur concerné, de la relation entre emplois et niveau de trafic, du type de contrat de travail (salarié, indépendant, etc.), du cadre national de protection de l'emploi ainsi que d'autres mesures nationales en faveur de la protection de l'emploi (le cas échéant) et les éventuelles conditions qui y sont attachées.

L'ensemble du secteur (compagnies aériennes, aéroports, sociétés d'assistance en escale et leurs fournisseurs) s'inquiète de la manière dont les services seront fournis lorsque le trafic reviendra aux niveaux de 2019 en raison du manque de ressources, en particulier dans les secteurs à forte intensité de main-d'œuvre et à faible rémunération tels que l'assistance en escale, la sécurité, la vente au détail dans les aéroports et le personnel de cabine des compagnies aériennes. Cela se traduira probablement par des problèmes de qualité de



service, en particulier aux heures de pointe, et aura un effet négatif sur l'ensemble de la chaîne de valeur de l'aviation.

### *Perspectives à 2030*

Les aéroports et les compagnies aériennes en Europe subiront des augmentations significatives des coûts (redevances d'usage, coûts du carburant et environnementaux) alors qu'ils commencent également à rembourser les emprunts associés à la COVID-19, qui peuvent en partie être répercutés sur les clients et en partie absorbés en fonction de la force de la demande en transport aérien. Cette situation est aggravée par le fait que la demande de passagers restera inférieure aux niveaux de 2019 jusqu'en 2024 au moins et l'impact que cela aura sur les revenus des compagnies aériennes et des aéroports. Sur le fret, la tendance des dernières décennies de certains transporteurs à service complet de réduire leur flotte de fret devrait s'inverser : la pandémie semble avoir « déclenché un changement dans la façon dont l'activité de fret est perçue et proposée par les grandes compagnies aériennes » (car il serait plus difficile pour les petits transporteurs de le faire).

Les aéroports souhaiteront probablement augmenter leurs tarifs aéronautiques et rechercheront de nouvelles sources de revenus non aéronautiques auprès des passagers et d'autres entreprises pour tenter de combler ce déficit de financement. Toute augmentation des redevances aéronautiques sera facturée aux compagnies aériennes, ce qui augmentera encore leurs coûts. Les niveaux d'EBITDA des aéroports européens devraient revenir aux niveaux de 2019 en 2029 (2026 sans l'impact des dépenses de financement liées à la COVID-19), le coût supplémentaire de financement du secteur aéroportuaire étant estimé réduire l'excédent d'exploitation de -45,3 milliards d'euros sur la période 2022-2030.

À l'avenir, les discussions avec les parties prenantes indiquent que la concurrence entre les petits aéroports (ou les aéroports axés sur les passagers d'affaires) pour attirer les compagnies aériennes est susceptible d'augmenter avec la consolidation des compagnies aériennes attendue (et le fait que le retour des passagers d'affaires pourrait ne pas se produire dans la même mesure qu'auparavant). Les agents de voyages s'attendent à ce que la tendance à la poursuite de la consolidation observée avant la pandémie se poursuive encore davantage, entraînée par de nouvelles dettes et des finances plus faibles des compagnies aériennes. En conséquence, ils pensent que les grands groupes aériens continueront à pousser à la distribution directe au détriment de la distribution indirecte via des canaux neutres, et craignent que cela ne réduise la transparence pour les passagers et les professionnels du voyage.

Les niveaux d'EBITDA des compagnies aériennes ne devraient pas revenir aux niveaux de 2019 avant 2029 avec et sans l'impact des dépenses de financement liées au COVID-19, mais on estime que le coût supplémentaire total de financement du secteur aérien a réduit l'EBITDA de -43,4 milliards d'euros sur la période 2022-2030. Notez que cela ne tient pas compte des changements potentiels dans les revenus (dus à des changements dans les habitudes de consommation) ou des coûts dus à l'augmentation des redevances perçues par les aéroports ou à l'augmentation des coûts du carburant et autres.

En ce qui concerne la digitalisation, la grande majorité des parties prenantes s'attend à ce que les investissements se poursuivent en raison de leur importance croissante. Les domaines envisagés seront la gestion des données, la maintenance, les opérations aériennes et les services à la clientèle, car les technologies numériques facilitent non seulement une transformation rapide vers un avenir plus durable, mais réduisent également les coûts



opérationnels (en augmentant l'efficacité des opérations des compagnies aériennes et en améliorant l'expérience des passagers). L'importance de ces investissements pour réduire les émissions et assurer le respect des réglementations environnementales et des objectifs soutenant la politique européenne tels que Fit for 55 a été soulignée lors de la consultation. Les investissements dans les aéroports devront se concentrer sur le soutien des équipements électriques au sol, la production d'énergie renouvelable et/ou l'utilisation d'énergie renouvelable ainsi que des dispositions pour les futurs avions électriques et à hydrogène. Du côté des compagnies aériennes, les investissements dans les avions électriques et à hydrogène représenteront un levier clé pour accompagner la décarbonation du secteur. Les investissements cumulés des compagnies aériennes européennes jusqu'en 2030 sont estimés entre 140 et 170 milliards d'euros.

Pour d'autres parties de l'écosystème de l'aviation, nous nous attendons à ce que les entreprises continuent d'augmenter la pression sur leurs fournisseurs pour minimiser les coûts. Pour les passagers et les clients de fret, nous nous attendons à des tarifs plus élevés associés à des problèmes de qualité de service dès que le trafic reviendra aux niveaux de 2019 (et aux heures de pointe) en raison de lacunes en matière de main d'œuvre. De plus, une nouvelle tendance indépendante de la pandémie dans le domaine du recrutement qui a été perçue par de nombreux acteurs est que l'aviation n'est peut-être plus un secteur qui attire naturellement les jeunes en raison du conflit entre leurs préoccupations environnementales et la perception que l'aviation est l'un des pires pollueurs.

## **Conclusions politiques**

### *Règlement sur les services aériens*

L'introduction du cadre temporaire sur l'exploitation des services aériens adopté en mai 2020 conformément au règlement (UE) 696/2020 a été une expérience bénéfique, en particulier lorsqu'il a permis aux compagnies aériennes en difficulté financière temporaire de conserver leur licence d'exploitation. Ce cadre a également permis aux États membres de refuser, de limiter ou d'imposer des conditions aux droits de trafic pour des raisons liées à la pandémie de COVID-19, bien qu'il soit rapidement apparu que l'interdiction des droits de trafic était peut-être contre-productive.

Seule une poignée d'États membres qui gèrent normalement des OSP ont déclaré avoir utilisé une législation d'urgence pendant la pandémie : l'Italie, la Suède et la France. Ils ont souligné certains points positifs (qu'il y avait de la concurrence pour chaque contrat) ou que les orientations étaient satisfaisantes, mais ont suggéré que l'article 16, paragraphe 12, était plutôt assez rigide pendant une crise et pourrait bénéficier de flexibilité supplémentaire pour mieux refléter les réalités opérationnelles auxquelles sont confrontées les compagnies aériennes et les autorités.

### *Créneaux aéroportuaires*

La législation d'urgence qui a été mise en place par l'UE au début de 2020 a entraîné des dérogations ou des dérogations partielles aux règles d'utilisation des créneaux horaires qui, en fait, ont presque "gelé" le paysage des créneaux là où il en était avant la pandémie. Malgré la tentative des colégislateurs de mieux équilibrer les intérêts consistant d'une part à assurer la sécurité et la protection des créneaux et d'autre part à faciliter l'entrée et l'expansion de transporteurs aériens capables d'exploiter des services aériens, dans la pratique, il y a eu peu de changement dans les créneaux détenus. Malgré cette absence apparente de changement dans les créneaux détenus dans les aéroports contraints entre 2019 et 2022, l'industrie a été

très dynamique pour réagir aux changements constants de demande en raison de la possibilité d'utiliser des créneaux ad hoc (qui n'ont cependant pas donné aux compagnies aériennes les exploitant la possibilité d'entrer sur le marché à long terme). La pandémie a également offert une expérience concrète de l'utilisation des dispositions de non-utilisation justifiée des créneaux horaires (JNUS).

Sur le texte législatif de base, les points de vue des parties prenantes ne semblent pas avoir beaucoup changé par rapport à ce qu'ils étaient avant mars 2019, lorsque Steer a entrepris son étude factuelle pour la DG MOVE, c'est-à-dire que la nécessité de réviser le règlement sur les créneaux demeure pour la majorité, car les règles ne sont plus adaptées à leur objectif.

### *Redevances aéroportuaires*

Les opinions sur la législation sur les redevances aéroportuaires restent polarisées entre les groupes de parties prenantes en Europe et probablement encore plus enracinées en raison de la situation financière critique des aéroports et des compagnies aériennes. Il n'y aura pas de terrain d'entente facile pour convenir de modifications à la législation européenne.

Il y a peu de signes d'un changement significatif des deux problèmes signalés dans le SWD ait eu lieu : la pandémie n'a pas effacé les problèmes qui étaient présents dans le domaine des redevances aéroportuaires auparavant, elle ne les a supprimés que temporairement lorsqu'il y avait moins de trafic. Cela ne signifie pas qu'il n'y a pas eu de changements notables dans certains aéroports ou compagnies aériennes, mais de manière générale, nous constatons une évolution limitée des parts de marché plutôt qu'une situation complètement différente aujourd'hui.

Il ne fait guère de doute que le niveau des charges est amené à augmenter à l'échelle de l'Europe, parfois modérément, parfois significativement, dans un contexte de forte inflation sous-jacente, de besoins toujours pressant d'investissements capacitaires et en digitalisation comme avant la pandémie, ainsi que du besoin urgent d'investissements verts. Les facteurs qui sont apparus pendant la pandémie sont importants à prendre en compte dans le cadre de cet examen. Ils ont (ou auront très prochainement) un impact direct sur le cadre de la tarification.

Ces facteurs rendent une intervention possible sur les redevances aéroportuaires aussi pertinente qu'auparavant, en particulier compte tenu de la question importante du recouvrement des coûts. Dans le même temps, la prise en compte du nouveau contexte post-pandémique doit être correctement assurée, ce qui signifie que les projets de changements d'intervention politique effectués avant la pandémie ne peuvent pas être supposés rester « tels quels » aujourd'hui.

### *Assistance en escale*

La législation européenne d'urgence (Règlement 2020/696) a joué un rôle pendant la pandémie et une seule sortie du marché a été signalée, bien qu'une poignée de licences aient été prolongées en Europe. Les principales raisons découlent d'un manque de souplesse dans le texte, d'une attribution directe de six mois jugée insuffisante et du fait que la plupart des renouvellements de licence ont eu lieu après la fin de la période d'application de la législation d'urgence.

Avant la pandémie, les États membres n'étaient pas disposés à modifier le paysage concurrentiel de l'assistance en escale. En termes d'opinions politiques à l'avenir, on ne sait toujours pas dans quelle mesure le secteur de l'assistance en escale demandera à la Commission européenne de se pencher sur la directive, bien qu'il semble qu'elle soit moins

réservée sur le sujet qu'elle ne l'était en 2019. C'est là que le manque d'engagement des sociétés d'assistance en escale dans cette étude devient limitant. En revanche, les représentants du personnel sont toujours aussi déçus que les emplois et les conditions de travail des travailleurs aient été les plus touchés par les changements auquel le secteur a été confronté et tiennent à rappeler aux autorités européennes la nécessité d'améliorer la protection sociale dans le secteur. Pour les compagnies aériennes et les aéroports, aucun changement de position significatif n'a été constaté par rapport à 2019 sur la nécessité d'une législation future sur l'assistance en escale.

## Kurzfassung

### Einführung

Die Luftfahrt war einer der Industriezweige, die am stärksten von der COVID-19-Pandemie betroffen waren, da ein verringertes Aktivitätsniveau, Änderungen in den Betriebsabläufen und vorübergehende Reisebeschränkungen die Bereitschaft der Passagiere, Flugreisen zu nutzen, beeinträchtigten. Während sich die Luftfahrt von diesen Auswirkungen erholt und widerstandsfähiger wird, muss sie sich gleichzeitig an die notwendigen Veränderungen einstellen und anpassen, um das Ziel der Klimaneutralität bis 2050 zu erreichen, und zur Dekarbonisierung der Wirtschaft der Europäischen Union (EU) beizutragen und gleichzeitig das höchste Sicherheitsniveau und hohe Sozialstandards zu behalten.

Die Ziele der Studie sind daher:

- Identifizierung und Bewertung struktureller Veränderungen im Ökosystem der EU-Luftfahrt, die durch die COVID-19-Krise ausgelöst, beeinflusst oder beschleunigt wurden; und
- Verstehen, wie diese Änderungen mit den Grundsätzen und Zielen der Strategie für nachhaltige und intelligente Mobilität und dem bestehenden Rechtsrahmen für den Luftverkehrsbinnenmarkt interagieren.

### Methodologie

Die Methodologie dieser Studie zur Erfüllung der Aufgabenstellung basierte auf folgenden Elementen:

- Konsultation der Interessengruppen unter Verwendung einer Reihe von Ansätzen, um mit interessierten Parteien in Kontakt zu treten, Informationen über ihre spezifische Situation zu sammeln und ihre Ansichten über den Auswirkungen von COVID-19 durch Fragebögen und Interviews zu erfahren;
- Desktop-Recherche zur Ermittlung und Sammlung aktueller Informationen über die Auswirkungen und Erfahrungen mit der Gesetzgebung (einschließlich Notstandsgesetze), gefolgt von einer Analyse dieses Materials zur Bewertung der Auswirkungen;
- Ein Workshop, der ein Forum für die Diskussion neuer Erkenntnisse bietet; und
- Entwicklung einer Reihe von Vorausschätzungen für die Analyse bis 2030.

Das Studienteam konnte Beiträge von einer Reihe von Interessengruppen einholen, darunter große europäische Flughäfen und Fluggesellschaften, Fluggesellschaften und Flughafengruppen und -verbände, Bodenabfertigungsunternehmen, Arbeitnehmervertreter, Mitgliedstaaten, unabhängige Aufsichtsbehörden, Zeitnischenkoordinatoren, Vertreter von Flugsicherungsanbietern, Flugzeugherstellervertreter, Passagier- und Reisevertreter. Quantitative Analysen wurden unter Verwendung branchenweit anerkannter Quellen wie Eurostat, Official Airline Guide (OAG), IATA-Gebührenhandbuch, Cirium und MIDT durchgeführt.

### Studienergebnisse

Diese Studie wurde im Herbst 2021 in Auftrag gegeben und im Sommer 2022 abgeschlossen. Einige Interessengruppen hielten es für verfrüht, die vollständigen Auswirkungen der Pandemie auf die Luftfahrtindustrie in Europa zu bewerten. Darüber hinaus haben während des Untersuchungszeitraums eine Reihe von Ereignissen – insbesondere der Krieg in der Ukraine – die Aussichten für die europäische Luftverkehrsbranche beeinträchtigt, was die

Aussichten und den Zeitplan für die Erholung des Sektors in dem von der Studie abgedeckten Zeitraum bis 2030 noch unsicherer macht.

### *Der europäische Luftverkehrsbinnenmarkt*

Die COVID-19-Gesundheitskrise hat uns daran erinnert, dass die Mitgliedstaaten, insbesondere in Notzeiten, darauf ausgerichtet sind, Entscheidungen zu treffen, die in erster Linie ihren Bedürfnissen entsprechen und erst in zweiter Linie den europäischen Interessen zu berücksichtigen. Diese nationale Herangehensweise an Reisebeschränkungen und die Verfügbarkeit (oder Nichtverfügbarkeit) von finanzieller Unterstützung für die Branche und ihre Mitarbeiter hat divergierenden und unterschiedlichen Ergebnissen in Europa geführt. Dies hat zu starken Auswirkungen auf das Personal geführt, insbesondere wenn es sich um Geringqualifizierte handelt und/oder in Ländern arbeiten, in denen es keine oder nur unzureichende Beschäftigungsförderungsprogrammen gibt.

Entscheidend ist, dass sich Industrie, Behörden und Mitarbeiter zwar flexibel an die Krise und ihre sich ändernden Episoden angepasst haben, aber alle mit ganz eigenen und lokal unterschiedlichen Regeln und Umständen konfrontiert waren. Wir stellen in diesem Bericht die Auswirkungen der Krise dar, soweit sie uns bekannt sind, aber wir dürfen nicht übersehen, dass nicht alle Organisationen Zugang zu derselben staatlichen Unterstützung hatten und dass sie in unterschiedlichen rechtlichen Kontexten tätig waren.

Diese Gesundheitspandemie hat ein grelles Licht auf die Tatsache geworfen, dass es einen großen Unterschied in der Behandlung zwischen „inländischen“ und „EU-internen“ Strömen gab, was dem Ziel des freien Waren- und Personenverkehrs innerhalb der Europäischen Union zuwiderläuft: 2020 und 2021 gab es keinen einheitlichen Luftverkehrsmarkt, was bedeutete, dass es keinen europäischen Binnenmarkt gab, auf den sich die Erholung der Industrie stützen konnte, im Gegensatz zur Situation in den USA oder China,.

### *Marktstruktur*

Die europäische Luftfahrtindustrie stand 2020 und 2021 vor ihrer bisher größten Nachfragekrise. Nach der Pandemie hätte ein radikal anderes Umfeld erwartet werden können, aber es gab nur eine begrenzte Anzahl von Insolvenzen von Fluggesellschaften und Veränderungen in der Struktur des europäischen Luftverkehrsmarktes. Aufgrund der Merkmale der Pandemie und insbesondere der Reisebeschränkungen der Mitgliedstaaten war der internationale gewerbliche Personenverkehr am stärksten betroffen.

Da Reisen außerhalb der EU und Geschäftsreisen am stärksten von den Reisebeschränkungen und/oder der Verfügbarkeit von Alternativen betroffen sind, gab es erwartungsgemäß einige Gewinner und Verlierer: Ryanair und Wizzair gehen aus der Krise in einer relativ starken Position hervor, da sie sich stärker auf die Freizeit-/VFR-Märkte konzentrierten und vor der Pandemie finanziell besser standen. Bei den Flughäfen ist das Passagieraufkommen zwar stark zurückgegangen, doch hat sich das Ranking der 20 größten europäischen Flughäfen nicht allzu sehr verändert.

Nur eine begrenzte Anzahl europäischer Fluggesellschaften und Flughäfen ging während der Pandemie in Konkurs, in der Regel aufgrund bereits bestehender Faktoren. Die geringe Zahl der Konkurse erklärt sich bis zu einem gewissen Grad durch die umfangreiche öffentliche Unterstützung, die EU-weit an die Industrie verteilt wurden. Für Fluggesellschaften halfen auch die Bestimmungen der Verordnung 2020/696 zu Betriebsgenehmigungen.

### *Öffentliche Hilfen*

In ganz Europa wurden erhebliche Beträge an unternehmensspezifischer Unterstützung verteilt (45,5 Mrd. EUR), jedoch mit enormen Unterschieden zwischen den Empfängern der Beihilfe, den damit verbundenen Bedingungen (falls vorhanden), der Art der Beihilfe, der Nationalität der Empfänger usw. Der weitaus grösste Teil dieser Beihilfen (38,8 Mrd. EUR) ging an die Fluggesellschaften. Auch die Flughäfen erhielten in den einzelnen Mitgliedstaaten in sehr unterschiedlichem Umfang Beihilfen, die jedoch, sofern sie verfügbar waren, deutlich niedriger waren (6,7 Mrd. EUR) als die Beihilfen für Fluggesellschaften, aber deutlich höher als die Beihilfen für Bodenabfertigungsunternehmen (90 Mio. EUR). Viele Beteiligte erwarteten, dass die Hilfe „durchsickert“, aber abgesehen von den Fällen, in denen die Hilfe an Bedingungen geknüpft war, gab es nur wenige Berichte über eine Weitergabe der Hilfe.

Insbesondere bei den Fluggesellschaften erhielten Billigfluglinien im Verhältnis zu ihrer Größe in der Regel nicht den gleichen Betrag an Beihilfen wie die Netzwerkfluggesellschaften: Sie hatten vor der Pandemie eine robustere Finanzlage, aber es überrascht vielleicht nicht, dass nationale Interessen bei der gewährten Unterstützung im Vordergrund standen (obwohl nicht allgemeingültig). Die meisten Fluggesellschaften haben die Krise zwar überstanden, mussten aber erhebliche Schulden zurückzahlen: Tatsächlich wurden ihnen staatliche Beihilfen meist in Form von erstattungsfähigen Unterstützungen gewährt.

#### *Europäische Wettbewerbsfähigkeit*

Einige Fluggesellschaften aus Nicht-EU-Ländern waren in der Lage, ein beträchtliches Kapazitätsniveau aufrechtzuerhalten, auch auf Strecken in die EU, was häufig durch großzügige nationale Unterstützungsprogramme, z. B. USA, Türkei und Golfstaaten (wenn auch nicht überall), sowie große Inlandsmärkte, auf die man sich verlassen kann.

#### *Finanzen der Fluggesellschaft*

Die Krise hat auch zu einem erheblichen Rückgang der Passagiereinnahmen in den Jahren 2020 und 2021 geführt. Die Fluggesellschaften versuchten, ihre Bilanzen durch die Erhöhung ihrer liquiden Mittel zu stützen. Die Fluggesellschaften sind jetzt stärker verschuldet als vor der Krise, da sie mehr langfristige Schulden aufgenommen haben, als sie Eigenkapital aufgebaut haben.

Die Fluggesellschaften reagierten auf die geringere Flugreisenachfrage, indem sie ihre eingesetzte Flotte reduzierten, hauptsächlich durch das Abstellen von Flugzeugen. Sie wiesen darauf hin, dass die Investitionen in die Ökologisierung und Digitalisierung voraussichtlich bis 2030 fortgesetzt werden sollen, insbesondere die Flottenerneuerung, die zu niedrigeren Betriebskosten (bessere Kraftstoffeffizienz) führt und dazu beitragen wird, die Umweltziele zu erreichen.

Die Rentabilität der Passagierfluggesellschaften ist im Jahr 2020 deutlich gesunken und hat sich im Jahr 2021 leicht erholt, obwohl sie überwiegend immer noch unrentabel sind. Angesichts der Auswirkungen von Kreditrückzahlungen und möglicher Erhöhungen der Flughafengebühren, Flugverkehrsverwaltungsgebühren und/oder der Treibstoffpreise ist es unwahrscheinlich, dass die Fluggesellschaften vor 2030 das Rentabilitätsniveau von vor der Pandemie erreichen.

#### *Finanzen der Flughäfen*

Die Flughäfen versuchten, die Nachfrage so weit wie möglich aufrechtzuerhalten, und starteten Programme zum Einfrieren von Flughafengebühren und zur Schaffung von Anreizen

im Wettbewerb um den Verkehr. Dennoch sahen sie sich mit erheblich geringeren Einnahmen konfrontiert und ergriffen Maßnahmen zur Senkung der Betriebskosten und zur Erhaltung der Liquidität, um auf die Auswirkungen der Pandemie zu reagieren. Flughäfen konzentrierten sich auch auf Investitionsausgaben: In diesem Bereich Flughafenentscheidungen sehr stark von ihren individuellen Umständen abhingen, wobei einige in der Lage waren, Projekte zu beschleunigen und das Beste aus dem reduzierten Verkehrsaufkommen zu machen, während die überwiegende Mehrheit Investitionen (in die Kapazität und die Ökologisierung) aufschob. Es wurden nur wenige Stornierungen beobachtet.

Die Flughäfen meldeten im Jahr 2020 erhebliche Verluste. Bis 2021 deuten die Zwischenergebnisse darauf hin, dass sie sich etwas erholt haben, aber die Reaktion war unterschiedlich, wobei einige der größten Flughäfen wieder in die Gewinnzone zurückkehrten (wenn auch manchmal nur auf Gruppenebene). Die Flughafenverschuldung ist während der Krise erheblich gestiegen, aber keiner der an der Konsultation beteiligten Interessengruppen äußerte Bedenken hinsichtlich der Tragfähigkeit ihrer Verschuldung, da sie in der Lage sind, starke Kreditratings aufrechtzuerhalten. Dennoch müssen diese Darlehen im Laufe der Zeit zurückgezahlt werden.

#### *Auswirkungen auf Bodenabfertigungsunternehmen*

In den Jahren 2020 und 2021 haben in Europa kaum öffentliche Hilfen (abgesehen von Arbeitsförderungsprogrammen) Drittbodenabfertigungsunternehmen erreicht. Wo die Mitgliedstaaten Sozialschutz-/Arbeitsförderungsprogramme bereitgestellt haben, wurden diese stark in Anspruch genommen, da die Bodenabfertigungstätigkeit sehr arbeitsintensiv ist. Mit Personalkosten, die etwa 60 % der gesamten Betriebskosten ausmachen, war das Personal bei begrenztem Sozialschutz die unmittelbare Anpassungsvariable, da durchschnittlich bis zu 60-70 % der Belegschaft beurlaubt wurden.

Abgesehen von einem bemerkenswerten Marktaustritt eines großen europäischen Flughafens ist die Branche in Bezug auf ihre Struktur unverändert geblieben. Abgesehen von den fehlenden Marktauswirkungen befindet sich die europäische Bodenabfertigungsbranche jedoch in einer schlechteren finanziellen Lage als vor der Pandemie, was sich in einer höheren Verschuldung und verstärkten Sorgen um die Einstellung und Bindung von Personal niederschlägt.

#### *Auswirkungen auf Flugsicherungsdienstleister (ANSP)*

Der dramatische Rückgang der Verkehrsnachfrage infolge der COVID-19-Krise hatte erhebliche Auswirkungen auf die für Flüge im Single European Sky erforderlichen Serviceeinheiten. Wo der Verkehr zurückgeht, fallen die Einnahmen der ANSPs nach einem ähnlichen Muster. Wo ANSP Kosteneinsparungen erzielten, konzentrierten sie sich hauptsächlich auf Personalkosten, Reduzierung der Wartung und die Verschiebung von Investitionsausgaben.

Der deutliche Rückgang des Flugverkehrs in Verbindung mit der begrenzten Fähigkeit der Flugsicherungsdienste, ihre Ausgaben zu reduzieren, erforderte von den Flugsicherungsdiensten, die Einnahmelücke auf unterschiedliche Weise zu bewältigen, indem sie entweder ihre eigenen Mittel, Darlehen oder Kapitaleinlagen ihrer Eigentümer (in der Regel die Mitgliedstaaten) einsetzten.

Die pandemiebedingte Verkehrsverluste in den Jahren 2020 und 2021 werden zu Kosten in Höhe von 7,6 Mrd. EUR führen, die nicht durch Einnahmen erstattet wurden und ab 2023 den Luftraumnutzern durch Anpassungen der Gebührensätze in Rechnung gestellt werden müssen



(d. h. zwischen 1,5 und 1,1 Mrd. EUR pro Jahr, die zusätzlich zu den normalen jährlichen Kosten erstattet werden müssen). Dies wird im Jahr 2022 sowie in künftigen Jahren, in denen diese Anpassungen gelten, zu einem deutlichen Anstieg der Streckengebührensätze führen.

#### *Auswirkungen auf die Konnektivität*

Aufgrund der Verbreitung internationaler Reisebeschränkungen infolge der Pandemie wurde die Inlandskonnektivität relativ besser aufrechterhalten als die grenzüberschreitende Konnektivität. Diese Tatsache verbirgt jedoch nationale Unterschiede und dass die Freizeitmärkte im Allgemeinen weit weniger gelitten haben als die Geschäftsmärkte. Einige früher wirtschaftlich rentable Strecken werden jetzt unter gemeinwirtschaftliche Verpflichtungen (PSO) betrieben.

Innerhalb der EU gingen etwa 20 % der Strecken verloren, aber die Frequenzen wurden um zwei Drittel reduziert. Nord- und osteuropäische Mitgliedstaaten waren wesentlich stärker betroffen als tourismusorientierte Reiseziele (wie Griechenland, Spanien, Italien). Die Extra-EU-Konnektivität wurde erheblich beeinträchtigt, da wichtige europäische Interkontinental-Hubs ein Drittel der Strecken abschnitten. Insgesamt lag der Rückgang in der Größenordnung von -23 % im Jahr 2020 und -31 % im Jahr 2021, verglichen mit einer Reduzierung der Flugfrequenzen um zwei Drittel.

#### *Auswirkungen auf die Passagiere*

Während der Pandemie waren die Auswirkungen von Insolvenzen von Fluggesellschaften auf die betroffenen Passagiere meist begrenzt, da zum Zeitpunkt der Betriebseinstellung nur sehr wenige Passagiere flogen und / oder viele Fluggesellschaften den Betrieb bereits viele Monate vor der Schließung eingestellt hatten. Die Preispolitik für die Fluggäste hat sich im Allgemeinen nicht geändert, abgesehen davon, dass volle Flexibilität bei Umbuchungen gewährt wurde. Bei einer großen Anzahl von Passagieren kam es auch zu Verzögerungen bei der Erstattung ihrer Flugtickets.

Der europäische Weg zur CO<sub>2</sub>-Bepreisung wird nach dem derzeitigen Stand der Vorschläge, insbesondere in Verbindung mit der Inflation, der Schuldentilgung oder ATM-Kosten, zu einem erheblichen Anstieg der Betriebskosten führen. Aufgrund der niedrigen Gewinnspannen im Sektor (vor und nach der Pandemie) ist zu erwarten, dass eine erhebliche Weitergabe zusätzlicher Kosten an die Passagiere erfolgen wird.

#### *Soziale Auswirkungen*

Die Beschäftigung im Luftverkehr wurde von der Pandemie erheblich beeinträchtigt, es gibt jedoch einige Unterschiede in Bezug auf Arbeitsplatzverluste und/oder Änderungen der Arbeitsbedingungen in den verschiedenen Teilen des Luftverkehrssektors, da die Auswirkungen nicht für alle Personalkategorien gleich sind. Die Auswirkungen auf die Beschäftigung variierten je nach Teil der betroffenen Branche, dem Verhältnis zwischen Arbeitsplätzen und Verkehrsaufkommen, der Art des Arbeitsvertrags (angestellt, selbstständig usw.), dem nationalen Beschäftigungsschutzrahmen sowie anderen nationalen Beschäftigungsmaßnahmen Schutz (falls vorhanden) und mögliche damit verbundene Bedingungen.

In der gesamten Branche (Fluggesellschaften, Flughäfen, Bodenabfertigungsunternehmen und ihre Zulieferer) gibt es erhebliche Bedenken, wie die Dienstleistungen erbracht werden können, wenn der Verkehr wieder das Niveau von 2019 erreicht, da vor allem in arbeitsintensiven und schlecht bezahlten Bereichen wie Bodenabfertigung, Sicherheit,



Flughafeneinzelhandel und Flugbegleiter der Fluggesellschaften Ressourcen fehlen. Dies wird wahrscheinlich zu Problemen mit der Servicequalität führen, insbesondere zu Spitzenzeiten, und sich negativ auf die gesamte Wertschöpfungskette der Luftfahrt auswirken.

#### *Ausblick bis 2030*

Flughäfen und Fluggesellschaften in Europa werden erhebliche Kostensteigerungen erleiden (Nutzungsgebühren, Treibstoff- und Umweltkosten), da sie auch beginnen, die mit COVID-19 verbundenen Kredite zurückzuzahlen, die je nach der Stärke der Verbrauchernachfrage nach Flügen teilweise an die Kunden weitergegeben und teilweise absorbiert werden können. . Hinzu kommt, dass die Passagiernachfrage bis mindestens 2024 unter dem Niveau von 2019 bleibt, was sich auf die Einnahmen der Fluggesellschaften und Flughäfen auswirken wird. Bei der Fracht wird erwartet, dass sich der Trend der letzten Jahrzehnte einiger Full-Service-Carrier, ihre Frachterflotte zu reduzieren, umkehrt: Die Pandemie scheint „einen Wandel in der Art und Weise ausgelöst zu haben, wie das Frachtergeschäft von großen Fluggesellschaften wahrgenommen und angeboten wird“ ( da dies für kleinere Transportunternehmen schwieriger zu tun wäre).

Die Flughäfen werden wahrscheinlich wünschen, die Flugtarife zu erhöhen und neue Einnahmequellen ausserhalb des Luftverkehrs zu erschliessen, sowohl von Passagieren als auch von anderen Unternehmen, um diese Finanzierungslücke zu schließen. Etwaige Erhöhungen der Luftfahrtabgaben gehen zu Lasten der Fluggesellschaften, was deren Kosten weiter erhöhen wird. Die EBITDA-Niveaus für europäische Flughäfen werden voraussichtlich im Jahr 2029 wieder das Niveau von 2019 erreichen (2026 ohne die Auswirkungen von COVID-19-bezogenen Finanzierungsausgaben), wobei die zusätzlichen Finanzierungskosten für den Flughafensektor den Betriebsüberschuss im Zeitraum 2022-2030 voraussichtlich um 45,3 Mrd. EUR reduzieren werden.

Für die Zukunft deuten Gespräche mit Interessenvertretern darauf hin, dass der Wettbewerb zwischen kleinen Flughäfen (oder Flughäfen, die sich auf Geschäftspassagiere konzentrieren) um die Anziehung von Fluggesellschaften wahrscheinlich zunehmen wird, da eine weitere Konsolidierung der Fluggesellschaften erwartet wird (und die Rückkehr der Geschäftsreisenden möglicherweise nicht im gleichen Maße wie zuvor erfolgen wird). Reisebüros erwarten, dass sich der vor der Pandemie beobachtete Trend zur weiteren Konsolidierung noch weiter fortsetzen wird, angetrieben durch neue Schulden und schwächere Finanzen der Fluggesellschaften. Infolgedessen erwarten sie, dass große Airline-Gruppen weiterhin auf den direkten Vertrieb zu Lasten des indirekten Vertriebs über neutrale Kanäle drängen werden, und befürchten, dass dies die Transparenz für Passagiere und Reisefachleute verringern wird.

Es wird erwartet, dass die EBITDA-Niveaus der Fluggesellschaften ers im Jahr 2029 wieder das Niveau von 2019 erreichen werden, mit und ohne die Auswirkungen der COVID-19-bezogenen Finanzierungsausgaben, jedoch haben die gesamten zusätzlichen Finanzierungskosten für den Luftfahrtsektor das EBITDA im Zeitraum 2022-2030 schätzungsweise um 43,4 Mrd. EUR reduziert. Dabei ist zu beachten, dass potenzielle Änderungen der Einnahmen (aufgrund von Änderungen der Verbrauchergewohnheiten) oder Kosten aufgrund höherer von Flughafen erhobener Gebühren oder eines Anstiegs der Treibstoff- und anderer Kosten nicht berücksichtigt sind.

In Bezug auf die Digitalisierung erwarten die meisten Beteiligten, dass die Investitionen aufgrund ihrer zunehmenden Bedeutung fortgesetzt werden. Berücksichtigte Bereiche sind

Datenmanagement, Wartung, Flugbetrieb und Kundenservice, da digitale Technologien nicht nur eine schnelle Transformation in eine nachhaltigere Zukunft ermöglichen, sondern auch die Betriebskosten senken (durch Steigerung der Effizienz des Flugbetriebs und Verbesserung des Passagiererlebnisses).

Die Bedeutung dieser Investitionen, um Emissionen zu reduzieren und die Einhaltung von Umweltvorschriften und -zielen zur Unterstützung der europäischen Politik wie Fit for 55 sicherzustellen, wurde in der Konsultation hervorgehoben. Investitionen an Flughäfen müssen sich auf die Unterstützung elektrischer Bodengeräte, die Erzeugung und/oder Nutzung erneuerbarer Energien sowie auf Vorkehrungen für künftige Elektro- und Wasserstoffflugzeuge konzentrieren. Auf Seiten der Fluggesellschaften werden Investitionen in Elektro- und Wasserstoffflugzeuge ein wichtiger Hebel zur Unterstützung der Dekarbonisierung der Branche sein. Die kumulierten Investitionen der europäischen Fluggesellschaften bis 2030 werden auf 140 bis 170 Mrd. EUR geschätzt.

Für andere Teile des Luftfahrt-Ökosystems ist zu erwarten, dass die Unternehmen den Druck auf ihre Lieferanten zur Kostenminimierung weiter erhöhen werden. Für Passagiere und Frachtkunden ist mit höheren Tarifen in Verbindung mit Problemen bei der Servicequalität zu rechnen, sobald das Verkehrsaufkommen wieder das Niveau von 2019 (und zu Spitzenzeiten) erreicht hat, da es an Ressourcen mangelt. Ein neuer Trend bei der Rekrutierung unabhängig von der Pandemie ist die Tatsache, dass die Luftfahrt möglicherweise kein natürlicher Anziehungspunkt für junge Menschen mehr ist, da es einen Konflikt zwischen den Umweltbelangen der Jugend und der Luftfahrt gibt, die als einer der schlimmsten Umweltverschmutzer gilt.

## **Politische Erkenntnisse**

### *Luftverkehrsverordnung*

Die Einführung des im Mai 2020 gemäß der Verordnung (EU) Nr. 696/2020 angenommenen befristeten Rahmens für die Durchführung von Flugdiensten war eine positive Erfahrung, insbesondere da sie es Luftfahrtunternehmen in vorübergehenden finanziellen Schwierigkeiten ermöglichte, ihre Betriebsgenehmigung zu behalten. Der Rahmen ermöglichte den Mitgliedstaaten auch, Verkehrsrechte aus Gründen im Zusammenhang mit der COVID-19-Pandemie zu verweigern, einzuschränken oder ihnen Bedingungen aufzuerlegen, obwohl sich schnell herausstellte, dass ein Verbot von Verkehrsrechten möglicherweise kontraproduktiv war.

Nur eine Handvoll Mitgliedstaaten, die normalerweise gemeinnützige Organisationen betreiben, gaben an, während der Pandemie Notstandsvorschriften anzuwenden: Italien, Schweden und Frankreich. Sie hoben einige positive Aspekte hervor (dass es einen Wettbewerb um jeden Vertrag gab) oder dass die Leitlinien zufriedenstellend waren, wiesen aber darauf hin, dass Artikel 16 Absatz 12 während einer Krise ziemlich starr sei und von zusätzlicher Flexibilität profitieren könnte, um die betriebliche Realität, mit der die Fluggesellschaften und Behörden konfrontiert sind, besser widerzuspiegeln.

### *Zeitnischen (Slots)*

Die von der EU Anfang 2020 erlassene Notstandsgesetzgebung hat zu Ausnahme oder Teilausnahmeregelungen für die Nutzung von Zeitnischen geführt, die die Slot-Landschaft praktisch auf den Stand vor der Pandemie „eingefroren“ haben. Trotz des Versuchs der Mitgesetzgeber, die Interessen der Sicherheit und des Schutzes von Zeitnischen einerseits und

der Erleichterung des Markteintritts und der Expansion von Luftfahrtunternehmen, die Flugdienste durchführen können, andererseits besser in Einklang zu bringen, gab es in der Praxis kaum Änderungen bei den Zeitnischen. Trotz dieses offensichtlichen Mangels an Änderungen bei den Slot-Beständen an eingeschränkten Flughäfen im Vergleich zwischen 2019 und 2022 reagierte die Branche sehr dynamisch auf ständige Änderungen der Nachfrage aufgrund der Möglichkeit, Ad-hoc-Slots zu nutzen, was den Fluggesellschaften, die diese Slots betrieben, keine Aussicht auf einen langfristigen Markteintritt bot. Die Pandemie hat auch praktische Erfahrungen mit der Verwendung der Bestimmungen über die gerechtfertigte Nichtnutzung von Slots (Justified Non-Utilization of Slots - JNUS) geliefert.

In Bezug auf den zentralen Gesetzestext scheinen sich die Ansichten der Interessenträger im Vergleich zu dem, was sie vor März 2019 waren, als Steer seine Faktenstudie für die DG MOVE durchführte, nicht wesentlich geändert zu haben. d.h. mehrheitlich befürwortet, dass die Notwendigkeit einer Überarbeitung der Slot-Verordnung bestehen bleibt, da die Regeln nicht mehr zweckmäßig sind.

### *Flughafengebühren*

Die Meinungen zur Gesetzgebung zu Flughafenentgelten bleiben über die Interessengruppen in Europa hinweg polarisiert und wahrscheinlich noch stärker verfestigt als Folge der akuten finanziellen Situation von Flughäfen und Fluggesellschaften. Bei der Zustimmung zu Änderungen der europäischen Gesetzgebung wird es keinen einfachen Mittelweg geben.

An den beiden in der SWD gemeldeten Problemen ist kaum eine wesentliche Änderung zu erkennen: Die Pandemie hat die Probleme, die zuvor im Bereich der Flughafenentgelte bestanden, nicht beseitigt, sondern nur vorübergehend beseitigt, als weniger Verkehr herrschte. Das heißt nicht, dass es keine spürbaren Veränderungen auf einzelnen Flughäfen oder Fluggesellschaften gegeben hat, aber generell sieht man eher eine begrenzte Entwicklung der Marktanteile als eine völlig andere Situation.

Es besteht kein Zweifel daran, dass das Gebührenniveau in ganz Europa steigen wird, manchmal moderat, manchmal deutlich, und zwar vor dem Hintergrund einer starken zugrunde liegenden Inflation, einem immer noch dringenden Bedarf an Investitionen in Kapazität und Digitalisierung wie vor der Pandemie, sowie des neuen Faktors der dringenden Notwendigkeit von Investitionen in die Ökologisierung. Die im Zuge der Pandemie aufgetretenen Faktoren sind im Rahmen dieser Überprüfung zu berücksichtigen. Sie haben (oder werden sehr bald) einen direkten Einfluss auf den Gebührenfestsetzungsrahmen.

Aufgrund dieser Faktoren ist ein möglicher Eingriff in die Flughafenentgelte nach wie vor relevant, insbesondere angesichts der wichtigen Frage der Kostendeckung. Gleichzeitig muss die Berücksichtigung des neuen Kontexts nach der Pandemie angemessen sichergestellt werden, was bedeutet, dass nicht davon ausgegangen werden kann, dass die vor der Pandemie vorgenommenen Änderungen der politischen Interventionen heute noch „wie sie sind“ gelten.

### *Bodenabfertigung*

Die europäische Notstandsgesetzgebung (Verordnung 2020/696) spielte während der Pandemie eine Rolle und es wurde nur ein Marktaustritt gemeldet, obwohl in Europa nur eine Handvoll Lizenzen verlängert wurden. Die Hauptgründe ergeben sich aus einem Mangel an Flexibilität im Text, da eine sechsmonatige Direktvergabe unzureichend ist, und der Tatsache,

dass die meisten Lizenzverlängerungen nach Ablauf des Zeitraums erfolgten, in dem die Notstandsvorschriften galten.

Vor der Pandemie bestand in den Mitgliedstaaten kein Interesse daran, die Wettbewerbslandschaft der Bodenabfertigung zu ändern. In Bezug auf die künftigen politischen Ansichten bleibt unklar, inwieweit die Bodenabfertigungsindustrie die Europäische Kommission auffordert, sich mit der Richtlinie zu befassen, obwohl sie dem Thema anscheinend weniger zurückhaltend gegenübersteht als im Jahr 2019. An dieser Stelle wird die mangelnde Beteiligung der Bodenabfertigungsunternehmen an dieser Studie einschränkend. Die Personalvertreter hingegen sind nach wie vor enttäuscht darüber, dass die Arbeitsplätze und Arbeitsbedingungen der Arbeitnehmer am stärksten von den Veränderungen in der Branche betroffen sind, und möchten die europäischen Behörden daran erinnern, dass der Sozialschutz in diesem Sektor verbessert werden muss. Bei Fluggesellschaften und Flughäfen wurde im Vergleich zu 2019 keine wesentliche Änderung der Position hinsichtlich der Notwendigkeit künftiger Rechtsvorschriften für die Bodenabfertigung festgestellt.

# 1 Introduction

- 1.1 This document is the Final Report for the study on the impacts of the COVID-19 pandemic on the aviation market.

## Objectives of the study

- 1.2 Aviation has been one of the industry sectors most impacted by the COVID-19 pandemic, with reduced levels of activity, changes in operational processes and temporary restrictions on travel impacting the willingness of passengers to use air travel. While recovering from these impacts and becoming more resilient, aviation needs, at the same time, to adjust and adapt to the necessary changes to fulfil the 2050 Climate Neutrality objective to contribute to the decarbonisation of the European Union (EU) economy while maintaining the highest levels of safety and security as well as high social standards. The objectives of the study are therefore to:

- Identify and evaluate structural changes in the EU aviation ecosystem triggered, influenced or accelerated by the COVID-19 crisis; and
- Understand how these changes interact with the principles and objectives of the Smart and Sustainable Mobility Strategy and the existing aviation internal market legal framework.

- 1.3 In particular, the Study aimed at identifying and assessing:

- (1) stakeholder views on the impact of the crisis on the main economic parameters, such as growth, prices, and employment, including social impacts;
- (2) the impacts of the COVID-19 crisis on the EU aviation regulatory acquis;
- (3) the impacts on airport and airline financing and financial resilience;
- (4) impacts on airport and airline competition as well as airport capacity and access to it;
- (5) impacts on air connectivity, direct and indirect, within the EU and globally;
- (6) impacts on commercial and pricing models of airlines and airports active in the EU; and
- (7) how the pandemic has impacted airports and airlines' ability to transition to zero emissions and digitalisation.

## Scope of study

- 1.4 The study is designed to answer a number of questions drawing upon analysis of data and consultation with stakeholders. It assesses whether the work undertaken pre-COVID-19 on potential legislative change (Airport Charges Directive (2009/12), Groundhandling Directive (96/67), and Slot Regulation (95/93) as well as the Study on the economic developments of the EU air transport market, and the Problem Definition and Problem Drivers developed for these studies are still valid or need to be modified to address, or anticipate, changes in the industry. It also evaluates the experiences with Regulation 2020/696 which temporarily amended the Air Services Regulation (1008/2008).

- 1.5 The geographical scope of the Study is mainly focused on the European Economic Area (EEA) countries and Switzerland, however, given the global nature of aviation, the impact of the pandemic worldwide was also taken into account.

## Background

### European Union response to COVID-19 pandemic

- 1.6 Aviation is a strong driver of mobility, but also economic growth, jobs, and trade for the EU. The liberalisation of the internal market for air services and the substantial growth of demand in air transport within the EU and worldwide have resulted in the significant growth of the European aviation sector.
- 1.7 However, it became apparent in Spring 2020 that part of the existing EU legal framework applicable to the aviation industry was not suitable for dealing with an event as impactful as the COVID-19 pandemic. The European Commission (The Commission) closely monitored the situation since the outbreak of the COVID-19 disease and coordinated responses of Member States<sup>1</sup>.
- 1.8 From the start of the COVID-19 pandemic, the Commission adopted several communications to support the response of Member States and other stakeholders to the COVID-19 pandemic in the transport sector. On 17 March 2021, the Commission issued a Communication on “A common path to safe and sustained reopening”<sup>2</sup> together with its proposal for a “Digital Green Certificate”<sup>3</sup>.
- 1.9 The EU adopted a number of measures in response to the COVID-19 pandemic, that are specifically targeted at legislation applicable to the aviation sector:
- Regulation (EU) 2020/459<sup>4</sup> amending the Slot Regulation suspended the application of the “use-it-or-lose-it” rule until the end of the summer season 2020. On 14 October 2020, in light of the persisting crisis in the sector, the EU extended the temporary slot waiver for the whole of the 2020-2021 winter season. In February 2021, Regulation (EU) 2021/250 amending the Slot Regulation allowed that for summer 2021, winter 2021/22 and summer 2022 seasons, lower target levels of utilisation than the 80:20 rule specified in Regulation (EEC) EU95/93 were permitted. In December 2021, the Commission adopted an extension to the slot relief rules for the 2022 summer scheduling season, running until 29 October 2022, with airlines only having to use 64% to retain historic rights in those slots.
  - Due to the negative impacts on competition of the full waiver introduced by the Regulation mentioned above, Regulation (EU) 2021/250<sup>5</sup> amending the Slot Regulation was adopted to strike a balance between providing relief to airlines during the COVID-19 crisis and promoting competition.

---

<sup>1</sup> Note that the term “Member States” is used to refer to the EU27 Member States and also includes Iceland, Norway, and Switzerland where relevant.

<sup>2</sup> COM(2021) 129 final of 17.03.2021 <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A52021DC0129>.

<sup>3</sup> COM/2021/130 final of 17.03.2021 <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0130>.

<sup>4</sup> [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L\\_.2020.099.01.0001.01.ENG&toc=OJ:L:2020:099:TOC](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2020.099.01.0001.01.ENG&toc=OJ:L:2020:099:TOC)

<sup>5</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021R0250>

- The EU also adopted a temporary framework under Regulation (EU) 2020/696 on the operation of air services<sup>6</sup> in May 2020. The amendments to the Air Services Regulation allowed (i) Member States to waive the requirement to withdraw/suspend the licences of airlines in temporary financial difficulty, or to offer temporary licences, (ii) groundhandling companies whose contracts expire before the end of 2021 to keep them until 2022 to make it easier for them to access loans, (iii) airports to urgently replace their groundhandling service provider should it suddenly go bankrupt and (iv) Member States to maintain COVID-19 related flight restrictions if necessary. Furthermore, the EU extended in December 2020 the temporary measures under point (i) and (iii) until the end of 2021.
- As the performance targets and draft performance plans subsequently adopted by Member States were drawn up before the outbreak of the pandemic, they could not take account of the significantly changed circumstances for air transport. Therefore, the Commission adopted in November 2020 Commission Implementing Regulation (EU) 2020/1627<sup>7</sup> on exceptional measures for the third reference period (2020-2024) of the single European sky performance and charging scheme due to the COVID-19 pandemic.
- Passengers were hit hard by the pandemic and the measures taken by Member States. Many saw their travel plans significantly altered. The Commission issued guidelines<sup>8</sup> to clarify in this context the rights of passengers, as well as the corresponding obligations for carriers and a Recommendation on vouchers<sup>9</sup>.
- The State Aid Temporary Framework<sup>10</sup> was adopted to address the crisis and has been further extended until 30 June 2022.
- Guidance on the State aid rules and public service obligations rules applicable to the air transport sector during the COVID-19 outbreak was published in April 2020 and updated in March 2021 based on the development of the pandemic and the experience of DG MOVE and COMP with support measures adopted by the Member States over the previous year<sup>11</sup>.

1.10 Detailed changes to these policies are described in the relevant chapters.

### **Strategy on climate change for the EU aviation industry**

1.11 In December 2019, the Commission adopted the European Green Deal Communication<sup>12</sup>, which emphasised the need to accelerate the transition to a climate-neutral economy, including through the shift to sustainable mobility. To achieve climate neutrality, a 90% reduction in transport emissions is needed by 2050. All transport modes, including aviation, will have to contribute to the reduction.

---

<sup>6</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32020R0696>

<sup>7</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32020R1627>

<sup>8</sup> [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020XC0318\(04\)](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020XC0318(04))

<sup>9</sup> [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L\\_.2020.151.01.0010.01.ENG](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2020.151.01.0010.01.ENG)

<sup>10</sup> [https://ec.europa.eu/competition-policy/state-aid/coronavirus/temporary-framework\\_en](https://ec.europa.eu/competition-policy/state-aid/coronavirus/temporary-framework_en)

<sup>11</sup> [https://ec.europa.eu/transport/media/news/2021-03-25-updated-overview-state-aid-rules-and-public-service-obligations-rules\\_en](https://ec.europa.eu/transport/media/news/2021-03-25-updated-overview-state-aid-rules-and-public-service-obligations-rules_en)

<sup>12</sup> COM(2019) 640 final.



- 1.12 The Commission adopted in December 2020 the Sustainable and Smart Mobility Strategy<sup>13</sup>. This strategy sets the course of action for each mode of transport to decrease its carbon footprint in line with the objective of cutting greenhouse gas emissions by at least 55% by 2030 and reaching EU climate neutrality by 2050. It also sets a number of milestones for the transport sector, drawing on the common analytical work underpinning the 2030 Climate Target Plan and the Sustainable and Smart Mobility Strategy, while considering deploying a broad mix of policy instruments including carbon pricing and an increase in its policy ambition related to energy and transport sectoral regulation.
- 1.13 In 2020, the Commission adopted Regulation 2020/852 on the establishment of a framework to facilitate sustainable investment (the Taxonomy Regulation) which provides definitions for which economic activities can be considered environmentally sustainable. This should create security for investors, protect private investors from greenwashing, help companies to become more climate-friendly, mitigate market fragmentation and help shift investments where they are most needed.
- 1.14 In 2021, the Commission adopted the “Fit-for-55” package, which included proposals contributing to aviation decarbonisation, such as a new initiative on the ReFuel EU Aviation, and revisions of the EU ETS, Energy Taxation Directive (ETD) and Alternative Fuels Infrastructure Directive (AFIR). At the time of finalising this report, all these proposals were in the legislative process. Those proposals are complementary to other Commission instruments and measures that support aviation decarbonisation, in line with the “basket of measures” approach, such as the reform of Single European Sky, support to research and innovation through SESAR and Clean Aviation Joint Undertakings, or development of the EU taxonomy for sustainable finance for aviation activities.
- 1.15 The proposal for a Regulation<sup>14</sup> (ReFuelEU Aviation) defines obligations on the supply and uptake of sustainable aviation fuels (SAF) in EU air transport, with mandated volumes of SAF reaching a minimum of 63% of total aviation fuel use at EU airports by 2050. The proposed Regulation once adopted and implemented, would considerably decarbonise the aviation fuel mix and reduce air transport in-sector emissions by around 60% by 2050 compared to 1990. Drop-in sustainable aviation fuels are expected to play an important role in decarbonising air transport use ahead of the widespread availability of alternative fuels aircraft (hydrogen and electric). In addition to the proposed regulation, the Commission has launched the Renewable and Low Carbon Fuels Value Chain Alliance, which will further support the development and scale up of new innovative sustainable aviation fuels on the market.
- 1.16 The proposed revision of the EU ETS, foresees a progressive phase-out of the free allowances distributed to aircraft operators from 2024 to 2026 (by respectively: 25%, 50% and 75%) and a complete phase-out from 2027 onwards. To meet the more stringent 2030 emission target, the Commission proposes to reduce the emissions cap by 4.2% annually, instead of the current 2.2% and encourages Member States to use the revenue proceeds from auctions for tackling climate change directly. In terms of scope, the EU ETS proposal would continue to apply to intra-EEA flights as well as flights to the UK and Switzerland, exempting those flights from

---

<sup>13</sup> [https://transport.ec.europa.eu/transport-themes/mobility-strategy\\_en](https://transport.ec.europa.eu/transport-themes/mobility-strategy_en)

<sup>14</sup> [https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12303-Sustainable-aviation-fuels-ReFuelEU-Aviation\\_en](https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12303-Sustainable-aviation-fuels-ReFuelEU-Aviation_en)



CORSIA offsetting requirements. For other international flights, EU airlines would be obliged to apply CORSIA.

- 1.17 The proposed Regulation on the deployment of alternative fuels infrastructure (AFIR) requires the provision of alternatives to the use of on-board engines (powered by fossil fuels) for stationary aircraft, and to ensure sustainable infrastructure at European Union airports.
- 1.18 Last, the need to further internalize environmental costs in line with the “polluter pays” principle, the proposed changes to the Energy Taxation Directive aims at making cleaner fuels more attractive in all transport modes. For aviation, this means a revision of current tax exemptions for jet fuel on intra-EU flights. Concretely, this means that from 2023, the minimum tax rate for aviation fuel for intra-EU flights would start at zero and increase gradually over a 10-year period, until the minimum full rate of €10.75/Gigajoule is imposed (with Member States able to set higher level of taxation). SAF, including renewable hydrogen and advanced biofuels, would benefit from zero minimum tax rate during that 10-year period and cargo-only flights would be exempted.
- 1.19 We note that attainment of the EU’s climate targets is a joint effort between the EU, Member States, industry and all stakeholders.

### Structure of this report

- 1.20 The remainder of this report is organised as:
- Chapter 2: describes the methodology employed;
  - Chapter 3: sets the scene by covering the demand and the public aid distributed;
  - Chapter 4: is focussed on the impacts on airlines;
  - Chapter 5: focusses on the impacts for airports;
  - Chapter 6: covers the impacts on other stakeholders as well as connectivity and competitiveness;
  - Chapter 7: covers the social impacts;
  - Chapter 8: focusses on the impacts on EU aviation economic regulatory acquis; and
  - Chapter 9: presents our conclusions.
- 1.21 The following appendices are also included in the report:
- Appendix A: presents data on passenger demand by Member State;
  - Appendix B: shows the state aid distributed across Europe;
  - Appendix C: includes the detailed Member State connectivity tables;
  - Appendix D: details our approach to projections; and
  - Appendix E: contains additional data.

## 2 Methodological approach

### Stakeholder consultation

#### Objectives

2.1 In order to gain an understanding of the issues that have arisen since the start of the pandemic, in agreement with the European Commission we defined a programme of field research that applied the following objectives:

- Provide an opportunity for stakeholders to offer factual information as well as views on the impact of the COVID-19 pandemic, including with reference to relevant aviation related legislation;
- Where possible, draw on stakeholder engagement to fill data gaps and cross-check information received from other sources;
- Understand stakeholder perspectives on the shortcomings, overlaps, inefficiencies or inconsistencies in specified aviation related legislation; and
- Obtain stakeholder views on whether and how the legislation should be amended or supplemented.

#### Stakeholder consultation approach

2.2 The approach followed for the consultation exercise is summarised below.

**Table 2.1: Stakeholder engagement methods, approach and target stakeholders**

Method	Approach	Target stakeholders and purpose
Pilot interviews	Telephone meetings	Small number of key stakeholders to help shape the methodology of the work programme during the inception phase
Targeted interviews	Face to face and telephone interview with at least 30 participants	Key industry stakeholders' views and provision of data and documents
Targeted questionnaires to industry	Issuing questionnaires for each key stakeholder group	Key industry stakeholders' views and provision of data and documents
Stakeholder workshop	Online workshop organised and led by Consultant with Commission and industry stakeholders	Key industry stakeholders' views on implementation, enforcement and good practices

2.3 The figure below shows how we have engaged with each group of stakeholders identified in order to maximise the benefits of the field research for the study.

Figure 2.1: Stakeholder engagement strategy

	TARGETED CONSULTATION	
	Selected stakeholders	Other stakeholders
Questionnaires	✓	✓
Interviews (face-to-face/phone)	✓	
Workshop	✓	

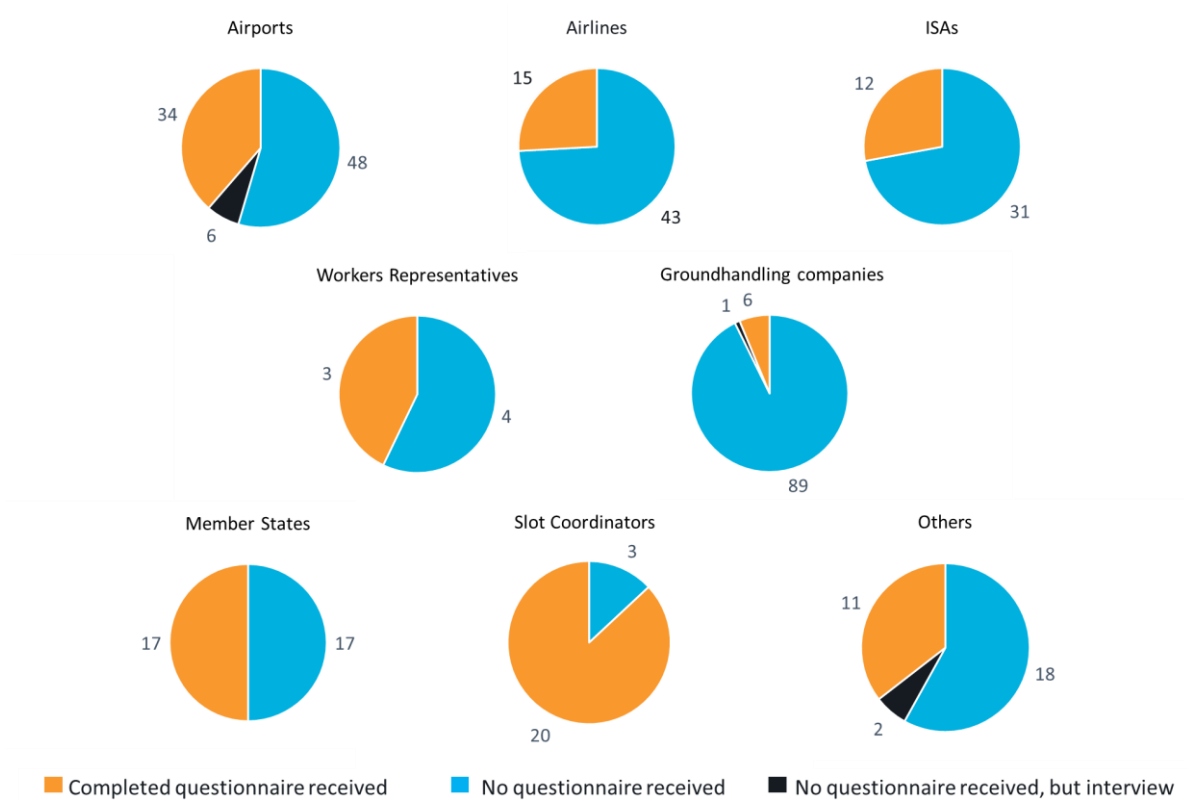
Source: Steer

### Status of stakeholder consultation engagement

#### Overall

2.4 Figure 2.2 provides an overview of the stakeholder engagement related to questionnaires status by stakeholder group.

Figure 2.2: Number of completed questionnaires received back by Steer



Source: Steer

## Workshop

- 2.5 A half-day workshop was conducted on 9 March 2022 online. At least 140 stakeholders attended the workshop (it may be that some logged from a meeting room, rather than from an individual computer), from the following organisations: 28 Member States, 15 ISAs, 6 slot coordinators, 23 airports and investors, 35 airlines, 2 groundhandling companies, 31 from other organisations. In addition, the European Commission joined as observers, whilst Steer managed the event.
- 2.6 Steer worked closely with the Commission to define the objectives and format of the workshop and to identify relevant participants. The workshop was split into four sessions which covered the key themes of the study (Market Impacts, Social Impacts, Connectivity and Airport Capacity and Economics Impacts and Financing) and shared first analytical and policy findings with the participants. At the end of each session, stakeholders were able to express their views on what had been presented. Further detail, including a long summary of the workshop, are available in the stakeholder consultation report.
- 2.7 In addition, stakeholders were invited to send further information to Steer if they felt necessary. So far, only ERAA sent additional information has been received.

## Research limitations / robustness of findings

### Data collection

- 2.8 In order to maintain consistency and use as many European official statistical sources, we have drawn from Eurostat data extensively. At 14 May 2022, 27 Member States report data to December 2021. Data for Belgium is available up to and including October 2021, whilst for Romania and Sweden data is available up to and including September 2021. The United Kingdom is no longer included in Eurostat aviation statistics as of the end of 2020.

Table 2.2: Availability of Eurostat data (latest available dataset)

MS	Data	MS	Data	MS	Data	MS	Data	MS	Data
AT	Q4 2021	EE	Q4 2021	IE	Q4 2021	PL	Q4 2021	IS	Q4 2021
BE	Q3 2021	EL	Q4 2021	IT	Q4 2021	PT	Q4 2021	NO	Q4 2021
BG	Q4 2021	ES	Q4 2021	LT	Q4 2021	RO	Q3 2021	CH	Q4 2021
CY	Q4 2021	FI	Q4 2021	LU	Q4 2021	SE	Q3 2021	UK	Q4 2020
CZ	Q4 2021	FR	Q4 2021	LV	Q4 2021	SI	Q4 2021		
DE	Q4 2021	HR	Q4 2021	MT	Q4 2021	SK	Q4 2021		
DK	Q4 2021	HU	Q4 2021	NL	Q4 2021				

Source: Eurostat, Steer analysis

### Financial data

- 2.9 Regarding financial data, there is no comprehensive data source covering the whole of Europe which would provide an overview of the air transport market providers. We are therefore limited by what can be found in annual reports/ financial statements, although noting that there is no consistency between these in terms of the level of information provided, or the reporting periods.
- 2.10 For the financial data analysis for the airlines, we have used annual reports published by each airline. The majority of airlines report financial data from January to December in their

financial year, however three low-cost carriers (Ryanair, Wizz Air, and easyJet) report their financial data over different periods. Both Ryanair and Wizz Air's financial year ends on March 31<sup>st</sup>, whilst the financial year for easyJet ends on September 30<sup>th</sup>. In order to make data more readily comparable, quarterly financial updates have been used to convert Ryanair's financial statements into data for January to December. However, the same conversion has not been possible for Wizz Air and easyJet, as full statements are not published every quarter. Therefore, these results should be caveated when comparing against others that they do not refer to the same reporting period.

- 2.11 To make results as comparable as possible given the constraints, data for Wizz Air for 2019 refers to their FY20 report, as it covers the period April 2019 – March 2020, giving the best indication of pre-crisis performance. Data for 2020 refers to their FY21 report, and so on. For easyJet, data for 2019 refers to their FY19 report, covering the period October 2018 – September 2019, and so on for 2020 and 2021. As a result of these differences in reporting periods, it is expected that a) Wizz Air may appear comparatively worse off than others, as more of their reporting timeframe for 2020 covers the pandemic versus others, and b) easyJet may appear comparatively better off than others, as more of their reporting timeframe for 2020 precedes the pandemic versus others. This should be noted when interpreting these results.
- 2.12 It was possible to source revenue and operating cost data for airlines and airports from public sources (annual or investor reports), however this was not available for groundhandling companies. Contrary to most other air transport sectors and other economic activities, the groundhandling industry does not benefit from a range of public data sources covering the performance (prices and quality of services) and market structure (number of providers). Apart from one or two occasional reports, Member States do not report on groundhandling activities. There is also very limited academic literature on the topic.
- 2.13 Fare data used in this study has been obtained for both airline annual reports/financial statements and also the industry database (MIDT). It should be noted however that MIDT is not a completely comprehensive dataset (as it does not include direct sales made between passengers and airlines) but is a sample of airline ticket sales using Computer Reservation System linked services (~10%) which are scaled up. At a macro level (as used in this report) the results are accurate, however they are not necessarily appropriate for analysis at individual route level.
- 2.14 Aid information has been collected from a large number of sources, but as there is no comprehensive register, this is a complex task, and we cannot guarantee to have managed a comprehensive collection of all aid provided to the European aviation industry.

### **Stakeholder consultation**

- 2.15 The stakeholder engagement task involved all identified and interested stakeholders via the most appropriate channels. A variety of tools were used to collect evidence including detailed targeted questionnaires, interviews, a stakeholder workshop and targeted data requests. More details on the stakeholder consultation are available in the separate Stakeholder Consultation Report.
- 2.16 Some of the information received by the study team was provided on a confidential basis and, where requested, we have avoided providing detailed information that can be linked to individual stakeholder organisations. Note that the confidential information is still present in this report in order to inform the Commission but will be removed from the Final Report.

- 2.17 Overall, we note that the majority of responses received were generally well detailed and provided valuable qualitative information for the study. Sometimes, they also provided quantitative information. Interviews proved effective at investigating gaps in the qualitative data and gave stakeholders the opportunity to raise or stress particular points of importance, especially when it came to policy views. On some themes (such as on EU competitiveness and Green Deal investments) there was generally a good level of agreement across stakeholder groups, whilst there was more profound disagreement on some issues such as on airport charges.

#### **Groundhandling data issues**

- 2.18 Member States and Eurostat do not monitor, collect or publish as much information on the groundhandling sector as other parts of the industry. This means that in Europe it is challenging to obtain facts or information as to what is happening in the groundhandling industry beyond relying on what stakeholders report. Furthermore, participation by the industry stakeholders in studies such as this one remain constrained and limited, explained according to their representatives by a lack of resources to do so, rather than by a lack of interest. It is widely acknowledged by all stakeholders that groundhandling profit margins pre-pandemic were marginal, and usually less than delivered on average by airlines and airports across Europe.

#### **Impact of COVID-19 and the war in Ukraine**

- 2.19 Whilst the study itself is focussed on the impact of COVID-19 on the European air transport, the pandemic was not finished as the study progressed. In particular the wave of Omicron in late December 2021 and the first quarter of 2022 made it more challenging for stakeholders to respond when asked about views about the possible recovery or future outlook of the industry. In addition, operational stakeholders were busy managing their organisation's responses through this new wave and sometimes required more time to submit their responses.
- 2.20 The war in Ukraine starting in late February 2022 further complicated what the outlook for the aviation industry in 2030 could be, as well as more short-term impacts on intra and extra-EU connectivity, and patterns of demand, etc. By the end of February most stakeholder written responses had been received and the vast majority of interviews conducted, so the consultation questions were not amended to take this new event into consideration.
- 2.21 As a result, the impact of these two events on the backward-looking part of the study was limited as most questions and evidence sent pre-dated these. For the forward-looking part of the study, we agreed a way forward with the Commission, in order to maintain coherence with other workstreams being conducted by the Commission and as much consistency with Eurocontrol's forecasts.

#### **Evidence gap analysis**

- 2.22 Table 2.3 below sets out the gaps in the evidence available for the study and the implications for the methodology.

**Table 2.3: Evidence gap**

	Item	Mitigation
Demand	2021 data	The forecasting methodology for 2022-2025 has been used to estimate passengers in 2021.
	Passengers by airline type and journey type is not available	No comprehensive data source exists allowing passengers at airports to be viewed by airline of travel or destination. Passengers at each airport have been allocated out by airline and by journey length category based on OAG capacity data obtained for each European airport. OAG capacity data has also been weighted to account for different load factor types by airline.
	Load factors by airline or by route	No comprehensive data source exists presenting airline load factors by route. Airline load factors were sourced from airline annual reports. While this allows for load factor differentiation by airline to be included in the model, variation in load factor by route in the model is not included.
	No MIX scenario forecast data for IS, CH, UK, NO	A methodology was agreed with the European Commission to develop forecasts based on growth from comparator Member States but factoring in differences in forecast GDP growth.
	EUROCONTROL forecast based on movements and not passengers	Passenger's recovery profiles to 2025 are influenced by the Eurocontrol forecast, which is presented in aircraft movement terms. An overlay was developed based on differences between passenger and movement reductions between 2019-2021 which will account for differences in seats per movement and load factor. It is assumed that these differences return to zero by 2025.
	Differentiation in airport growth	The demand forecasting methodology permits traffic growth profiles to be developed for each Member State for the domestic, intra-EU and extra-EU markets. These profiles are then applied to 2019 traffic at each airport by Member State and will not account for differences in passengers' growth by airport size/location in each Member State.
	Industry structural outlook	The model requires a view of the industry structure to 2030 to be inputted, which allows passengers to be allocated by market and by airline. It was hoped that industry stakeholders would have a view on this however this was generally not forthcoming. The model assumes the market returns to a structure that represents 80% of 2019 market with the remaining 20% equally influenced by 2020 and 2021 market shares to represent market changes from airlines which attempted to expand into new markets during the pandemic.
Financial data	Airport financial data collation	It is not possible/practical to collate financial data for all European airports and thus a sample was selected for the study. A selection of data for 23 European airports and airport groups was sourced. These airports and airport groups cover 62% of total passengers through EU27+4 airports and they were selected to ensure that a range of different sized airports from across Europe were included in the projection tool. Estimates for airport revenues and costs for other airports were generated based on different airport size categories and have been applied to other airports. We are still awaiting the full publication of 2021 data for the selected airports.
	Airports borrowing data	A comprehensive list of interest and loan payment terms for airports accruing debt to assist with operating due the COVID-19 pandemic was not available and suitable parameters were sought so this could be modelled. It was assumed that interest rates (Inflation +0.5%-1.5%) would be variable by airport size category owing to higher levels of risk associated with lending to smaller airports. An average loan term of 7 years was included in the model reflecting airports taking a combination of acquiring debt in the form of a mix of short- and medium-term loans (5-10 years) and longer-term bonds.

Item	Mitigation
Airlines financial data collation	It is not possible/practical to collate financial data for all European airlines and thus a sample was selected for the study. A selection of data for 11 European airline groups and airport groups was sourced. These airline groups cover 75% of total European airline passengers. Estimates for airline revenues and costs for other airlines were generated based on different airline business model types and were applied to other airline groups. We are still awaiting the full publication of 2021 data for selected entities.
Airline cost splits	Airline cost data was not always presented in the same level of aggregation. A detailed exercise was conducted to be best align different airline cost categories.
Airline fares and costs per passenger	Airline annual reports allow an average fare and cost per passenger to be determined, however this does not allow differentiation by route length to be accounted for, which is particularly required for network airlines. This is factored for by using information obtained from MIDT to determine a differential in domestic/intra-EU and extra-EU fares and costs so the impact of non-uniform market growth on revenues and costs can be accounted for.
Borrowing data (Airports/Airlines)	A comprehensive list of interest and loan payment terms for airlines accruing debt to assist with operating due the COVID-19 pandemic was not available and suitable parameters were sought so this could be modelled. It was assumed that differential interest rates (Inflation +x%) would be applied reflecting the different levels of risk incurred from lending to different sized airports and airlines. An average loan term of 7 years was included in the model reflecting airlines taking a combination of acquiring debt in the form of a mix of short- and medium-term loans (5-10 years) and longer-term bonds. Further information can be found in the methodology section.
Capex, Depreciation and Appreciation	Calculation of industry capex, depreciation and appreciation were not included due to the high levels of variety in capex projects by airport. The impact of EBITDA on cashflow will be used to evaluate the impact on forward capex.



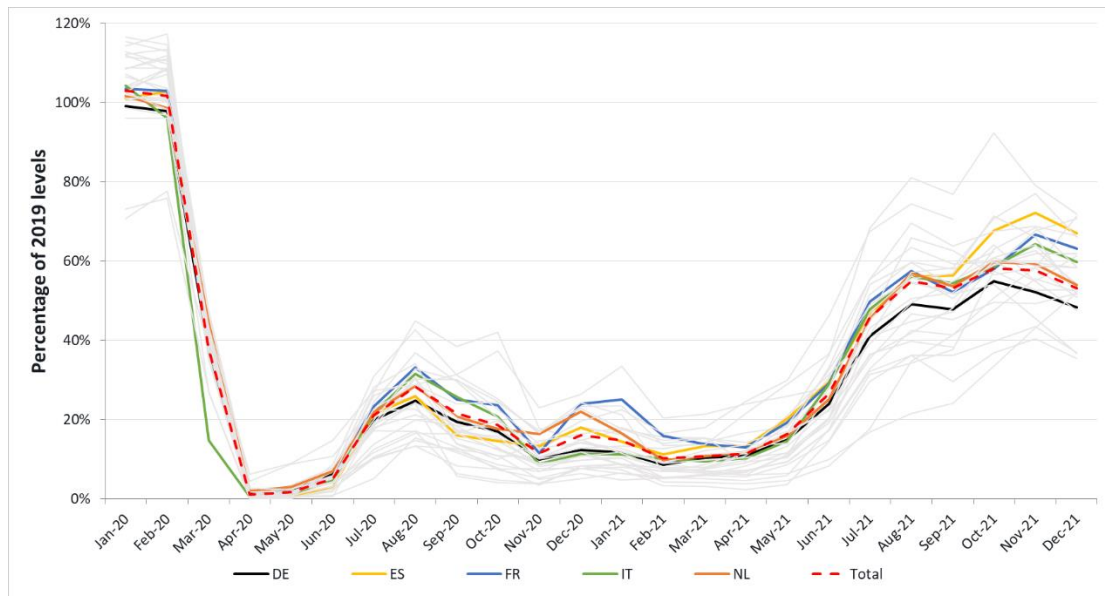
# 3 What happened

## Passenger demand

How has the crisis affected demand for air travel as well as the overall growth of the sector?

3.1 The COVID-19 pandemic has severely impacted demand for air passenger travel. At the outset of the pandemic, in March 2020, European governments restricted international travel and imposed lockdowns to contain its spread. Passenger data from Eurostat<sup>15</sup> finds that passenger numbers across all EU27+3 Member States reduced by an average of -99% in April 2020 compared with April 2019. Of these Member States, Norway experienced the smallest relative decline in passengers, with April 2020 passengers totalling 8.3% of April 2019 levels, whilst the largest decline in passenger numbers was seen in Luxembourg, where April 2020 passengers reduced to 0.007% of 2019 levels. Figure 3.1 shows the percentage change in passenger numbers compared to 2019 levels; the five largest Member States by passenger numbers in 2019 are highlighted.

Figure 3.1: Change in total passenger demand by Member State – EU27+3



Source: Steer analysis of Eurostat data (total passenger arrivals and departures). Largest 5 Member States by 2019 passenger numbers highlighted; remaining Member States in grey.

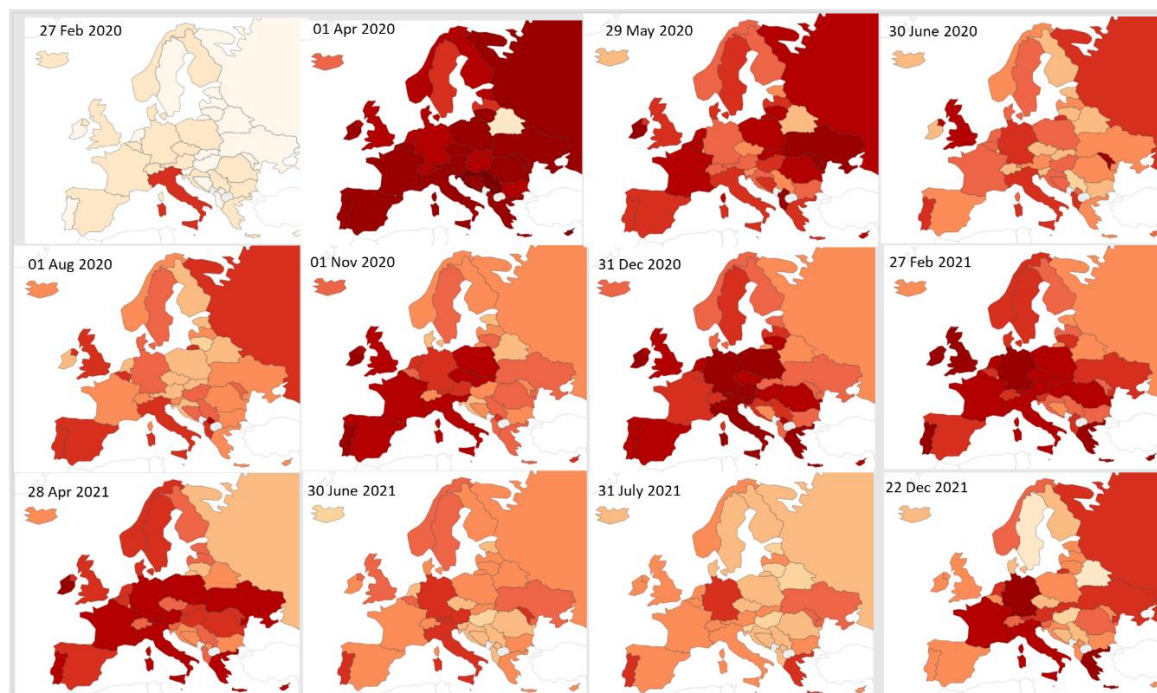
3.2 Air passenger demand experienced a recovery during the summer of 2020 as restrictions were eased on travel. In August 2020, passenger numbers were on average 28% of 2019 totals for the equivalent period. Greece had the strongest recovery by August 2020, with passenger numbers recovering to 45% of 2019 level as the Member State was very proactive at re-

<sup>15</sup> Dataset: Air passenger transport by main airports in each reporting country (avia\_paoa)

opening its borders to tourism, whilst Slovenia, a Member State without a domestic market, experienced the slowest recovery, with passenger numbers at 13% of 2019 levels.

- 3.3 The recovery in traffic witnessed to August 2020 was halted as restrictions were reintroduced across Europe in autumn 2020 due to a resurgence in COVID-19 cases. Whilst variable amongst the Member States analysed, average monthly passenger demand reduced between August 2020 (28% of 2019 levels) and March 2021 (11% of 2019 levels) as concerns over increasing case numbers, followed by the Delta variant in late 2020/early 2021, curtailed air travel.
- 3.4 A consistent recovery in air passenger demand can be observed from April 2021 through the summer period as travel restrictions were eased across Europe and passengers were able to benefit from improved immunity from vaccination programmes. By August 2021, traffic across the EU27+3 recovered to 55% of 2019 levels, rising further to 58% of 2019 levels in November 2021. The emergence of the Omicron variant in late 2021 caused a slight reduction in demand in December 2021, falling to 53% of 2019 levels.
- 3.5 Throughout the pandemic, passenger traffic demand has been heavily linked with governmental restrictions on domestic and international travel, vaccination rates, testing requirements and passenger confidence to fly. The graphic below provides a useful timeline of the various policies in place in Europe up to December 2021, showing the approaches taken by Member States in terms of the range of measures, their start date or duration, with limited coordination at a European level. The stringency index displayed below records the progression of lockdown-style policies that primarily restrict citizens' behaviour, including travel bans, school closures and workplace closures. Looking at the broad spectrum of measures taken since the start of the pandemic, it is apparent that no single approach has emerged and that despite vaccination successes in Europe, a variety of restrictive policies remained in place in 2021. Figure 3.2 below also shows how the mutations of the virus have led to waves in governments' responses.

**Figure 3.2: COVID-19 stringency index in Europe**



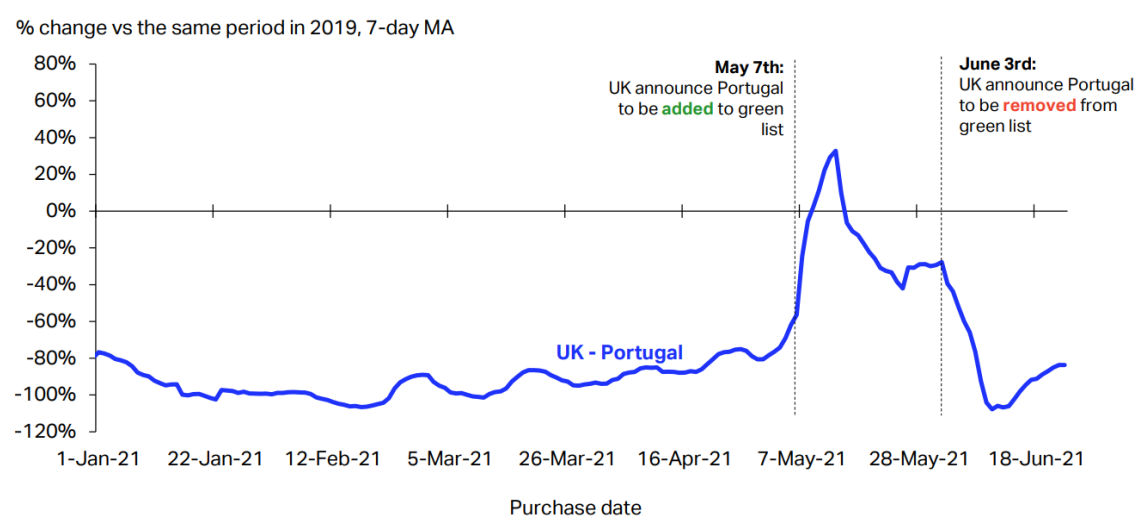
Source: University of Oxford, Oxford COVID-19 government response tracker. Note: The stringency index is a composite measure based on nine response indicators including school closures, workplace closures, and travel

bans, rescaled to a value from 0 to 100 (100 = strictest). Legend:



3.6 Whilst the health risks have impacted passenger confidence in air travel, national or regional measures on quarantine and testing requirements for travellers have also further complicated the decision-making process of potential travellers. The EU Digital COVID-19 Certificate has helped to simplify cross-border mobility, but it is also clear that government decisions have a significant and immediate effect on travel behaviour. For instance, an analysis of the World Travel and Tourism Council (WTTTC) shows that in May 2021, when the UK announced that Portugal was to be added to its green list (travellers not required to quarantine on returning to the UK), there was a 40 percent increase in air ticket sales from the UK to Portugal. However, less than a month later, when Portugal was removed from the green list, sales dropped quickly to below January 2021 levels.

Figure 3.3: Forward bookings, UK to Portugal, 2021



Source: WTTTC analysis, based on IATA Economics using data from DDS

3.7 The majority of Member States experiencing the largest reductions in passengers versus 2019 levels (Cyprus, Czechia, Croatia, Ireland, Slovenia, Slovakia, Malta) were Member States with either no, or a very small domestic flight networks: this is because in general there was a lesser impact on domestic passengers than international passengers as it was easier for passengers to travel without crossing borders (i.e. better understanding of the rules, less national restrictions on domestic movements, less need for testing, etc). There is no single trend explaining why some Member States fared better than others, but we suggest some possible explanations below:

- Bulgaria (-68% in 2020 and -57% in 2021) possibly due to large proportion of inbound Visiting Friends and Relatives (VFR) passengers and tourism;
- France (-70% in 2020 and -59% in 2021) likely due to a large domestic network and domestic tourism demand in the summer of 2020 when international outbound tourism was limited;
- Greece (-69% in 2020 and -43% in 2021) likely due to its strategy to kick-start inbound tourism demand in Summer 2020, ahead of its competitors. To a lesser extent, Croatia was also able to extend its tourism offer off-season quite successfully;

- Luxembourg (-67% in 2020 and -54% in 2021) possibly due to large proportion of outbound VFR passengers;
- Poland (-71% in 2020 and -60% in 2021) possibly due to large proportion of inbound VFR passengers;
- Portugal (-70% in 2020 and -59% in 2021) possibly due to large proportion of inbound VFR passengers and tourism;
- Romania (-69% in 2020 and -66% in 2021) possibly due to large proportion of inbound VFR passengers; and
- Norway (-67% in 2020 and -65% in 2021) due to large domestic network (56% of total) and the fact that demand in this market reduced by -51% compared to -77% for extra-EU flights).

3.8 Table A.1 in Appendix A presents the absolute difference in departing passenger demand by Member State between 2019 and 2021, disaggregated by market and also as a proportion of 2019 actuals.

#### **Domestic traffic**

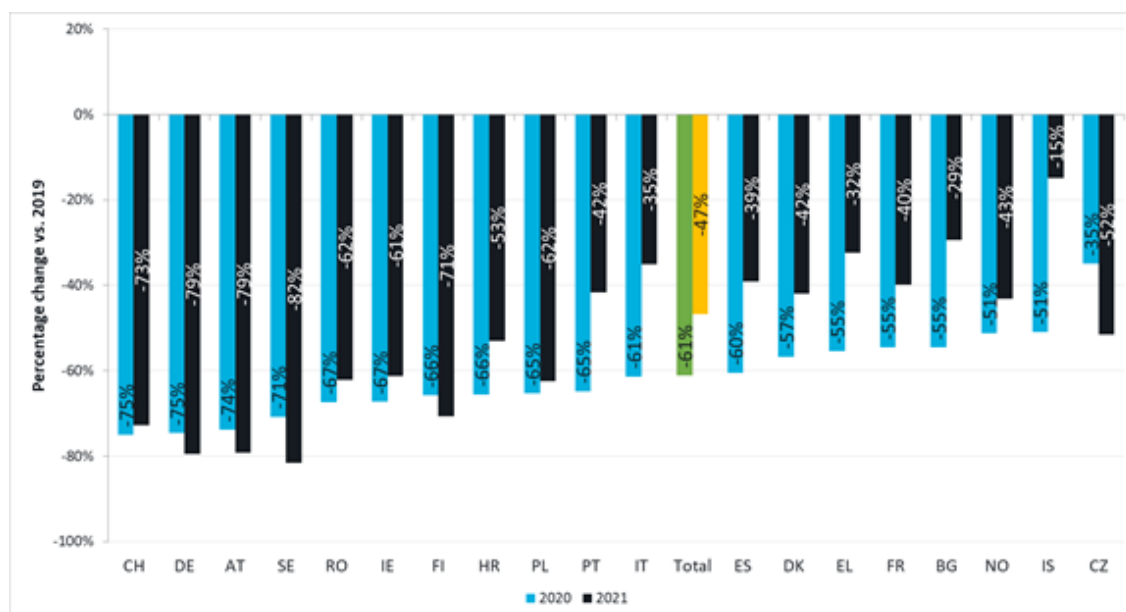
3.9 Figure 3.4 shows the percentage change in domestic passenger numbers in 2020 and 2021 compared to 2019 levels. Note that the following Member States are omitted from the figure below because:

- Cyprus, Malta, Luxembourg, Slovenia: there is no domestic market in these Member States; and
- Estonian, Latvian, Belgian, Slovakian, Lithuanian, Hungarian, and Dutch domestic traffic is also too small to be relevant.

3.10 Across the EU27+3, the reduction in domestic traffic in 2020 totalled -61%, a smaller decline than the intra-EU and extra-EU segments, mainly due to the lesser impact of sanitary restrictions on domestic connectivity. The largest declines were experienced in Germany (-75%), Switzerland (-75%), and Austria (-74%).

3.11 By 2021, the overall picture across the EU27+3 improved, with a -47% decline in domestic traffic relative to 2019, down 1 percentage point from 2020. Across the Member States, there were few changes of note from 2020: all remained below 2019 levels, although a number of domestic markets performed better than in 2020 due to easing restrictions later in the year.

Figure 3.4: Change in domestic passenger demand by Member State, EU27+3

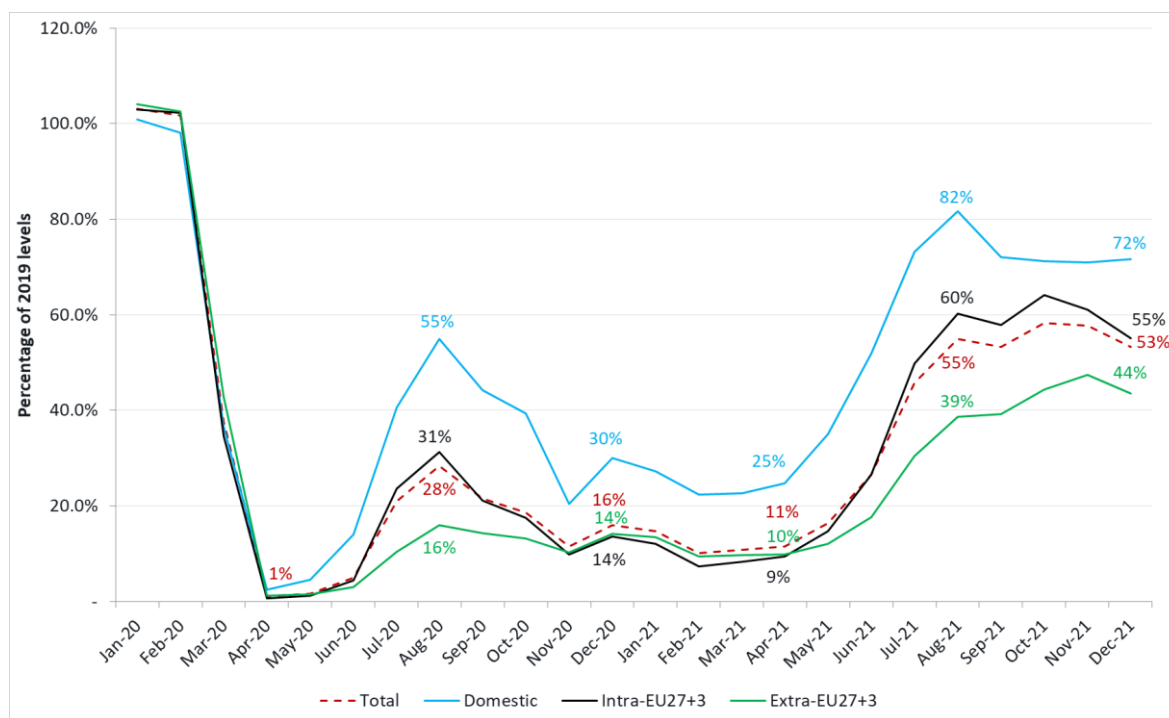


Source: Steer analysis of Eurostat data. Note: 2021 data incomplete for Belgium (available to October 2021), Romania, and Sweden (both available to September 2021). Thus, 2021 figures will overestimate declines relative to 2019.

3.12 While the COVID-19 pandemic strongly impacted domestic air travel, the recovery has been faster for the domestic market segment than in other segments: this is due to fewer, and consistent, restrictions at both ends of the flight route, as well as increased passenger confidence. At the end of 2020 compared to 2019, we observe that:

- Member States reliant on air travel for connectivity (e.g., Denmark, Greece, Norway, Iceland) tend to have experienced a relatively less severe reduction in domestic traffic than other Member States;
- The rise in domestic passenger numbers during the Summer 2020 was significantly larger for Member States with a significant domestic tourism market such as Spain, France and Italy; and
- Some Member States such as Germany recovered less well domestically in 2020 as they maintained the stricter restrictions compared to some other Member States and benefit less from a domestic tourism offer. In addition, in Germany as in Austria and Switzerland, there is a good quality road and rail transport offer for domestic travel.

3.13 As shown in Figure 3.5, the profile of domestic passenger recovery followed the same trend as the total market from August 2020 but maintained consistently higher proportions of 2019 passengers. Domestic passenger demand reduced from 55% of 2019 levels in August to 30% by December 2020, owing to the re-introduction of many travel restrictions, especially in large domestic markets, including France and Italy. During Spring 2021, the domestic market average remained flat at around 25% of equivalent 2019 demand, largely driven by restrictions being maintained in most larger European markets. Strong increases in domestic passengers were recorded from April 2021, where virtually identical demand growth was recorded in France, Italy and Spain, coinciding with the relaxation of restrictions in these countries. By August 2021, domestic travel had reached 74% of 2019 levels, significantly higher than intra-EU (51%) and extra-EU (33%).

**Figure 3.5: Average passenger demand by market, EU27+3**

Source: Steer analysis of Eurostat data

3.14 The domestic markets in Germany and Iceland are notable outliers: Germany has maintained one of the lowest domestic demand levels when compared with other Member States. This reduction is not consistent with trends in their Intra and Extra-EU aviation markets. We suggest this is because the domestic air transport market in Germany had been stagnant for many years and was already starting to witness a reduction in passengers prior to the pandemic. This can be attributed to a number of reasons, including:

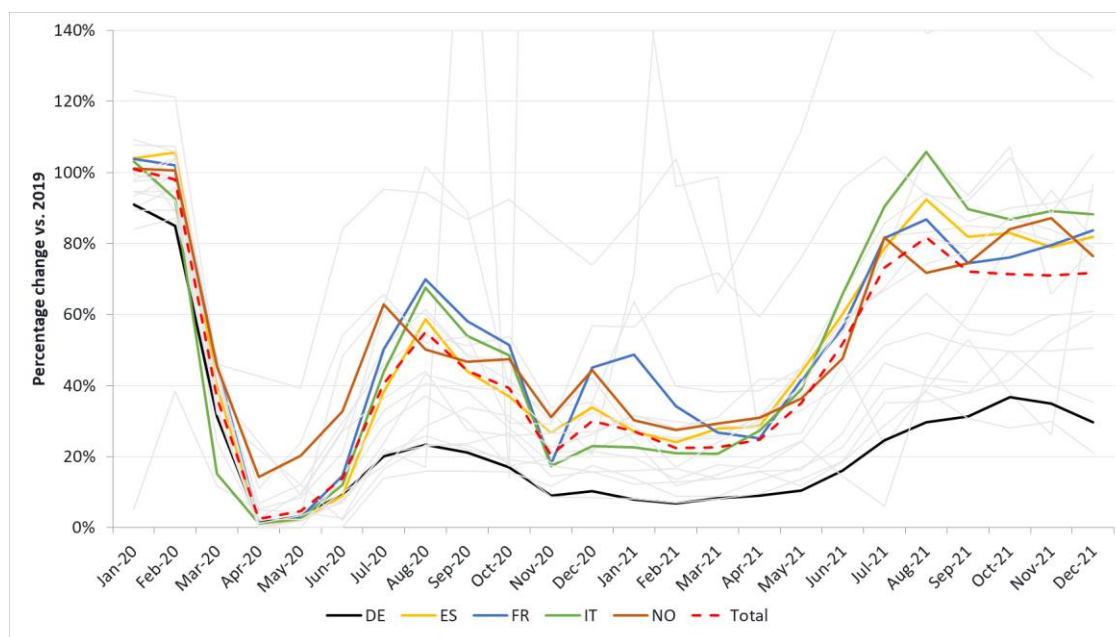
- Expansion of the high-speed rail network. The opening of Berlin – Munich high speed line in December 2017 caused Eurowings to discontinue their Berlin-Nuremberg route in 2019;
- Climate awareness and rise of flight shame trend in Germany. Lufthansa cancelled its Munich to Nuremberg (138km) flights in 2021 and replaced this service with a dedicated bus. 97% of passengers on this route were connecting in Munich;
- Higher fares for domestic flights, especially after the Air Berlin bankruptcy in 2017<sup>16</sup>; and
- The reduction of the VAT rate applied by the German government in January 2020 on long distance rail travel from 19% to 7%, with the national rail operator Deutsche Bahn (DB) passing these savings on to consumers; on average fares on journeys of 50km or more were reduced by around 10%<sup>17</sup>.

<sup>16</sup> <https://elib.dlr.de/140761/1/1-s2.0-S2352146521000909-main.pdf>

<sup>17</sup> <https://www.transportenvironment.org/discover/german-rail-fares-go-down-part-climate-measures/#:~:text=The%20German%20government%20has%20cut,come%20down%20by%20around%2010%25.>



**Figure 3.6: Domestic air travel by Member State, EU27+3, percentage of 2019 levels**



Source: Steer analysis of Eurostat data (passengers carried, arrivals and departures). Largest 5 Member States by 2019 passenger numbers highlighted; remaining Member States in grey.

3.15 In addition, the German domestic market has also seen one of the slowest recovery rates of all European domestic markets with 2021 passengers -79% below 2019 levels, lagging behind other Member States as shown in Figure 3.6 above. Reasons for this may include:

- Around 22% of domestic passengers in Germany were connecting onwards to another destination at their first destination point, compared with around 12% in France, 13% in Spain and 10% in Italy;
- Containment measures enforced as a result of the pandemic restricting face to face contact and stays in accommodation away from home;
- Federal travel guidelines for government employees were adjusted in January 2020; rail travel is now always reimbursed, even if it incurs higher costs than air travel;
- Departure taxes for domestic passenger in Germany were increased from €7.37 to €12.90 per departing passenger from April 2020. Pure domestic itineraries are also subject to 19% VAT;
- A work from home obligation has been enforced and remained in effect until the end of March 2021; and
- Additionally, in April 2021 the German Federal Association of the German Aviation Industry (BDL) and DB launched a joint action plan to strengthen transport integration between air and rail and encourage passengers to use rail journey where available to complete their itineraries<sup>18</sup>. BDL and DB see the potential for around 20% of domestic journeys taken by air within Germany to be shifted to rail through a combination of offering more reliable services, simplified ticketing, improved rail-air connections together with improved journey times.

<sup>18</sup> <https://www.railjournal.com/news/german-plan-to-switch-domestic-air-passengers-to-rail/>

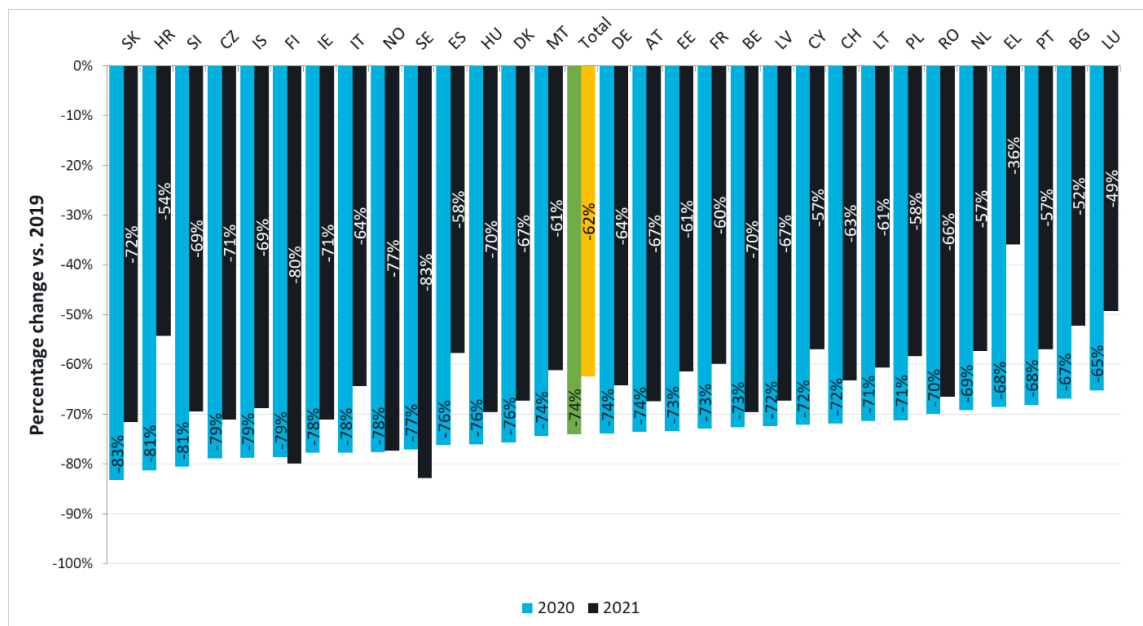


3.16 Iceland has maintained one of the highest domestic demand numbers when compared with its respective 2019 data. Of particular note is that demand in July 2021 surpassed equivalent demand in July 2019 owing to the limited spread of the pandemic in the country and the lifting of domestic restrictions. It should be noted that Iceland had amongst the least stringent public health measures against COVID-19 in 2020 and in 2021.

**Intra-EU traffic**

3.17 Figure 3.7 presents the change in intra-EU passenger demand by Member State in 2020 and 2021<sup>19</sup>. Overall, across the EU27+3, the reduction in intra-EU27+3 traffic totalled -74% on 2019 levels; with the smallest declines experienced in Luxembourg (-65%), Bulgaria, and Greece (both -67%), and the largest declines experienced in Slovenia (-83%), Croatia (-82%), and Slovakia (-80%). An EU27+3 average is also presented.

**Figure 3.7: Change in Intra-EU passenger demand by Member State, 2020 vs.2019, EU27+3**



Source: Steer analysis of Eurostat data (passengers carried, arrivals and departures). Note: 2021 data incomplete for Belgium (available to October 2021), Romania and Sweden (available to September 2021) and so 2021 figures will overestimate declines relative to 2019.

3.18 From the graphic above, we see that:

- Some Member States with economies heavily linked to tourism prioritised re-opening their markets early to ensure access to the summer season and as a result recorded less severe losses than others (e.g., Greece, Portugal);
- For Luxembourg, a possible explanation for its performance relative to other Member States is that this can be attributed to the high share of outbound VFR passengers; and
- Intra-EU traffic declined the most in 2020 in Slovakia (-83%), Croatia (-81%), and Slovenia (-81%).

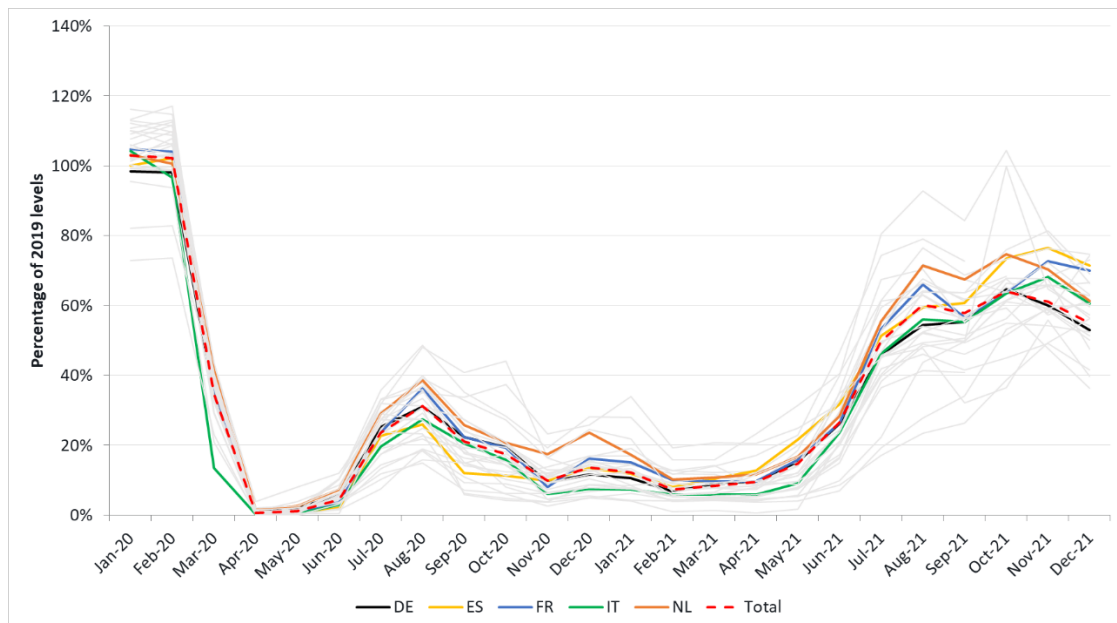
3.19 Compared to other segments, intra-EU travel has broadly fallen between domestic and extra-EU travel in terms of the decline in traffic. Figure 3.5 outlines how this has evolved since the

<sup>19</sup> Latest data available for each Member State

beginning of the crisis. Intra-EU travel remained below domestic travel throughout 2020 during the initial months of the crisis but beginning from June 2020 began to deviate from extra-EU travel as restrictions in Europe were relaxed, reaching 31% of 2019 levels in August 2020. However, with the resurgence in COVID-19 cases in late 2020 and into early 2021, intra-EU traffic again declined, reaching 14% of 2019 levels in December 2020, and stagnating to 9% of 2019 levels in April 2021.

3.20 However, as restrictions were eased in the summer of 2021, again traffic picked up and deviated away from extra-EU traffic, reaching 60% of 2019 levels by August 2021. Intra-EU traffic declined slightly to 55% of 2019 levels by December 2021 as the Omicron variant began to spread across Europe. These deviations show the impact that relaxed restrictions have on passenger demand, given that the extra-EU market remained restricted particularly in Asia. Due to the high proportion of intra-EU passengers of total, the average intra-EU passenger trend is very close to the overall average trend at Member State level.

**Figure 3.8: Intra-EU passenger numbers by Member State, EU27+3, percentage of 2019 levels**



Source: Steer analysis of Eurostat data (passengers carried, arrivals and departures). Largest 5 Member States by 2019 passenger numbers highlighted; remaining Member States in grey.

3.21 Figure 3.8 demonstrates how the largest five intra-EU markets by passenger numbers in 2019 fared during the crisis. We see that these markets tended to fluctuate around the total EU27+3 passenger numbers, though this is somewhat expected as these markets comprised 53% of the total intra-EU passenger numbers in 2020 and 57% in 2021. What is clear from this chart is that none of the largest intra-EU markets have significantly deviated from the rest in terms of passenger recovery throughout the crisis.

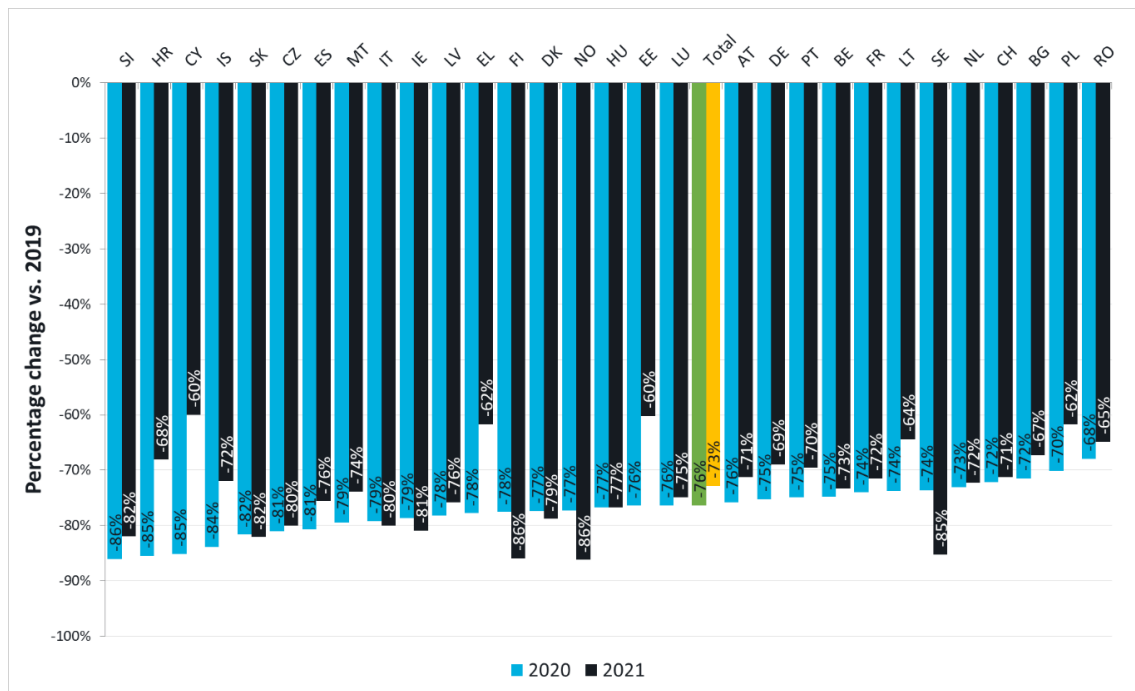
**Extra-EU traffic**

3.22 Figure 3.5 indicates that extra-EU passenger numbers across all EU27 Member States reduced by an average of -99% in April 2020 compared with April 2019, which is comparable with overall market segments. During Summer 2020 extra-EU passenger increased to a peak of 16% of 2019 demand in August, but remained stagnant for the remainder of 2020, reaching 14% of 2019 levels in December 2020. Demand remained significantly suppressed throughout the

winter of 2020/2021 and throughout Spring 2021, remaining at 10% of 2019 levels in April 2021. However, a recovery began in the summer of 2021, with extra-EU traffic reaching 39% of 2019 levels by August 2021, and further recovering to 44% of 2019 levels by December 2021. This demonstrates that long-haul travel has both experienced the largest declines in passenger numbers and has also experienced the longest lasting impact on passenger numbers.

3.23 Figure 3.9 below shows the percentage change in extra-EU passenger numbers compared to 2019 levels, together with the EU27+3 average. The recovery for the extra-EU market segment has been the slowest out of all markets, mainly due to different restrictions and changing rules around the world.

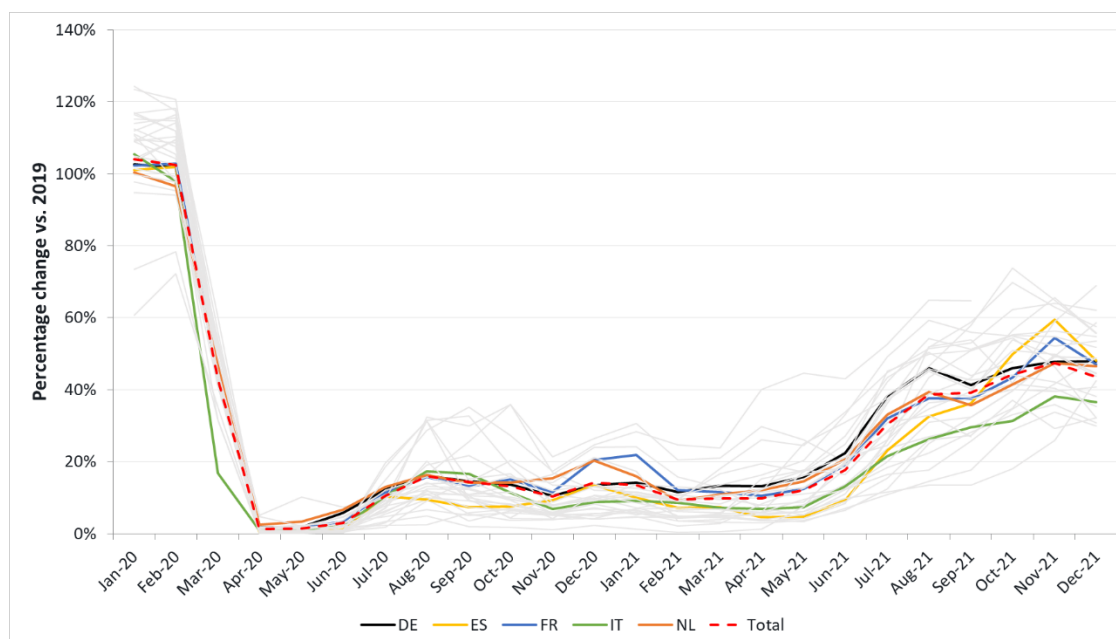
**Figure 3.9: Change in Extra-EU passenger demand by Member State, EU27+3**



Source: Steer analysis of Eurostat data (passengers carried, arrivals and departures). Note: 2021 data incomplete for Belgium (available to October 2021), Romania and Sweden (available to September 2021) and so 2021 figures will overestimate declines relative to 2019.

3.24 Figure 3.10 shows how the five largest extra-EU markets by 2019 passenger numbers experienced a significant and sustained reduction in extra-EU passengers during the crisis. Whilst most of these Member States closely followed the total EU27+3 reduction in passengers, Italy began to deviate below the rest in the latter half of 2021. This is likely due to the fact that ITA Airways, the new flag carrier after Alitalia ceased operations, currently has smaller operations than Alitalia before the crisis<sup>20</sup>.

<sup>20</sup> <https://centreforaviation.com/analysis/reports/italia-trasporto-aero-ita-new-culture-vital-to-shed-halitalia-legacy-579910>

**Figure 3.10: Extra-EU passenger numbers by Member State, EU27+3, percentage of 2019 levels**

Source: Steer analysis of Eurostat data (passengers carried, arrivals and departures). Largest 5 Member States by 2019 passenger numbers highlighted; remaining Member States in grey.

- 3.25 In terms of travel to/from North America: IATA analysis<sup>21</sup> shows US travellers accounted for around 16% of total European airlines international revenues in 2019, so is therefore a key market both in volume and revenue yield. While the US was on the EU's White List for a large part of the 2021 summer season, an increase in COVID-19 cases led to the EU recommending that Member States restrict US non-vaccinated arrivals at the end of August 2021 (although this guidance was not necessarily followed by all Member States). The US travel ban to inbound travel from Europe imposed from March 2020 was extended in January 2021 until November 2021. As a result, US arrivals remained at more than 90% below their 2019 levels for a third of European destinations, including Belgium, Denmark, Germany, Netherlands, Italy, Poland, Switzerland. In 2020, every country in Europe saw falls of over 70% when compared to 2019.
- 3.26 On travel to/from Asia, based on year-to-date data from the European Travel Commission (ETC), Chinese arrivals remain more than 90% below the same period in 2019 across all European reporting destinations. Chinese government guidance remains that non-essential outbound travel should be avoided and there is still a ban on outbound vacation package sales in China, whilst most European markets have eased entry restrictions for Chinese arrivals. Based on 2021 data, Japanese arrivals remain more than 90% below their 2019 levels for the same period across all reporting European destinations also due to national travel restrictions.
- 3.27 Indian arrivals were significantly affected by the travel ban that most Member States imposed on India to contain the spread of the Delta variant in 2021 and the Indian lockdown in 2020. All European markets report visitor arrivals as more than 85% below their 2019 levels in 2021 and between 80% and 95% below 2019 levels in 2020.

<sup>21</sup> <https://www.iata.org/en/iata-repository/publications/economic-reports/reopening-us-europe-will-bring-significant-revenues-to-airlines/>

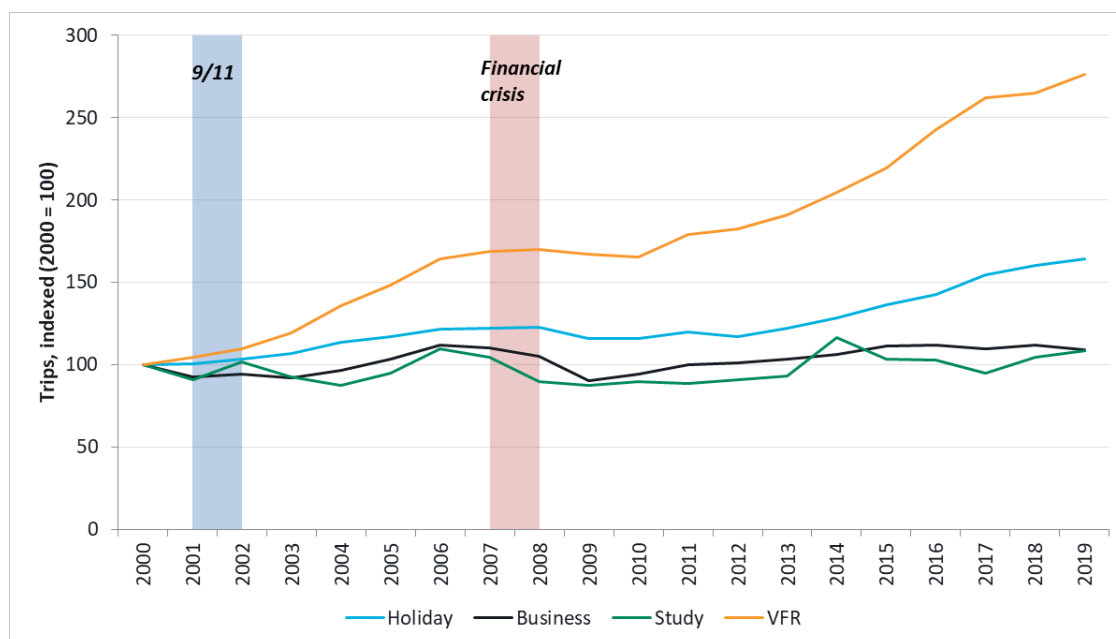
## Passenger sectors

Are there any differences with regard to the air travel segments (e.g. scheduled, business, cargo, etc.)?

### Travel for business

- 3.28 Demand for leisure, visiting friends and relatives (VFR) and business travel follow different characteristics and therefore responds differently to the COVID-19 pandemic. Whilst all were initially impacted by border/travel restrictions and requirements to stay-at-home, the shift towards remote working and online meetings has provided an alternative from in-person travel, for VFR and business travel purposes. Additionally, as businesses faced extraordinary operating conditions during the crisis, cost-cutting measures to reduce/remove travel expenditure have been cited as another driver behind reductions in business travel demand. A report<sup>22</sup> found a 71% drop in business travel demand across Europe in 2020 compared to pre-COVID-19 levels, which is consistent with the total passenger number decline experienced across Europe in 2020 compared to 2019 (-73%<sup>23</sup>).
- 3.29 Figure 3.11 below illustrates that in previous crises, leisure trips or visits to friends and relatives tended to rebound first, as was the case in the United Kingdom following 9/11 and the global financial crisis: not only did business trips take four years to return to pre-crisis levels after 2001 but they also had not yet fully recovered to pre-financial-crisis levels when the pandemic started in 2020. Note that few European national statistical offices collect data on journey purpose, hence the use of a non-EU source for the graphic below.

Figure 3.11: International air travel recovery by passenger segment, UK, 2000-2019



Source: McKinsey analysis of UK Office for National Statistics, Travelpack data

<sup>22</sup> <https://www.rolandberger.com/en/Insights/Publications/The-future-of-long-distance-mobility-How-Covid-jolted-long-distance-business.html>

<sup>23</sup> Source: Steer analysis of Eurostat data

3.30 Therefore it has been estimated that the recovery in leisure trips will outpace that of business travel, although the precise rate at which this will happen remains uncertain:

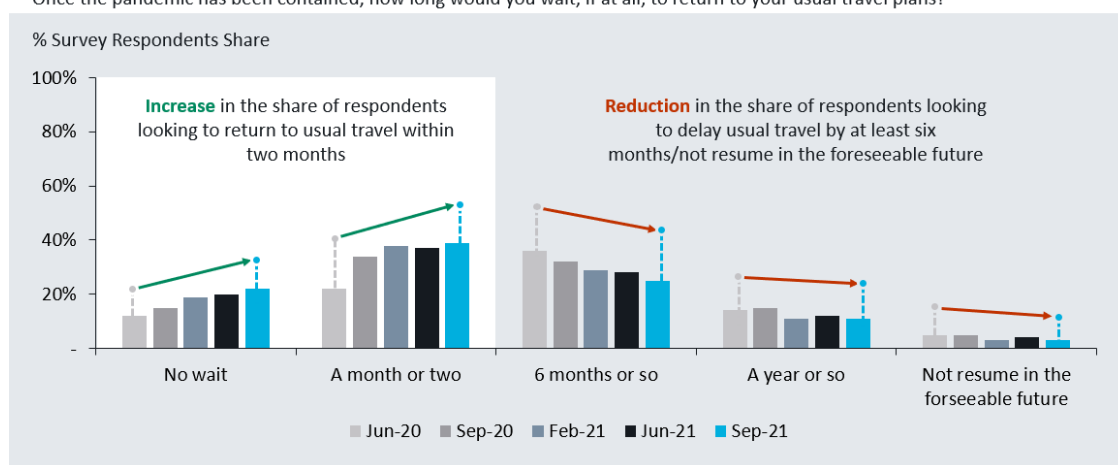
- A report by Roland Berger estimates that a full recovery of air business travel to pre-crisis levels is not expected until 2030 at the earliest<sup>24</sup>, with European respondents of the survey conducted by the consultant anticipated that their business travel after the pandemic would be on average 24% lower than before the pandemic once restrictions are lifted;
- A report by Alix Partners anticipates a decline of 15% to 25% in air business travel until 2025, with the largest decline in business travel demand attributed to conducting internal meetings virtually, accounting for approximately 40% of corporate travel<sup>25</sup>.

3.31 Business travel, like leisure travel, is also dependent on external factors and it is therefore also likely that the recovery of this market will vary depending on the purpose and distance of the business trips. In addition, business travel recovery will likely vary by Member State or region and business sector: certain industries are early adopters of a return to business travel, and therefore WTTC<sup>26</sup> expects business travel to possibly return faster in Asia than in many European markets.

3.32 Some caveats need to be placed on analysis purely based on survey results as perceptions and responses are heavily influenced by current restrictions, attitudes to travel, which can significantly change over time. This may lead to an overestimate of the impact of COVID-19 on business travel based on the studies described above.

**Figure 3.12: Air traveller return to usual - travel plans after COVID-19**

Once the pandemic has been contained, how long would you wait, if at all, to return to your usual travel plans?



Source: International Air Transport Association presentation: *Air traveller response to COVID-19*, Steer analysis

<sup>24</sup> <https://www.rolandberger.com/en/Insights/Publications/The-future-of-long-distance-mobility-How-Covid-changed-consumer-appetites.html>

<sup>25</sup> <https://www.bloomberg.com/news/articles/2021-11-10/business-travel-seen-in-structural-decline-in-post-covid-era>

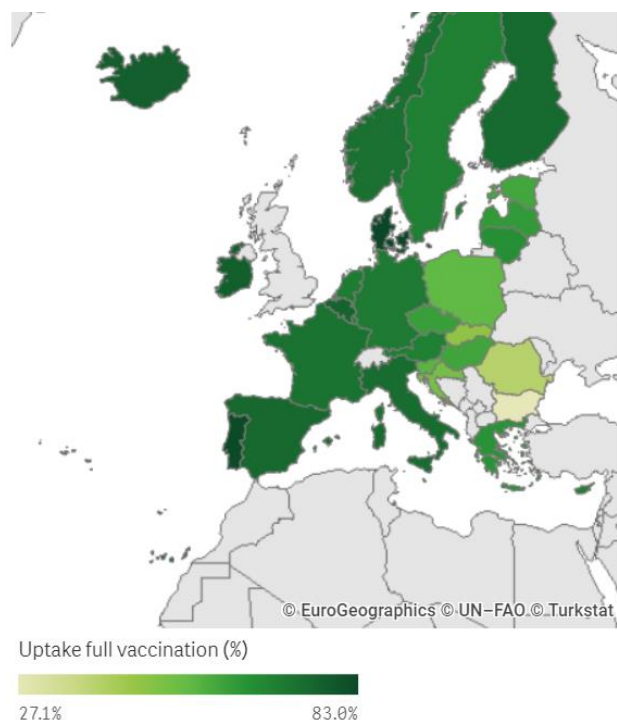
<sup>26</sup> The Outlook For Business Travel, WTTC, 2021

*Tourism and VFR travel*

- 3.33 Demand for tourism to/from and across Europe has historically been strong. However, the impact of the pandemic on international tourism has been significant with international tourist arrivals to Europe down by 70% in 2020 vs. 2019, and down by 77% for the first half of 2021 relative to 2019. Over the summer of 2021 vs. 2019, the European Travel Commission reported tourist arrivals down by 70% in August in Germany, France and the Netherlands. In Italy arrivals the same month were down by 80% whilst there was an improvement in September 2021 in all these markets.
- 3.34 Some Member States experienced better summer seasons in 2021 than anticipated (such as Luxembourg), especially where they were able to rely on domestic tourism or where they proactively targeted tourists (such as Greece or Croatia). Member States with tight restrictions in place (such as Italy or Ireland), those more dependent on long-haul markets or Member States such as Finland where rules prevented its largest inbound passenger market to access it (Russia was Finland's largest inbound market in 2019, but none of Russia's authorised vaccines are on Finland's list of approved vaccines) have struggled to recover.
- 3.35 In contrast with leisure or tourism-driven market segments which can be open to alternative and competing destinations, VFR travellers are focussed on a specific destination. It is also a market that is more resilient than others being the first one to bounce back post-crises (as illustrated in Figure 3.11). Typical attributes of VFR travellers include longer length of stay and less reliance on commercial accommodation than leisure travellers. As for all other market segments considered, there have been less barriers to domestic VFR than international VFR travel throughout the pandemic, as vaccination, testing, quarantine requirements have mostly been imposed in Europe and elsewhere when crossing national borders.
- 3.36 The degree to which VFR may lead the travel recovery is uncertain (as for business travel, technological solutions have provided the opportunity for various forms of virtual social gatherings) and will also likely depend upon the source market: where destinations have been closed throughout the period or during key VFR travel periods (summer and end of year), the demand might be initially stronger. We see from the graphic below that international travel for VFR purposes is globally the second largest travel segment, that it has been affected in similar manners than leisure markets with a decrease of 70% in 2020 vs. 2019. GlobalData's forecast suggests that VFR travel will experience higher growth (CAGR 2021-25: 17%) than leisure (CAGR 2021-25: 16.4%) over the next four years.
- 3.37 For all passenger markets, it is clear that the extent of vaccination coverage will be one of the key factors in the speed of the travel rebound. In Europe, up to the December 2021 emergence of the Omicron variant, vaccination was critical to the lifting of entry requirements and helped sustain passenger travel demand. In the EU/EEA, as of 31/12/2021, 79.2% of adults (67.8% of total population including children) have been double-vaccinated, with a further 28.1% (23% of total population) having received a third dose. However, this number hides geographic disparities across Europe with some Member State lagging behind, such as Bulgaria (27.1%), Romania (40.1%), Slovakia (47.4%), Croatia (51.7%), Poland (55.1%) or Estonia (59.7%).



**Figure 3.13: Cumulative uptake (%) of double-vaccinated, EU/EEA**



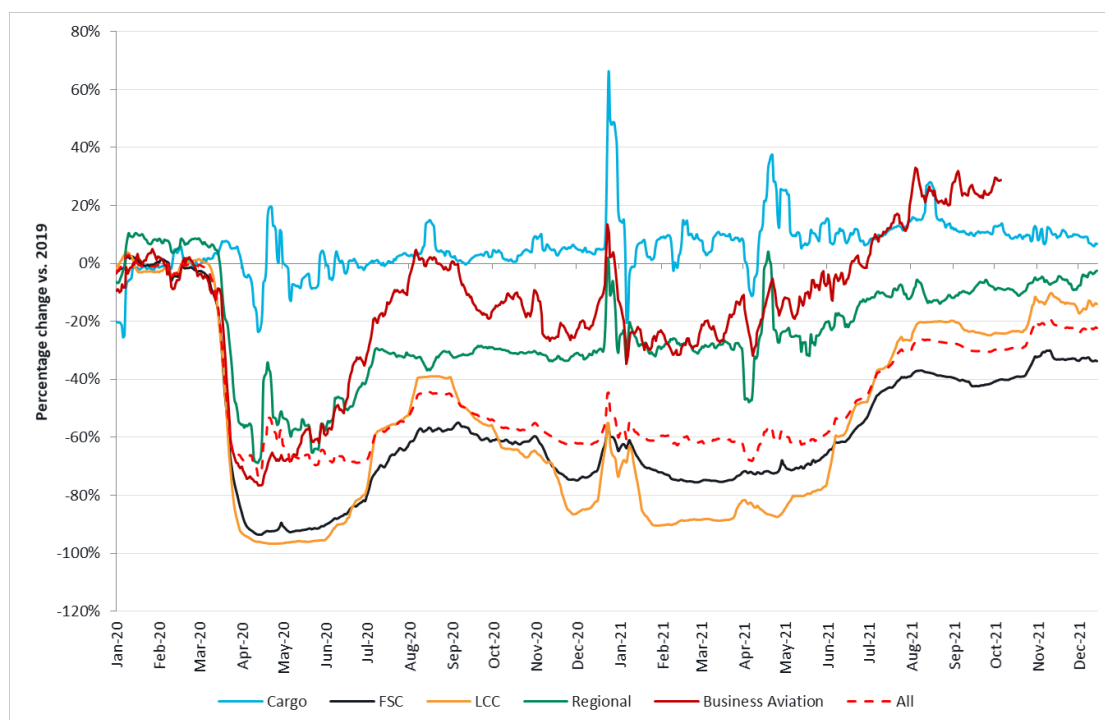
Source: European Centre for Disease Prevention and Control, as of 12 December 2021.

- 3.38 Throughout Europe, the choice of vaccine is also having an impact on the passenger travel recovery of some international markets: the EU has approved the use of AstraZeneca, Pfizer, Moderna, and Janssen vaccines, but the Sputnik V vaccine – the main vaccine used in Russia – still awaits approval from the European Medicines Agency (EMA) and the World Health Organisation (WHO) and is not recognised as valid by most EU destinations, apart from highly touristic ones such as Greece.

#### **Commercial aviation supply**

- 3.39 Carrier data from EUROCONTROL details how airlines have responded differently to the pandemic. Figure 3.14 shows how selected airlines across Europe reduced the number of flights operated relative to 2019. Airlines in this analysis have been grouped into four categories:
- Cargo carriers, consisting of ASL Airlines Belgium, DHL Express, and Federal Express;
  - Low-cost carriers (LCCs), consisting of Ryanair, easyJet, Eurowings, Volotea, Vueling, Wizz Air and Norwegian Air Shuttle;
  - Regional carriers consisting of Widerøe, Loganair, and Iberia Air Nostrum;
  - Full-service carriers (FSCs) consisting of Aegean Airlines, Aer Lingus, Air Europa, Air France, Austrian Airlines, British Airways, Brussels Airlines, Finnair, Iberia, KLM, Lufthansa, Finnair, LOT, SAS, SWISS, and TAP; and
  - Business aviation, defined by measuring the movements of selected aircraft defined by EUROCONTROL to be business aviation aircraft<sup>27</sup>. Note that business aviation does not imply travel for business, rather the use of business aircraft.

<sup>27</sup> <https://www.eurocontrol.int/publication/market-segment-rules>

**Figure 3.14: Number of flights by airline, percentage change vs. 2019**

Source: Steer analysis of EUROCONTROL data

3.40 Of the passenger airlines, regional carriers saw the lowest decrease in flights, reducing by around -60% during the first phase of the pandemic between March 2020 and July 2020. Since July 2020, regional carriers have witnessed a relatively steady recovery, with flights in December 2020 operating at around -35% below levels in 2019. In 2021, the steady recovery has continued, with flights marginally less than 2019 levels by the end of 2021. This will likely be in part due to regional carriers:

- Operating a higher proportion of their flights in domestic markets and certainly not much in extra-EU markets, which will have less been impacted by cross-border restrictions placed on international passengers, especially on long-haul flights;
- Due to the critical nature of many of the services involved, which provide connectivity to remote regions which was maintained during the pandemic, even when demand had reduced considerably; and
- Full-service carriers moving services to regional carriers (e.g. Iberia to Air Nostrum) to allow routes to be maintained, operated at lower-cost, and as a way of mitigating the risk of slot and passenger rights issues.

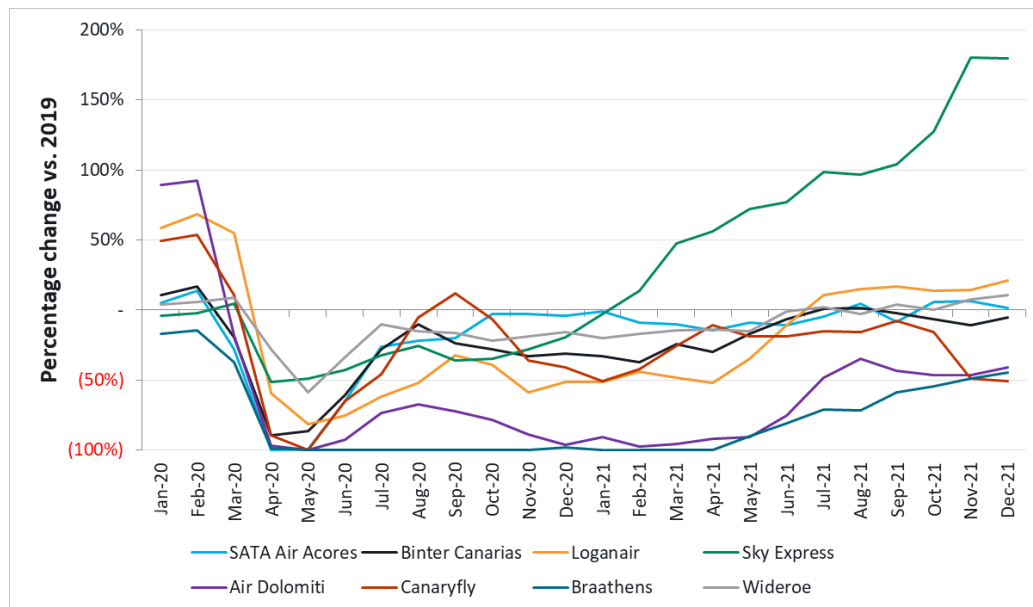
3.41 Overall, in terms of the competitive landscape and recovery of regional airlines, we see that there have been various profiles: Widerøe and Binter remain the largest regional airlines of Europe. However, Skyexpress has benefited significantly from the pandemic, contrary to Braathens who temporarily ceased operations and have only just restarted them towards the end of 2021. Air Dolomiti was also affected albeit also by Alitalia restructuring. Figure 3.15 and Figure 3.16 outline the monthly profile of seats and movements of these regional airlines respectively.

**Table 3.1: Top regional airlines operating in Europe, seats and flights, 2019-2021**

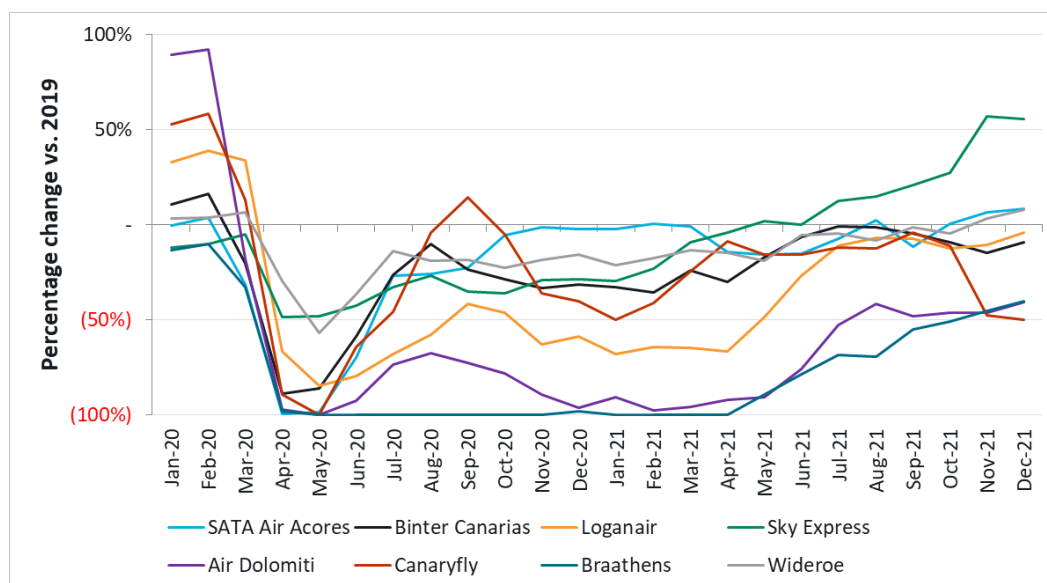
MS	Airline	Seats			Movements		
		2019	2021	% change	2019	2021	% change
NO	Widerøe	5,844	5,553	-5%	118,489	108,762	-8%
ES	Binter Canarias	5,154	4,463	-13%	68,529	58,556	-15%
EL	Sky Express S.A.	1,854	3,516	90%	33,594	37,096	10%
UK	Loganair	1,620	1,505	-7%	48,348	34,294	-29%
IT	Air Dolomiti	2,777	1,011	-64%	23,142	8,076	-65%
PT	SATA	2,207	1,906	-14%	22,362	20,185	-10%
SE	Braathens	3,267	723	-78%	41,292	10,045	-76%
ES	Canaryfly	1,005	720	-28%	14,033	10,354	-26%

Source: Steer analysis of OAG data

**Figure 3.15: Percentage change vs. 2019 in seats of selected regional airlines**



Source: Steer analysis of OAG data

**Figure 3.16: Percentage change vs. 2019 in movements of selected regional airlines**

Source: Steer analysis of OAG data

3.42 The flight recovery profiles of LCCs and FSCs are somewhat similar, with increases being witnessed in July and August 2020, reductions from September 2020 to May 2021 and increases again from June 2021. However, the profile of flights operated by LCCs is more variable than those operated by FSCs. During the Summer 2020 season, the number of flights operated by LCCs recovered at a faster rate than those of FSCs in flight volumes, though flights remained below 2019 levels. As stricter measures were introduced in early 2021, LCCs reduced their flights and capacity offered at a faster rate than those of FSCs, however, during the Summer 2021 season, recovery of flights again significantly outperformed that of FSCs. There are a number of reasons why the profile of recovery may have taken this form, including:

- LCCs operating route networks which are more focussed on intra-European routes, which will have had fewer operational challenges than re-opening flights to destinations such as those in North America;
- The desire to establish greater market presence in the aftermath of the pandemic by re-starting service faster than competitors; and
- The ability to re-schedule services at relatively short notice to destination free of, or with limited travel restrictions.

3.43 Full-service carrier (FSC) flight recovery has been more subdued than that of LCCs, with FSCs recovery performing behind regional carriers and LCCs in the second half of 2020, shown in Table 3.2 below. However, during the second wave in early 2021 it is notable that FSC flight recovery was higher than those of LCCs as fewer services were cut. There are a number of reasons why the profile of recovery may have taken this form, including:

- FSCs being more impacted by the closure of North American and other long-haul markets;
- FSCs maintaining some services for cargo traffic (with seat capacity remaining) and/or operating “preighter”<sup>28</sup> flights with light cargo transported in the cabin;

<sup>28</sup> Cargo flights operated with passenger aircraft, either with seats removed or in-situ.

- Being impacted also by connecting traffic flows, which can account for a significant proportion of passengers at some airlines. This has the ability to both restrict passengers and support passenger flows depending on ease of connection due to the COVID regulations in place; and
- The reintroduction of “use it or lose it” rules for airport slots (at lower levels of 50%, post handback) at level 3 airports across the EU in Summer 2021 and Winter 2021/22.

**Table 3.2: Percentage change vs. 2019 levels in flights operated by selected FSCs and LCCs**

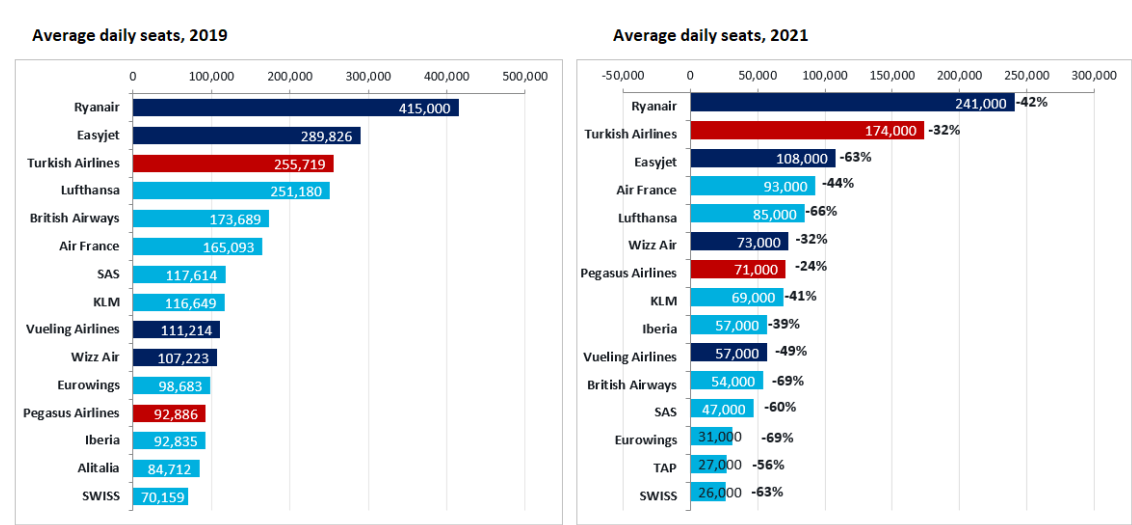
Type		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2020	FSC	0%	-2%	-45%	-94%	-93%	-88%	-70%	-60%	-63%	-64%	-74%	-70%
	LCC	-2%	-2%	-45%	-97%	-97%	-93%	-64%	-45%	-57%	-67%	-81%	-78%
2021	FSC	-72%	-79%	-78%	-74%	-72%	-62%	-46%	-42%	-44%	-39%	-34%	-35%
	LCC	-84%	-91%	-90%	-87%	-83%	-61%	-37%	-26%	-29%	-25%	-21%	-22%

Source: Steer analysis of EUROCONTROL data

3.44

As a result of the pandemic, significant changes to the airline competitive landscape between LCCs and FSC has been observed in 2021 compared to 2019, as illustrated in the graphic below showing seat capacity. This graphic shows that LCCs have fared differently depending on their business model: Ryanair and Wizz Air have lost less capacity than easyJet or Vueling: these two LCCs are mostly focussed on leisure or VFR markets and less so on business travel than easyJet for instance. We also observe that some non-EU airlines such as Turkish and Pegasus have maintained a significant amount of capacity, but they have operated under different regulatory arrangements. In terms of European full-service airlines, Lufthansa and Air France remain part of the top ten airlines, while British Airways had a more significant reduction in terms of capacity offered, possibly due to longer and tighter restrictions on air travel to and from the UK. SAS also lost significantly in terms of market share with northern Europe badly affected by the pandemic, as shown by Scandinavian Member States registering above-average passenger declines in intra-EU traffic in 2020 (see Figure 3.7). However, Iberia, part of IAG like BA, was able to offer more capacity to the south of Europe.

**Figure 3.17: Top airlines operating in Europe, average daily seats, 2019 vs 2021**



Source: Steer analysis of OAG data. Note: colour code is light blue for network carriers, dark blue for LCC and dark red for all non-EU27+3+UK airlines

3.45 In terms of airports, Table 3.3 and Table 3.4 outline how the rankings of top 30 airports by passengers and cargo have changed between 2019 and 2021. For passengers, the most notable rises in the rankings include Malaga Costa del Sol (+11), Palma de Mallorca (+9), and Düsseldorf (+7); notable falls in the ranking were observed at Rome Fiumicino and Athens (both -6). Airports falling out of the top 30 by passenger numbers in 2021 include Dublin, Stockholm Arlanda, Berlin – Tegel (because it was closed and replaced by FBB), Helsinki and Prague.

**Table 3.3: Top 30 airports by passengers, EU27+3, 2019 vs 2021**

2019			2021			
Rank	Airport	Passengers (m)	Rank	Change	Airport	Passengers (m)
1	Paris-CDG	76.1	1	0	Paris-CDG	26.2
2	Amsterdam	71.7	2	0	Amsterdam	25.5
3	Frankfurt-Main	70.4	3	0	Frankfurt-Main	24.8
4	Madrid	59.7	4	0	Madrid	23.2
5	Barcelona	51.7	5	0	Barcelona	18.5
6	Munich	47.9	6	+3	Paris-Orly	15.7
7	Rome-Fiumicino	43.4	7	+7	Palma de Mallorca	14.5
8	Dublin	32.7	8	+11	Athens	13.4
9	Paris-Orly	31.9	9	-3	Munich	12.5
10	Vienna	31.6	10	+2	Lisbon	12.2
11	Zurich	31.5	11	-4	Rome-Fiumicino	11.6
12	Lisbon	31.2	12	-2	Vienna	10.5
13	Copenhagen	30.1	13	-2	Zurich	10.2
14	Palma de Mallorca	29.6	14	New	Berlin-Brandenburg	9.9
15	Milan-Malpensa	28.7	15	0	Milan-Malpensa	9.6
16	Oslo	28.5	16	0	Oslo	9.4
17	Brussels	26.3	17	0	Brussels	9.3
18	Stockholm-Arlanda	25.6	18	-5	Copenhagen	9.1
19	Athens	25.6	19	+4	Malaga	8.7
20	Dusseldorf	25.5	20	-12	Dublin	8.3
21	Berlin-Tegel	24.2	21	-1	Dusseldorf	7.9
22	Helsinki	22.0	22	-4	Stockholm-Arlanda	7.5
23	Malaga	19.6	23	+1	Warsaw-Chopin	7.4
24	Warsaw-Chopin	18.9	24	New	Gran Canaria	6.8
25	Prague	17.8	25	New	Nice-Cote d'Azur	6.5
26	Geneva	17.8	26	New	Milan-Bergamo	6.5
27	Hamburg	17.3	27	New	Catania	6.1
28	Budapest	16.1	28	-2	Geneva	5.8
29	Alicante	15.0	29	0	Alicante	5.8
30	Bucharest	14.7	30	New	Porto	5.8

Source: Steer analysis of Eurostat data. Note that 2021 data does not include the United Kingdom.

3.46 In terms of cargo, which has been more resilient during the pandemic, there were notable rises in the rankings from Frankfurt Hahn (+11), Maastricht, and Zaragoza (both +10), whilst notable declines include Rome Fiumicino (-5) and Munich (-3), whilst Milan Bergamo fell out of the top 30 by cargo tonnes in 2021.

**Table 3.4: Top 30 airports by cargo tonnes, 2019 vs 2021**

2019			2021			
Rank	Airport	Cargo tonnes (000s)	Rank	Change	Airport	Cargo tonnes (000s)
1	Paris-CDG	2,096	1	+1	Frankfurt-Main	2,261
2	Frankfurt-Main	2,089	2	-1	Paris-CDG	2,058
3	Amsterdam	1,592	3	0	Amsterdam	1,680
4	Leipzig	1,227	4	0	Leipzig	1,587
5	Luxembourg	853	5	+1	Liege	1,325
6	Liege	809	6	-1	Luxembourg	1,088
7	Cologne-Bonn	799	7	0	Cologne-Bonn	967
8	Brussels	562	8	+1	Milan-Malpensa	747
9	Milan-Malpensa	558	9	-1	Brussels	693
10	Madrid	511	10	0	Madrid	483
11	Zurich	355	11	0	Zurich	238
12	Munich	350	12	+8	Frankfurt-Hahn	227
13	Copenhagen	226	13	0	Copenhagen	210
14	Helsinki	221	14	0	Helsinki	176
15	Vienna	221	15	0	Vienna	176
16	Rome-Fiumicino	195	16	+1	Oslo	176
17	Oslo	172	17	-5	Munich	173
18	Lisbon	154	18	+3	Dublin	144
19	Barcelona	143	19	+6	Zaragoza	137
20	Frankfurt-Hahn	142	20	-2	Lisbon	133
21	Dublin	133	21	+3	Maastricht	128
22	Milan-Bergamo	119	22	+6	Budapest	126
23	Warsaw-Chopin	114	23	-4	Barcelona	109
24	Maastricht	111	24	+2	Athens	107
25	Zaragoza	111	25	-2	Warsaw-Chopin	105
26	Athens	103	26	+3	Stockholm-Arlanda	101
27	Paris-Orly	98	27	-11	Rome-Fiumicino	101
28	Budapest	96	28	-1	Paris-Orly	81
29	Stockholm-Arlanda	94	29	New	Marseille	70
30	Prague	85	30	New	Ostend-Bruges	63

Source: Steer analysis of Eurostat data

**Business aviation**

3.47 Business aviation demand has remained more resilient than passenger commercial aviation, whilst still being significantly affected. Figure 3.14 outlines how the number of business aviation flights has evolved during the pandemic. Demand for business reached its deepest decline in April 2020, before beginning to rebound. By August 2020, the recovery in demand for business aviation led to a marginal increase in business aviation flights relative to 2019,

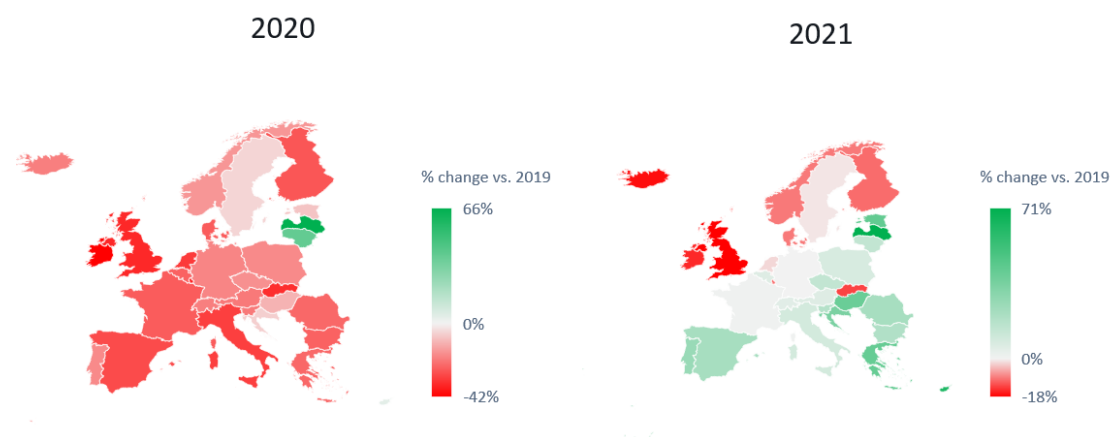


whilst low-cost carriers and other scheduled flights remained over 50% lower than 2019 levels. As the pandemic developed in the latter half of 2020, demand for business aviation again declined, but remained significantly more resilient relative to scheduled commercial aviation. Demand spiked over the Christmas 2020 period across the industry, with a brief peak where demand exceeded 2019 levels. In 2021 business aviation demand slowly recovered through the first half of 2021 (as the Alpha variant spread across Europe and restrictions returned) and returned to 2019 levels by June 2021 (when at the same time commercial aviation remained in the order of 60-70% lower on 2019 levels).

3.48 The business aviation segment has derived its relatively positive outcome from both demand and supply-side changes: on the supply side operators have offered new services such as shared flights to make their services more affordable and to an extent to offer a product not which is a direct substitute for scheduled commercial aviation, whilst on the demand side the lack of connectivity (whether in terms of flights themselves, or schedules) from scheduled flights has pushed new (and wealthy) customers to business aviation.

3.49 Figure 3.18 shows the percentage change in business aviation flights in 2020 and 2021 respectively compared to 2019 by Member State. In 2020, the decline in business aviation was common across most Member States, with only Czechia (4%), Lithuania (39%) and Latvia (66%) experiencing growth in business aviation flights. The deepest declines in business aviation flights in 2020 were observed in Ireland (-42%), Luxembourg (-37%) and the United Kingdom (-35%). In 2021, we clearly observe the resurgence of business aviation within a number of Member States with growth in Latvia (71%), Cyprus (62%) and Malta (42%); meanwhile, countries registering the largest declines relative to 2019 were the United Kingdom (-18%), Iceland (-17%) and Ireland (-15%).

**Figure 3.18: Business aviation flights by Member State, 2020/2021, percentage of 2019 levels**



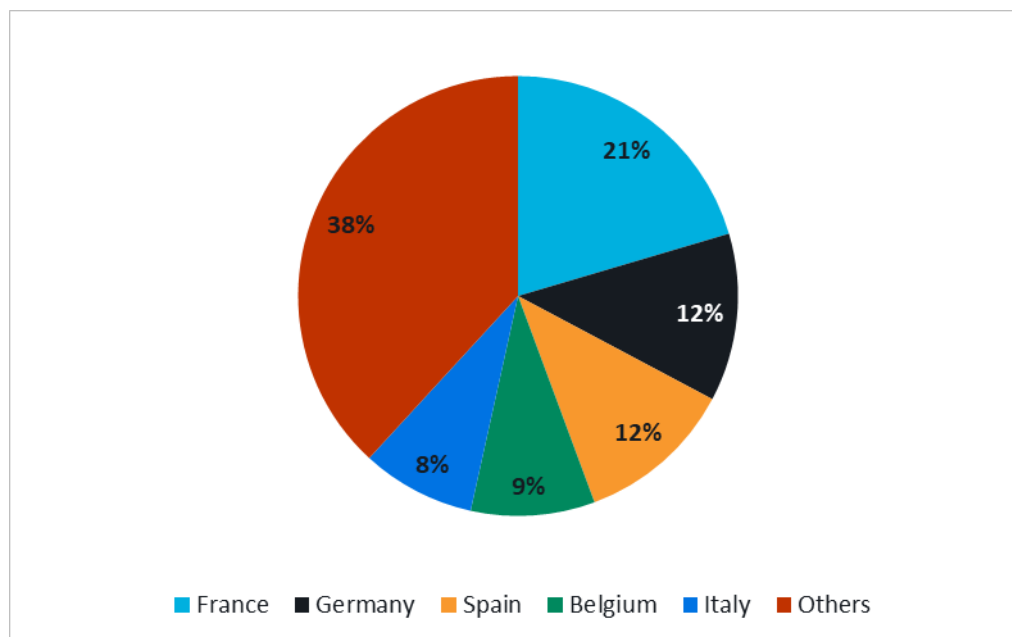
Source: EBAA Traffic Tracker, Steer analysis

3.50 The maps show that the majority of Member States enjoying the largest levels of growth in business aviation in 2021 are those in the South and East of the continent. Member States in the North and West of Europe have experienced less favourable growth or declines in 2021 relative to 2019 levels. This appears consistent with the findings from EUROCONTROL that leisure travel has driven growth in business aviation in 2021<sup>29</sup>. Whilst leisure travel is the traditional key driver of demand for business aviation in the summer, airports such as Palma

de Mallorca, Athens and Malaga reported particularly strong figures during the whole of 2021<sup>29</sup>.

- 3.51 Figure 3.19 shows that five Member States (France, Germany, Spain, Belgium and Italy) have driven 62% of the growth in business aviation movements between 2020 and 2021. This tells a slightly different story to Figure 3.18 as we see below the largest business aviation markets of Europe over the last two years.

**Figure 3.19: Proportion of growth in business aviation movements between 2020-2021 by Member State**



Source: EBAA, Steer analysis

- 3.52 Table 3.5 outlines the top 30 airports in Europe by business aviation movements in 2020 and 2021 respectively. The vast majority of airports above experienced a decline in business aviation traffic in 2020 relative to 2019. The deepest declines were observed at London Luton (-43%), Barcelona (-40%) and Madrid (-40%); airports faring best in 2020 were Istanbul Ataturk (14%), Belgrade Nikola Tesla (4%) and Athens International Airport (-5%). By 2021, the majority of airports above experienced growth in business aviation traffic. The largest growth figures came from Athens (54%), Malaga (52%), and Budapest (51%). Airports experiencing declines in business aviation traffic in 2021 relative to 2019 included London Luton (-31%), Farnborough (-17%), and Stuttgart (-7%).

**Table 3.5: Top 30 business aviation airports, 2020/2021**

Rank	2020			Rank change vs 2020	2021		
	Airport	Movements	% change vs. 2019		Airport	Movements	% change vs. 2019
1	Paris Le Bourget	31,111	-38%	0	Paris Le Bourget	48,421	-4%
2	Geneva	23,304	-27%	1	Nice Cote d'Azur	36,234	8%

<sup>29</sup> <https://www.eurocontrol.int/publication/eurocontrol-data-snapshot-19-europes-business-aviation-recovery-covid-19>

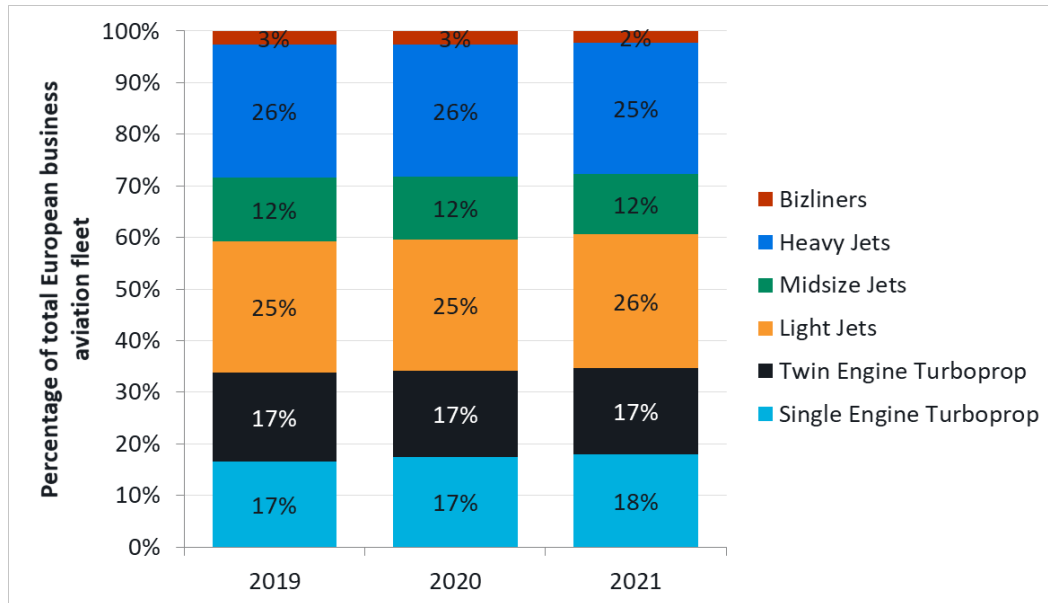
Rank	2020			2021			
	Airport	Movements	% change vs. 2019	Rank change vs 2020	Airport	Movements	% change vs. 2019
3	Nice Cote d'Azur	23,234	-31%	-1	Geneva	31,823	0%
4	Zurich	18,979	-16%	0	Zurich	26,031	17%
5	Farnborough	18,867	-36%	0	Farnborough	24,587	-17%
6	London Luton	15,543	-43%	4	Milano Linate	20,444	43%
7	London Biggin Hill	14,203	-12%	7	Palma de Mallorca	19,019	51%
8	Wien Schwechat	11,771	-19%	-2	London Luton	18,514	-31%
9	München	11,730	-21%	-2	London Biggin Hill	17,528	9%
10	Milano Linate	11,678	-19%	2	Roma Ciampino	15,592	7%
11	Istanbul Ataturk	11,572	14%	-3	Wien Schwechat	15,539	8%
12	Roma Ciampino	10,159	-31%	9	Ibiza	15,061	35%
13	Berlin Schoenefeld	10,071	-17%	3	Athens	14,500	54%
14	Palma de Mallorca	9,839	-22%	-5	München	14,358	-3%
15	Cannes	9,291	-22%	-2	Berlin Schoenefeld	14,324	20%
16	Athens	8,989	-5%	4	Malaga	14,176	52%
17	Prague Vaclav Havel	8,892	-17%	-6	Istanbul Ataturk	13,720	36%
18	Olbia	8,065	-13%	4	Madrid Barajas	13,052	4%
19	Hamburg	7,919	-7%	-4	Cannes	12,817	8%
20	Malaga	7,823	-17%	-3	Prague Vaclav Havel	12,074	14%
21	Ibiza	7,744	-31%	-3	Olbia	11,855	28%
22	Madrid Barajas	7,604	-40%	1	Schiphol	11,589	6%
23	Schiphol	7,460	-33%	-4	Hamburg	10,261	21%
24	Koeln Bonn	7,254	-14%	5	Barcelona	10,100	-1%
25	Belgrade	7,132	4%	0	Belgrade	9,735	47%
26	Stuttgart	6,907	-29%	-2	Koeln Bonn	9,227	11%
27	London Stansted	6,906	-30%	-1	Stuttgart	8,941	-7%
28	Duesseldorf	6,756	-15%	New	Budapest	8,454	51%
29	Barcelona	6,359	-40%	-1	Duesseldorf	8,377	6%
30	Brussels	6,287	-28%	New	Salzburg	8,322	8%

Source: EBAA, Steer analysis

- 3.53 The most notable change observed between 2020 and 2021 is that the largest rank increases in business aviation flights originate from airports in leisure destinations. Ibiza, Palma de Mallorca, Malaga and Athens airports all rose in the top 30 rankings by 9, 7, 4 and 3 places respectively.
- 3.54 In terms of the top routes for business aviation in 2020 and 2021, we note that:
- The majority of routes experienced decline in 2020; of those experiencing growth, the majority were between airports in the same country, reflecting the fact that border restrictions hampered the ability of travellers to move between Member States freely;
  - Certain routes experienced significant percentage growth, for example, Sveg – Stockholm Arlanda, Riga – Moscow Vnukovo, Milano Linate – Olbia, Ibiza – Palma de Mallorca; and
  - Leisure destinations feature more prominently in 2021, reflecting the increase in demand for business aviation flights for leisure purposes.
- 3.55 Data from EBAA on the fleet composition of business aviation aircraft in Europe indicates slight growth from 2019 to 2021. The total number of aircraft rose from 3,803 in 2019, to

3,857 in 2020, and to 3,930 in 2021. From the data, there appears to have been little in the way of systemic changes in the fleet composition, with any changes only representing at most one percentage point.

**Figure 3.20: Business aviation fleet composition, 2019-2021**



3.56

Source: EBAA, Steer analysis

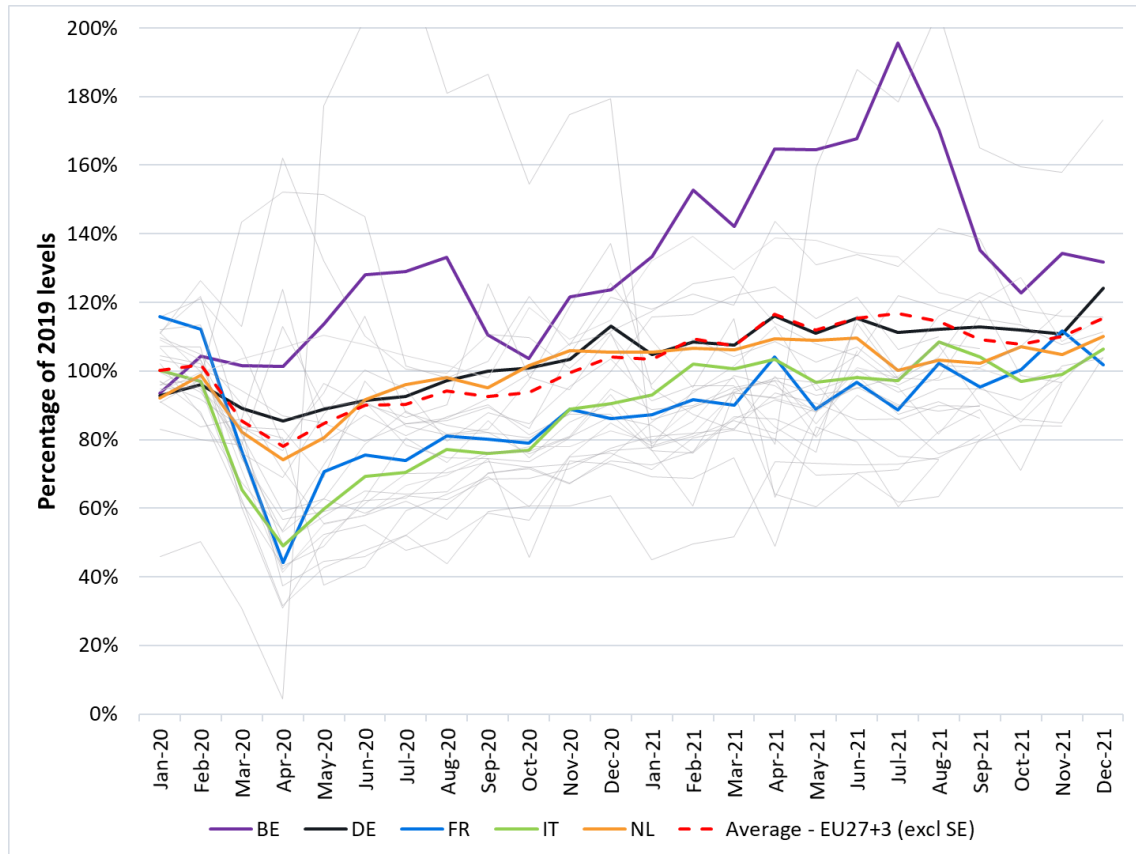
## Air cargo

What impact has the COVID-19 pandemic had on air cargo services, and what is the outlook for the coming years?

- 3.57 In comparison to passenger demand, demand for cargo services has been far more robust and successful in response to the impacts of the pandemic. Figure 3.21 below outlines how cargo tonnes flown across countries in scope has changed relative to 2019. In April 2020, the effects of the pandemic led to a reduction of cargo tonnes across the countries in scope of this report by 32% from 1.49 million tonnes in April 2019 to 1 million tonnes in April 2020, whilst at the same time corresponding passenger demand had reduced by -99%. Cargo tonnes loaded/unloaded across Europe recovered gradually throughout 2020 to reach pre-crisis levels by December 2020; cargo tonnes for countries in scope averaged 104% of 2019 totals for EU27+3 Member States (excluding Sweden).
- 3.58 The reduction in capacity from the drastic decline in passenger flights resulted in less capacity for cargo since approximately half of air cargo is carried in the hold of passenger aircraft. This reduction in capacity was coupled with an increased demand for air cargo, due to disruptions in the supply chain across Europe caused by border closures which prevented road transport to operate normally across Europe and led freight forwarders to turn to air cargo where in normal times, they probably would not. However, this increased demand put an additional strain on the available air freight capacity. In 2021, demand for air cargo in Europe consistently exceeded 2019 levels.
- 3.59 The demand for air cargo services across Europe was however highly variable by Member State. Of the Member States highlighted, Belgium and Luxembourg consistently maintained the highest levels of air cargo demand relative to 2019 due to large-scale air cargo operations

at Luxembourg and Liège airports, which are not reliant on belly-hold capacity from passenger operations. The Netherlands and Germany closely followed the EU27+3 average. Conversely, in countries such as France, Spain, and Italy, a fall in air cargo volumes greater than the European average was witnessed. This is likely due to their stronger reliance on belly-hold capacity of passenger planes for cargo shipments.

Figure 3.21: Freight and mail loaded and unloaded, tonnes, January 2020 – present, EU27+3 (exc. Sweden)



Source: Steer analysis of Eurostat data. Note: Sweden excluded from data due to abnormally low cargo data in 2019. Highlighted countries represent largest Member States by 2019 air freight, remaining Member States in grey.

3.60 Table 3.6 below presents cargo tonnage and cargo flights operated at the 15 largest European cargo airports. The top four airports are all major hubs for passenger traffic and will have reliance on belly-hold capacity on passenger flights for transportation of cargo. This is evidenced by the large reductions in cargo tonnage seen at these airports: reductions at Frankfurt and Amsterdam are less than those at Paris CDG and London LHR as both of these airports maintain large-scale operations with cargo-only aircraft, whilst the large reductions at Heathrow can be attributed to the very small nature of cargo only operations prior to the pandemic. FedEx maintains a base at Paris CDG, however cargo tonnage was substantially reduced between April 2019 and April 2020. The next four largest airports (by cargo tonnage), Leipzig, Luxembourg, Cologne/Bonn, and Liège, are all major cargo hubs. With the exception of Cologne/Bonn, which saw a -1% reduction in cargo tonnage loaded/unloaded at the airport, all of the other airports saw growth in cargo tonnage between April 2019 and April 2020.

**Table 3.6: Cargo tonnage and movements comparison April 2019/April 2020 – Largest 15 European airports**

MS	Airport	Cargo Tonnage			Cargo Movements		
		Apr-19	Apr-20	% change	Apr-19	Apr-20	% change
DE	Frankfurt	174,762	137,907	-21%	1,872	2,883	+54%
FR	Paris CDG	168,600	79,894	-53%	1,996	1,619	-19%
UK	London LHR	139,362	53,887	-61%	234	1,727	+638%
NL	Amsterdam	128,490	93,636	-27%	1,022	1,674	+64%
DE	Leipzig	99,296	106,847	+8%	3,714	3,943	+6%
LU	Luxembourg	67,266	71,855	+7%	849	911	+7%
DE	Cologne/Bonn	65,188	64,470	-1%	2,527	2,743	+9%
BE	Liège	64,956	67,355	+4%	2,299	1,502	-35%
IT	Milan MXP	44,854	28,354	-37%	1,055	1,275	+21%
ES	Madrid	39,963	16,776	-58%	965	1,122	+16%
BE	Brussels	39,868	36,284	-9%	1,088	1,378	+27%
CH	Zurich	29,483	4,941	-83%	-	186	-
UK	East Midlands	28,616	26,668	-7%	1,738	1,859	+7%
DE	Munich	28,595	4,985	-83%	293	379	+29%
UK	London STN	18,172	18,609	+2%	796	708	-11%

Source: Steer analysis of Eurostat data

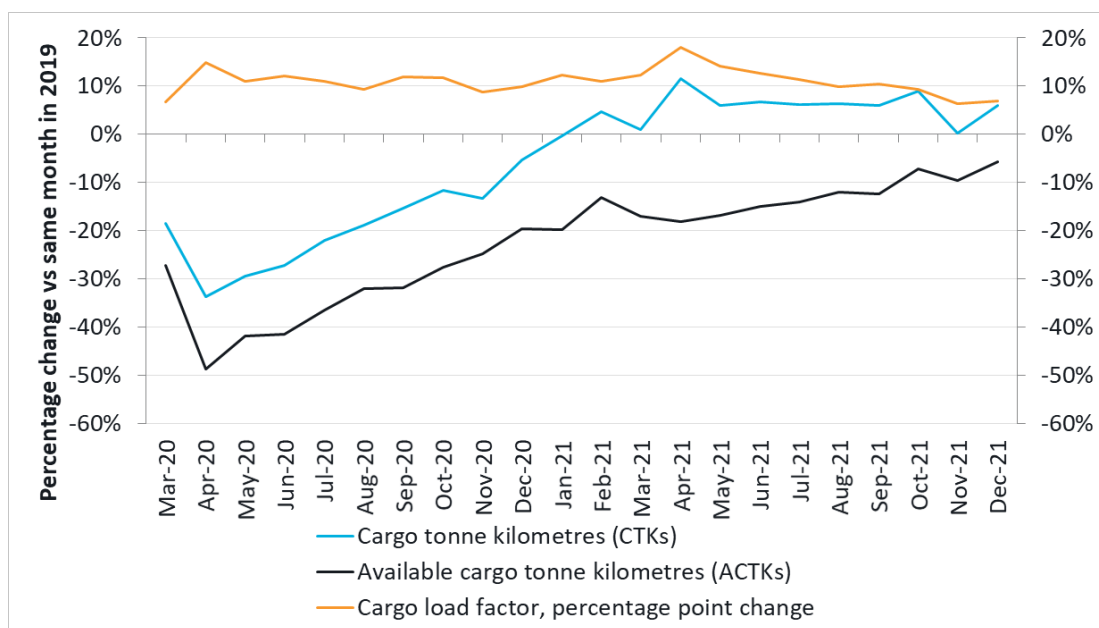
- 3.61 The demand for air cargo has transitioned through different phases during the pandemic. The start of 2020 was challenging, with production decreases in China due to the outbreak of COVID-19. As the pandemic reached Europe in March 2020, governments introduced restrictions on flights and/or on the movement of passengers and transport personnel, with a view to containing the pandemic. A number of policy measures were introduced by the European Commission in its Guidance on keeping air cargo moving<sup>30</sup>, as well as other policy interventions which included increased flexibility on airport night bans, slot relief measures and the possibility of using passenger aircraft exclusively for cargo operations (“freighters”). This use of passenger aircraft was helpful even though it is more adapted to the transport of parcels for e-commerce than for “traditional” air cargo. Airlines also chartered freighters and even converted passenger aircrafts to increase the capacity for cargo operations.
- 3.62 With the grounding of passenger aircraft which also carry cargo in the aircraft belly, available cargo tonne kilometres (ACTKs), which represents the total air cargo capacity, fell by 48.8% in April 2020 relative to April 2019. As a consequence, existing freighter aircraft and remaining passenger aircraft experienced an increase of 14.8 percentage points in cargo load factor, reaching 64.8% in April 2020. The first few months of the pandemic saw an urgent rush for the delivery of PPE and medical supplies, which later subsided as maritime and rail freight took market share from air cargo, as is typical in downturns.
- 3.63 Cargo tonne kilometres and available cargo tonne kilometres made a gradual recovery through the remainder of 2020 as the easing of restrictions led to increased manufacturing and use of cargo air transport. However, both cargo tonne kilometres and available cargo tonne kilometres remained lower than 2019 levels, though the difference between 2020 and 2019 monthly levels narrowed throughout the year. Despite an increase in freighters and the

<sup>30</sup> [https://ec.europa.eu/transport/sites/transport/files/legislation/c20202010\\_en.pdf](https://ec.europa.eu/transport/sites/transport/files/legislation/c20202010_en.pdf)

conversion of some passenger aircraft to transport freight whilst passenger demand remained low, load factors remained above 2019 levels as demand outstripped cargo capacity. This led to record load factors and yields for air cargo in November 2020. CLECAT, the European trade representative for the forwarding, transport, logistics and customs services industry, reported that statistics from CLIVE<sup>31</sup> show that whilst air cargo rates from Europe to North America (in price of freight/kg) already started increasing heavily in 2020, the last few weeks of 2021 have shown a threefold increase in rates compared to the same time period in 2019.

3.64 By early 2021, cargo tonne kilometres had recovered to 2019 levels for the first time since the pandemic began, and have since grown approximately 6% on 2019 levels, reaching 9% growth in October 2021 on October 2019. However, available cargo tonne kilometres have remained below 2019 levels and continued to do so up to the latest available data in December 2021, reflecting the lower levels of capacity available in passenger aircraft versus 2019.

Figure 3.22: European cargo trends, March 2020 – December 2021



Source: Steer analysis of IATA Air Cargo Market Analysis

### 2030 cargo outlook

3.65 The cargo industry expects the demand for air freight to increase significantly, driven by both the e-commerce shipments (which are typically small parcels) as well as from “traditional” air cargo. Traditional air cargo demand is expected to come from a number of sectors including pharmaceuticals (which has been particularly strong during the crisis) or semiconductors which are expected to play a major part of future growth together with a stable volume of the high-tech business. The aerospace sector should regain its strength and continue to rely on passenger flights to send spare parts and engines around the world.

3.66 This expected growth of air cargo is driven by the inherent need of certain goods to be transported by air due to specific requirements, such as being high-value and needing adequate security and tracking, being time-sensitive goods or perishables, which cannot be

<sup>31</sup> Steer does not have access to this data source



met by other modes of transport as well as by air. Goods which do not require the benefits offered by air cargo will continue to be transported by other modes of transport with possible shift to rail and/or to multimodal transport to reduce their carbon footprint, but there is no expectation of a significant shift of cargo from air to road or rail beyond what is already in place today (such as air freight being trucked between close-enough airports in Europe). Cargo stakeholders have also observed that if the shortage of cargo capacity were to increase further, they would expect certain goods e.g. perishables to not be flown anymore to certain destinations, due to an expected price increase.

- 3.67 The trend of the past decades of some full-service carriers to reduce their full freighter fleet is expected to be reversed, as these airlines have relied on freight transport during the pandemic to generate profits. Freight forwarders and airlines consulted as part of this study expect this shift to continue as the pandemic has “triggered a change in the way the freighter business is perceived and offered by airlines” according to CLECAT. They noted however, that only large airlines would be able to do so and that it would be more challenging for smaller carriers to do so.

### Public aid provided during the pandemic

What is the weight of the public aid (including the comparison between individual Member States)?

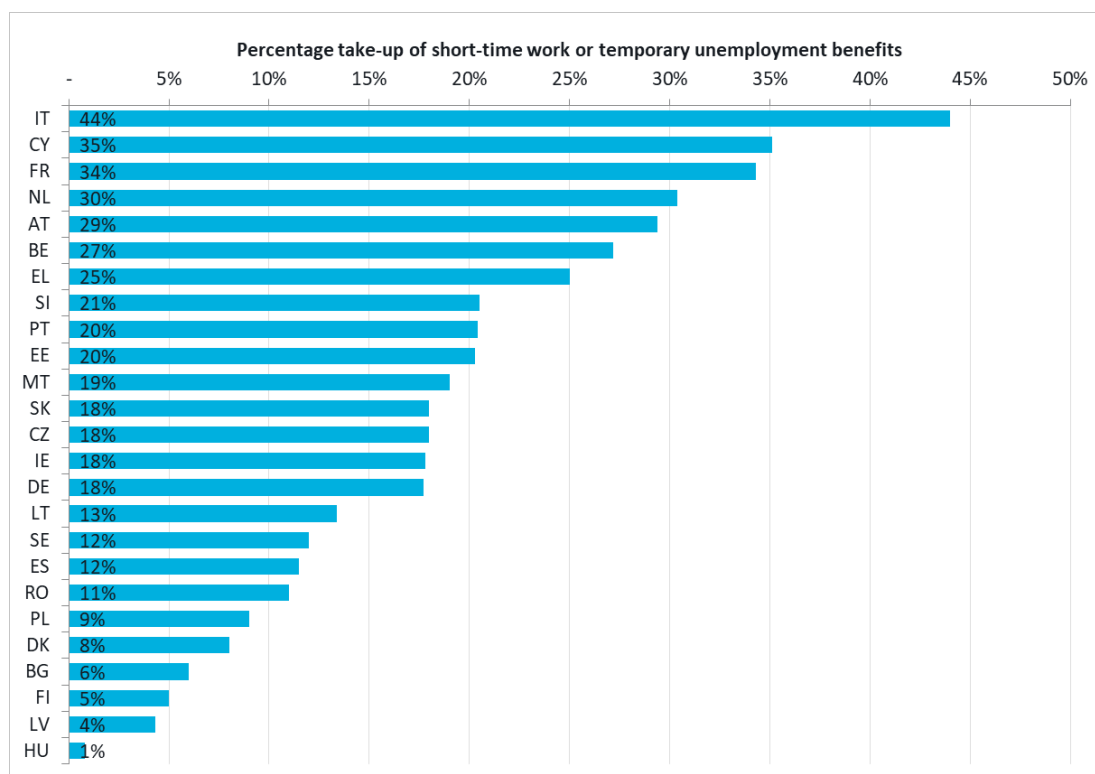
- 3.68 Different forms of public support, which are relevant to consider in this study were provided throughout Europe, such as payroll support, sector-wide support targeting aviation, as well as targeted support at individual companies. However, there were some significant differences across EU27+3 as Member States were responsible for the design and implementation of their national policies, under European rules on fair competition, but without European coordination.

#### EU employment support measures

- 3.69 A range of measures were taken by Member States during the pandemic to protect workers’ income or from job losses. These measures varied and included short time work or furlough schemes. Figure 3.23 demonstrates the take-up of short-time working<sup>32</sup> or temporary unemployment benefits at an economy-wide level at the outset of the pandemic in April 2020.

---

<sup>32</sup> Short-time work schemes are defined “public programmes that allow firms experiencing economic difficulties to temporarily reduce the hours worked while providing their employees with income support from the State for the hours not worked”.

**Figure 3.23: Economy-wide take-up of short-time work or temporary unemployment benefits, April 2020**

Source: Steer analysis of Eurofound data. Note: Data for Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Estonia, Germany, France, Hungary, Ireland, Latvia, Lithuania, the Netherlands, Portugal, Slovakia and Slovenia are from Eurostat, whereas for other countries data are based on information from national ministries and national statistical offices reported by the Network of Eurofound Correspondents. Data for Croatia refer to the measure “Support for preservation of jobs in sectors affected by coronavirus” (see COVID-19 EU PolicyWatch database record number 2020–12/361), which ended in June 2020. No data for Luxembourg.

3.70 According to Eurofound<sup>33</sup>, all 27 Member States implemented a form of short time work in 2020, but the rollout of the schemes varied widely. For countries such as Austria, France, and Germany, the rollout was relatively straightforward as an existing scheme only required refinement to address the specific challenges of the pandemic. Conversely, the application process was complicated with long delays for payments in Czechia, Estonia, Hungary, Slovakia, and Sweden. In cases where support offered was considered to be small, workers decided not to use the schemes. A flexible approach to the short-time work schemes was a challenging aspect of policy design. In France, the longer-term impacts of the pandemic on certain sectors that were difficult to restart were treated separately than those for which a quick recovery was assumed, leading to differences in whether state subsidies were cut once the recovery began. Member States also differed in their approaches towards retaining employees. Lithuania allocated €500m in an effort to retain as many people in the labour market as possible, which was also a high priority for Slovakia. Italy also aimed to retain staff in employment by banning dismissals. On the other hand, Hungary focused more on creating new jobs which were destroyed by the crisis.

<sup>33</sup> <https://www.eurofound.europa.eu/publications/article/2021/policy-responses-from-governments-and-social-partners-to-the-covid-19-pandemic>

3.71 The measures implemented are outlined in Table 3.7 below: note that some were applied across the entire economy of a Member State, whilst others offered targeted support to certain industries. In addition, where we have received more detailed stakeholder information in the context of the study, this has also been added to this table.

**Table 3.7: Employment support measures by EU Member State**

MS	Measures
BE	Partial unemployment benefits due to force majeure of 70% of wages from 13 March 2020, runs until 31 March 2022. A supplement is provided to workers that have been temporarily unemployed for over 52 days.
BG	Existing short-time work scheme; later wage subsidy (WS) introduced for 60% of wages covered by government, known as 60/40 support. Companies are eligible if their turnover decreased by 20% versus 2019 or if their activities are prohibited by public health measures. Employers cannot dismiss employees receiving support for double the length of support received. Tapered in 2021 such that 60/40 split only applies if turnover decreases by 40%, otherwise it is 50/50. Ran from 13 March 2020 to 28 February 2022. Sectoral support provided to the transport and tourism sector; compensation of part of the salary, tax and social security contributions of €148 per month for up to 6 months between 26 June 2020 to 31 December 2021. Can be combined with the more general 60/40 income support to make sector specific support 80/20.
CZ	100% of wages paid by government up to a cap if employees cannot work due to closures/quarantine; 60% paid up to a cap if COVID-19 creates business difficulties.
DK	All private sector employees can claim unemployment benefits at 120.5% of normal rate for hours not worked due to pandemic; state wage subsidy of 75/90% with cap for salaried/non-salaried employees at risk of unemployment conditional on their job continuing. Ran from 9 March to 30 June 2021.
DE	Existing short-time work scheme of 60% of net pay (67% if employee has children) was simplified to allow more people to access it. The threshold for employees unable to work was lowered from the existing 30% to a lower 10%. These eased rules were extended until the end of March 2022. Staff representatives confirmed that pilots at Lufthansa mainline, Lufthansa CityLine, Eurowings, Ryanair / Malta Air, easyJet, Condor were able to access the short-term scheme.
EE	For firms who: - experienced a decline in turnover or income of 30% or more for the month in which it seeks government assistance, compared to the same month last year; - are unable to provide work for at least 30% of its employees; and - reduced the wages of at least 30% of its employees by at least 30% or to the minimum wage level. Wage subsidy of 70% up to EUR 1,000 based on average monthly pay, must include EUR 150 from employers and meet minimum wage of EUR 584. Employees receiving support cannot be fired. Ran from 1 March 2020 to 31 May 2021.
IE	For firms who experienced 25% drop in revenues (except state/non-commercial semi-state sectors), 70% wage subsidy for employers up to EUR 410 per employee kept on payroll, or 85% for employees whose weekly income does not exceed €412. Employees must be retained on the payroll. From September 2020 this was reduced – flat rate subsidies for businesses losing 30% of turnover could claim €203 per week for employees with a gross weekly wage at or above this level (with a cap at €1462), or €151.50 for gross weekly wages between €151.50 and €202.99. Pandemic Unemployment Payment of €350 per week for those unable to work due to restrictions; from October 2020, this was tapered depending on prior earnings. Since June 2020 a lower rate of €203 per week was introduced for those with prior earnings below €200 per week. Ran from 13 March 2020 to 8 February 2022; closed to new applicants on 8 July 2021. Ireland also temporarily relieved employers of the obligation to pay redundancy payments to employees temporarily laid off or put on short-time work, between 13 March 2020 and 30 September 2021. Staff representatives confirmed that pilots at Aer Lingus, Ryanair, Cityjet, Stobart Air were able to access the wage subsidy scheme.
EL	Selected industries including aviation can suspend employees until 30 September 2020 (furlough), employees entitled to EUR 534 for 30 days suspension; short-time work scheme also used for 50% working time reduction. Employees can reduce working time by 50% without needing a part-time

MS	Measures
	contract, as the State contributes 60% of their net salary. Businesses must report at least a 20% reduction in sales for the corresponding month in 2019. Ran from 15 June 2020 to 31 March 2022. Companies whose business has been suspended by a public authority and/or are significantly affected by the emergency measures are not able to fire employees whilst measures are in place, and any terminations are declared null and void during this period.
ES	Temporary layoff between 10% and 70% of working time, workers entitled to benefits of 70% of gross salary with a cap, enterprise must continue paying employer contributions.
FR	Short-time work scheme for all private sector companies, state covers 70% of gross hourly pay available to employers up to 4.5x minimum wage, 60% from June 2020 except for sectors affected by regulations including tourism which benefit from 100% cover. A new scheme in October 2020 for 3 months obliged employers to keep employees in employment during the partial activity. Most companies were able to continue to benefit from full coverage in December 2021 until the end of January 2022. Protected sectors with a significant drop (80%) in revenues were eligible for the highest levels of support. Staff representatives confirmed that all “French based” airlines (and French based pilots) can benefit from the legal partial activity scheme. In France, the partial activity measure adapted to aircrew was adopted in April 2020 and was still in place till the end of 2021.
HR	Expanded existing wage support and short-time work scheme, employers can claim EUR 434 per month between March-June 2020 for full-time employees and EUR 217 for part time employees, unless 40%/20%/5%/10% of employees are dismissed in micro/small/medium/large companies. Support was altered on a sliding scale based on the fall in turnover from 1 October 2020. In July 2021, full support for the air passenger and air cargo sectors was contingent on 70% of workers being vaccinated against COVID-19, with a sliding scale of support for lower vaccination rates. State co-financing of wages also existed from 1 July 2020 to 31 December 2021, covering working time reductions of 10% to 50%. Croatian Airlines are cited as a key beneficiary of this support.
IT	Expanded existing CIGO and CIGS wage guarantees to all workers in March 2020 for 9 additional weeks above and beyond existing limits, supports 80% of earnings for hours not worked for up to 40 hours per week. The number of weeks companies can use the wage support has been consistently increased during the pandemic. Ran from 23 February 2020 to 31 December 2021. Ban on individual and collective dismissals was enacted for businesses because of the COVID-19 outbreak, though other dismissals could continue (i.e., disciplinary), ran between 17 March 2020 to 31 October 2021.
CY	Support for complete suspension of business – special unemployment benefit paid to 90% of employees, with the remaining 10% including managing shareholders, general managers and executives. The amount payable is calculated based on the higher figure of 2018 earnings or January 2020 declared salary, with a minimum and maximum cap. No employees can be fired with this support. Support for partial suspension of business – for revenues falling by 25% in March 2020, 60% of their total number of employees can receive the unemployment benefit. Cap and amounts the same as measures above. No employees can be fired receiving support.
LV	STW scheme for 75% of the average monthly gross salary up to €700 per month. STW allowance not subject to income tax or social insurance contributions. Businesses with a drop in income of 30% in March/April 2020 versus the corresponding month in 2019, or a drop in 20% with additional conditions, were eligible for the support. Ran from 14 March 2020 to 30 June 2020. A new measure in November 2020 was introduced as a new state of emergency was declared. Employers were entitled to a 50% wage subsidy up to €500 if their revenues decreased by 20% compared to the average income of August to October 2020. Employees were paid their full wage, with employers making up the difference between their wages and the subsidy. Employers had to retain employees receiving the subsidy for the length of support plus one month. Ran from 9 November 2020 to 30 June 2021. Specific support to the tourism sector was also offered between 14 July 2020 to 31 December 2020. Firms with a decrease in revenue of 30% in one month between April and June could apply for 30% of social insurance contributions to be paid to employees, with a maximum of €800k per company.
LT	Wage subsidy for firms affected by COVID-19 of either 90% or 70%, at the employer’s choosing. 90% support entitled the state to contribute a maximum of €607, 70% support entitled the state to contribute a maximum of €910.50. Employers are required to retain at least 50% of jobs for at least 3 months after the subsidy payments end. Ran from 19 March 2020 to 31 August 2021.

MS	Measures
LU	Expanded short-time work scheme offers at least 80% of wages to be paid by state, up to max of 250% of social minimum wage, employers continue paying contributions and withhold most employee taxes, businesses must agree not to dismiss employees for economic reasons except for vulnerable sectors including tourism, where 25% of staff can be laid off. Ran from 19 March 2020 to 31 December 2020.
HU	Based on German Kurzarbeit scheme, but with a narrower scope. State subsidised 70% of employees' unpaid salary for any hours not worked provided employees are not made redundant, for a maximum of three months support. Companies had to prove their orders hadn't fallen by more than 50%, organise training for employees at their own expense, and show that they were working towards the "interests of the national economy". The conditions were later eased to remove the national interest requirement and lower the number of hours worked to be eligible and expanded the eligibility to companies with turnover falling by 75%. Ran from 1 May 2020 to 31 August 2020. Wage subsidies for new jobs were made available for employers hiring jobseekers, up to 100% of wages for 6 months, with a condition to keep employees for an additional three months after the grant expires.
MT	Aviation sector entitled to €800 per month per employee through 2020, with the employer bound to pay the remaining amount to ensure a wage level higher than minimum pay; In 2021 support was based on losses incurred due to the pandemic, with companies required to experience a drop of 55% in revenues to be eligible for the entire wage supplement. Smaller declines in revenues had corresponding smaller amounts of wage subsidy; companies with declines under 10% were ineligible for any support.
NL	Short-time work scheme (NOW) introduced in March 2020. Numerous iterations of NOW have existed since the pandemic. NOW 1.0 and NOW 2.0 have subsidised up to 90% of wages for up to three months, NOW 3.0 subsidised up to 80% of wage costs in the first slot of three months, reducing to 70% and 60% thereafter. Subsidies are on a sliding scale based on the loss of revenues incurred by the business. NOW continues to run into 2022. Staff representatives confirmed that pilots at KLM, Transavia, Martinair, EasyJet and TuiFly were able to access the schemes.
AT	Short-time work scheme covers 90% of net monthly wage up to EUR 1,700, 85% of net wage between EUR 1,700 and EUR 2,685, 80% of net monthly wage between EUR 2,685 and EUR 5,370. Runs from 1 March 2020 to 30 June 2022; companies can use it for a maximum of 24 months. Staff representatives confirmed that airline employees in Austria have received short-time work subsidies. These state subsidies have secured the jobs of thousands of airline employees and safeguarded a certain financial level. If an employee falls under the state-subsidised short-time work scheme, he or she has protection against dismissal. Under the current legal framework, state aid is limited to a maximum of two years in Austria. However, Ryanair criticised in the press Austria for demanding Austrian income taxation of crews based abroad (i.e. in Spain and Germany) but then refusing to provide COVID-related job protection assistance covering these workers.
PL	For a revenue fall of 25% in one month, or 15% over two consecutive months, aid covers wages equal to the minimum wage and social security costs to the amount of 50% of minimum wage. Employers can also apply for wage subsidy for short-time work providing it is no more than 20% reduction and they work no less than 0.5 FTE; 40% of the average pay including social security is payable in this case. Began in April 2020 and currently does not have a set end date.
PT	Short-time work simplified, for firms recording a 40% drop in revenue vs. same period in 2019, workers receive 66% of salary up to three times minimum wage, of which 70% is through social security and 30% by employer. Workers cannot be fired during this period and compensation cannot be below the minimum wage. Ran from 27 March 2020 to 30 June 2021.
RO	Technical unemployment measures entitle employees to at least 75% of base salary, but no more than 75% of average gross salary in state social insurance budget (€1100). A short-time work scheme allowed employers to unilaterally reduce working time, with employees entitled to 75% of the difference between gross basic salary contracted and their salary for hours actually worked. The measure to reduce working time must affect at least 10% of staff and be justified by a 10% decline in revenue for the corresponding month in the previous year. Employers are prohibited from operating collective redundancies or hiring employees in similar positions to those on reduced working hours. For employees in travel/tourism sectors, exemption from social/healthcare contributions for three months, usually paid by employees

MS	Measures
SI	<p>New temporary layoff scheme entitles workers to 80% of wage. If employees cannot work due to force majeure, this is reduced to 50% of their salary, but no less than 70% of the minimum wage. Employees also benefitted from an exemption from pension and disability insurance contributions. Measures were widened later in 2020, with the threshold for a reduction in revenues being 10%, later increasing to 20% in October 2020. The temporary layoff scheme expired in June 2021.</p> <p>From June 2020 to September 2021 a short-time work subsidy covered up to 50% of working time; when a worker does not work the employer pays 80% of the wage and is subsidised by the state. Employers must not be able to provide at least 10% of its staff with 90% of normal working time to qualify. employees cannot be fired whilst receiving this subsidy.</p>
SK	<p>For companies with a revenue reduction of 20%, State pays 80% of salaries for companies up to €1,100. A fixed wage replacement scheme was based on a sliding scale depending on the drop in revenues. Ran from 1 October 2020 to 31 December 2021.</p>
FI	<p>Temporary layoff scheme covers on average 50% of salary for employees who would otherwise be made redundant; state to pay some of social security contributions.</p> <p>Staff representatives confirmed that all airlines (and other companies) were able to use the national furlough system (not covid-specific) where furloughed employees receive unemployment support by the State. Furloughed employees receive zero salary or top ups from the employer.</p>
SE	<p>For private sector companies, working time can be reduced up to 80%, with support corresponding to up to 72% of the employer's costs after reduced working hours. A reduction in working hours of 20%, 40%, 60% and 80% are associated with reduced pay from employment of 4%, 6%, 7.5% and 12% respectively, Employers can receive support for up to 9 months and the maximum salary for support is €4,400 per month. Measures were extended to 30 September 2021.</p>
NO	<p>From July 2020, employees who are rehired from temporary unemployment will earn employers a subsidy of up to €3,500 per month. This continued into 2021; companies with a fall in turnover of 70% or more on 2019 levels can collect wage support up to €2,525 per month per employee taken back from leave, with a sliding scale downwards for smaller turnover reductions to the lower limit of a 15% reduction. Employees can only receive support for 108 days and the maximum support per employer is €2.2m</p>

Source: Steer analysis of stakeholder consultation responses and Eurofound data (accessed March 2022)

- 3.72 The European Union also made available up to EUR 100 billion in loans to its Member States to fund short-time work schemes through the Support to mitigate Unemployment Risks in an Emergency (SURE) instrument. Loans provided under the SURE instrument are backed by voluntary guarantees from Member States corresponding to its share of gross national income of the EU. By the disbursement in May 2021, almost EUR 90 billion has been provided to 19 Member States, with some Member States not using this facility such as Denmark, France, Finland, Luxembourg, the Netherlands or Sweden.

### Sector support

- 3.73 In some, but not all Member States, governments planned aviation sector specific support. Where we have found some information, it is listed below.

**Table 3.8: Air transport sectoral support provided by MS**

MS	Sectoral support description
AT	Airports had the possibility of receiving state support for uncovered fixed costs for non-state-owned companies.
CY	Compensation paid to airlines for a capacity of 41% to 70% of aircraft. Airlines must cover 40% of the aircraft's capacity, and the State will compensate the rest. Airlines exceeding 70% of aircraft capacity do not receive compensation.
DK	State aid provided to Danish airports, to airlines departing/landing in Denmark, and to airlines holding a Danish AOC.



MS	Sectoral support description
DE	11 airports received ~EUR 400m as compensation for damages during the first lockdown in 2020, with a further two state-owned airports receiving support in the form of equity. Other airports have received loans under local frameworks.
FR	Companies were able and still can receive aid (not necessarily directed to a specific industry sector). Aid was under the form of deferrals of social security contributions, part-time work or guaranteed loans. Airports and airlines were classified in Category S1 of aids while Ground-handlers in Category S1bis, meaning that the aid was not the same for the two categories. The State also gave French airports an advance on the proceeds of the airport tax of €300 million for 2020, €250 million for 2021, €150 million for 2022. These advance proceeds will be reimbursed from 2024 up to 2030 by airport users via the airport tax.
IT	Groundhandling companies in Italy will receive a total of EUR 65m proportional to losses as approved State aid.
PL	Polish airports compensated via direct grants for damages caused by the public health measures imposed by the Polish authorities.
RO	Support in the form of direct grants to airlines (re)commencing flights from Romanian airports (Oradea, Sibiu, Targu Mures, Maramures).
SE	Loan guarantee of maximum SEK 5 billion granted to Swedish airlines, of which SEK 1.5 billion earmarked for SAS; non-state-owned airports supported with SEK 100 million, plus capital contribution of SEK 3.15 billion to state-owned airport operator Swedavia.
NO	Temporary abolishment of air passenger tax from 1 January 2020 to 1 April 2022. Air passenger tax is usually incurred when a flight starts from a Norwegian airport and is calculated per passenger. Additionally, a loan guarantee was provided to Norwegian airlines totalling NOK 6 billion; 3 billion to Norwegian, 1.5 billion to SAS, and 1.5 billion to Widerøe and other carriers.

Source: Steer analysis of stakeholder consultation responses

### EU individual company support

- 3.74 The Commission's 2014 Guidelines on State aid for rescue and restructuring non-financial undertakings in difficulty, outline that companies in difficulty are eligible to State aid provided that aid is granted for a maximum of six months, after which the loan must be reimbursed, or a restructuring plan must be notified to the Commission. The restructuring plan should ensure the company in question will be viable without further State aid, the company contributes to an adequate level of restructuring costs, and distortions in competition are corrected through compensatory measures. Additionally, restructuring aid may only be granted once in a ten-year period<sup>34</sup>.
- 3.75 However, on 19 March 2020 the Commission adopted a State aid Temporary Framework for Member States to support the economy during the pandemic. Measures specified in the Framework include direct grants, loan guarantees, subsidised interest rates, loans/guarantees channelled through financial institutions, and short-term export credit insurance. Note that in some cases, State aid was provided to airline groups on the condition that funds could not be used to help (cross-subsidise) integrated companies integrated airlines who were in financial difficulties prior to 31 December 2019. For example, State aid awarded to Lufthansa had this condition attached, among others.
- 3.76 IATA estimated in Spring 2020 that airlines had pre-crisis cash reserves allowing them to survive an average two months of crisis conditions. Unaided, it is likely that many (IATA and

<sup>34</sup> [https://ec.europa.eu/commission/presscorner/detail/en/IP\\_14\\_795](https://ec.europa.eu/commission/presscorner/detail/en/IP_14_795)



non-IATA) airlines would have gone out of business already before some of the travel restrictions were lifted in May and June 2020. We present below some of the support provided to these airlines, but it is important to consider that not all airlines received support, notably IAG (British Airways/Iberia/Aer Lingus).

- Notable State aid agreements include a loan and partial takeover by the German government of Lufthansa AG with a value of EUR 6.84 billion, part of wider support measures totalling over EUR 11 billion for the Lufthansa Group. The conditions of the aid included a ban on cross-subsidisation between integrated companies struggling before 2019, a ban on acquisitions of stakes over 10% in competitors, and the divestment of up to 24 slots per day in total at Frankfurt and Munich airports. The slots are made available to counteract any competitive distortions that the State aid would provide above and beyond offering the necessary funding to keep the airline afloat. However, information provided during the stakeholder consultation by Fluko, the German slot coordinator, indicated that currently there have been no acceptable offers for these slots as airlines must establish a new base at these airports. The aid was repaid and/or cancelled by Lufthansa in November 2021 ahead of schedule; as a result of German loans and Silent Participation being repaid or cancelled, the German Government is now looking to sell its stake of approximately 14% in the airline<sup>35</sup>.
- Air France also received State aid of up to EUR 4 billion from the French government in recapitalisation funding in 2021, following an original EUR 7 billion agreement in 2020. The aid is comprised of the conversion of a EUR 3 billion State loan previously granted into a hybrid capital instrument, and a capital injection of up to EUR 1 billion. KLM, the other major subsidiary in the Air France KLM group, is not included in this aid. The aid was subject to similar conditions as Lufthansa. As the aid totals over EUR 250 million and Air France have significant market power at Paris-Orly Airport, Air France were required to make up to 18 daily slots at Paris Orly Airport available to competing carriers. Additionally, the airline obtaining the slots should base its aircraft and crews at the airport. In November 2021, it was announced that the low-cost airline Vueling would take the 18 slots at Paris-Orly airport<sup>36</sup>. Air France has also committed to environmental targets including the discontinuation of domestic flights where a rail service in under 2.5 hours exists, as well as commitments to use biofuels and reduce domestic emissions by 50% by 2024.

3.77 Ryanair has challenged some State aid rulings in the courts, taking the opinion that State aid has been allocated unfairly. In total, the airline has filed 16 lawsuits with the EU authorities challenging State aid rulings<sup>37</sup>. Ryanair successfully challenged the rulings for State aid given to Condor (EUR 0.55bn), TAP (EUR 1.2bn) and KLM (EUR 3.4bn), though no repayments are required unless the Commission decides to change its assessment of the aid measures in the decisions that are adopted after the corresponding annulments, as the Commission has the final decision on whether State aid is compatible with the internal market or is incompatible and needs to be recovered. Ryanair has lost other legal challenges against Austrian Airlines,

<sup>35</sup> <https://www.lufthansagroup.com/en/newsroom/releases/lufthansa-group-repays-financial-aid-from-the-german-government.html>

<sup>36</sup> [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_21\\_4805](https://ec.europa.eu/commission/presscorner/detail/en/ip_21_4805)

<sup>37</sup> <https://www.dw.com/en/ryanair-wins-eu-legal-challenge-to-airline-state-aid/a-57585185>

SAS, Finnair, and Air France, with the court ruling that State aid was allocated fairly<sup>38</sup>. At the time of writing, no decisions have yet been made on other legal challenges.

- 3.78 From the ACE report<sup>39</sup>, we observe that 21 ANSPs (from the EU+4) contracted loans and 12 received some form of aid from national governments. These aids took various forms such as direct or indirect contributions to equity (e.g. Avinor, DFS, LGS, LPS and Skyguide), state loans (e.g. ANS CR, NAVIAIR, Slovenia Control), payment of EUROCONTROL costs (e.g., ANS Finland) or other temporary measures reducing staff costs (e.g. Austro Control). Amongst those having contracted loans, eight made use of the loan facility negotiated by EUROCONTROL, either as a main financing vehicle or as a complement to other loans. For some ANSPs, the amount of loans taken is considerable. As an example, for Slovenia Control it represents almost half of the balance sheet value at the end of 2019.
- 3.79 In the early stages of the pandemic, Airbus secured a €15 billion credit line to bolster its liquidity and balance sheet in response to COVID-19. This €15bn “supplemental liquidity line” was committed by commercial banks and remained undrawn. It was later refinanced by €6bn bond issuances and a €3bn increase of Airbus Revolving Syndicated Credit Facility. The €6.2bn remainder of the supplemental liquidity line was extended to 30 Sept 2021 but was not extended beyond. Airbus also cancelled the 2019 dividend. These measures allowed Airbus to cope with additional cash requirements related to the crisis, thus securing business continuity. No state aid was provided directly to Airbus, apart from support through job retention schemes in France (activité partielle), Germany (KurzArbeit) and UK (long-term furlough).

### Non-EU public support

- 3.80 We present here some of the support that was provided in a number of non-EU+3 aviation jurisdictions (and competing markets).

**Table 3.9: Non-EU+3 public support, in addition to payroll support**

Country	Company/sector	Amount	Details
USA	Airports	\$10bn	Grants to “prevent, prepare for, and respond to coronavirus”, provided through the CARES Act.
		\$10bn	Contains €2bn of support in the CRRSAA and a further \$8bn approved in COVID-19 relief in March 2021.
	Passenger airlines	\$25bn	Loans and loan guarantees for passenger air carriers, ticket agents and MROs. Conditions on loans include: <ul style="list-style-type: none"> <li>- minimum service obligations for domestic markets based on carrier service levels prior to March 1;</li> <li>- dividend ban until one year after the loan is no longer outstanding;</li> <li>- no stock buy-backs until one year after the loan is no longer outstanding;</li> <li>- companies must be at least majority US-based;</li> <li>- limits on compensation for certain employees until one year after the loan is no longer outstanding.</li> </ul>

<sup>38</sup> <https://www.reuters.com/business/aerospace-defense/eu-court-rejects-ryanairs-challenge-against-state-aid-austrian-airlines-2021-07-14/>

<sup>39</sup> 2019 ATM Cost-Effectiveness (ACE) 2019 Benchmarking Report with Special Focus on COVID-19 Impacts in 2020

Country	Company/sector	Amount	Details
			Most companies have opted for private loans; American Airlines took a Treasury-funded loan worth \$4.8bn.
		\$15bn	Financial support as provided by the CRRSAA Act.
	Cargo airlines	\$4bn	Loans and loan guarantees for cargo air carriers. Conditions as above.
		\$2bn	Financial support as provided by the CRRSAA Act.
	<b>Total</b>	<b>\$56bn</b>	
UAE	Emirates	\$3.8bn	Capital injection from the Government of Dubai. \$2bn injected in FY20, \$1.1bn injected in FY21, \$681m in the first half of FY22 (April – September 2021). Group also includes airport services company Dnata.
Qatar	Qatar Airways	\$3bn	Support from Qatari government

Source: OECD, ACI World, Steer analysis

3.81 In addition, according to an OECD report<sup>40</sup>, other measures included:

- The government of Turkey supported the leaseholders/renters at its national airports through deferrals of payments.
- In Japan a comprehensive package of measures including loans as well as tax concessions, exemptions from mandatory payments and employment support have been made available to the air transport sector. The loan element, which is available only to airlines, is equivalent to EUR 4.1 billion.
- Of a similar magnitude was a loan extended by the government of New Zealand to the partly state-owned carrier Air New Zealand. This loan, while not categorised as a hybrid instrument, nevertheless includes provisions according to which the state is entitled to demand repayment of the loan through either a new share offering or a debt/equity swap.
- Among the other eight cases of recapitalization, one of the most prominent is the plan carried out by Singapore Airlines to strengthen its balance sheet. The airline – majority owned by Temasek and listed on the Singapore exchange – sold SGD 8.2 billion of new shares on the market and raised credits through a large convertible bond issuance. Temasek promised to act as the “buyer of last resort” in both offerings. The share issue went over-subscribed, and Temasek bought only its pro-rata allocation, hence maintaining an unchanged stake in the company. Conversely, it had to step in to buy a large amount of unsubscribed bonds. The transactions are estimated to have cost the equivalent of EUR 2.2 billion of investment in convertible bonds and EUR 2.7 billion as Temasek’s share of the stock offering. For the time being Temasek’s stake in the companies is unchanged, but it has the potential to increase as the convertible bonds mature.
- In Israel the state acted as the “buyer of last resort” when an issuance of new stock in El Al went undersubscribed. The state’s purchase, worth approximately USD 150 million, left it with a stake of 14.4% of the voting shares in the company

<sup>40</sup> <https://www.oecd.org/corporate/State-Support-to-the-Air-Transport-Sector-Monitoring-Developments-Related-to-the-COVID-19-Crisis.pdf>

3.82 However, regions like Latin America, or countries in Asia-Pacific have not benefitted from state support, as evidenced by the number of bankruptcies which occurred in these regions compared to Europe, including flag carriers.

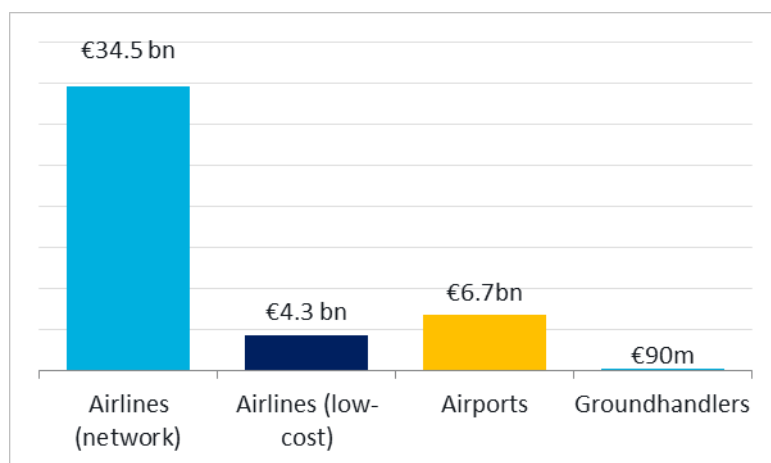
3.83 Regarding support provided by the United Kingdom, airlines which received support, that is British Airways, Wizz Air, Ryanair and easyJet, did not access funding through the European Commission’s Temporary Framework for State aid, and as such the European Commission did not determine the State aid provided to these companies. Support from the UK took the form of loans and loan guarantees from the UK Covid Corporate Financing Fund (CCFF) and the UK Export Fund (UKEF).

**Public aid analysis**

3.84 State support has been distributed all over Europe, but with enormous disparities between recipients of the aid, conditions attached to it (if any), type of aid, nationality of the recipient, etc. The precise list of support that we have been able to identify for the air transport sector in Europe is presented in Appendix B. There is no unique or comprehensive source of information on the various support mechanisms provided at European or national level which explain why Appendix B is unlikely to be exhaustive, in spite of many contributions from stakeholders and a thorough desk research. Where aid has been provided in currency other than Euros, a conversion has been applied in order to compare the amounts. It is not part of this study to assess whether all aid has been distributed according to the rules in place, so we assume here that this is the case.

3.85 Firstly, what we detail below is the significant variation in terms of aid distributed between air transport sectors. Airlines have received significantly more than the rest of the industry with the largest State aid amounts predominantly awarded to the larger full-service carriers. Aid has also been granted, albeit less commonly, to airports, air navigations service providers and other aviation entities.

**Figure 3.24: State-aid distributed by air transport sector**

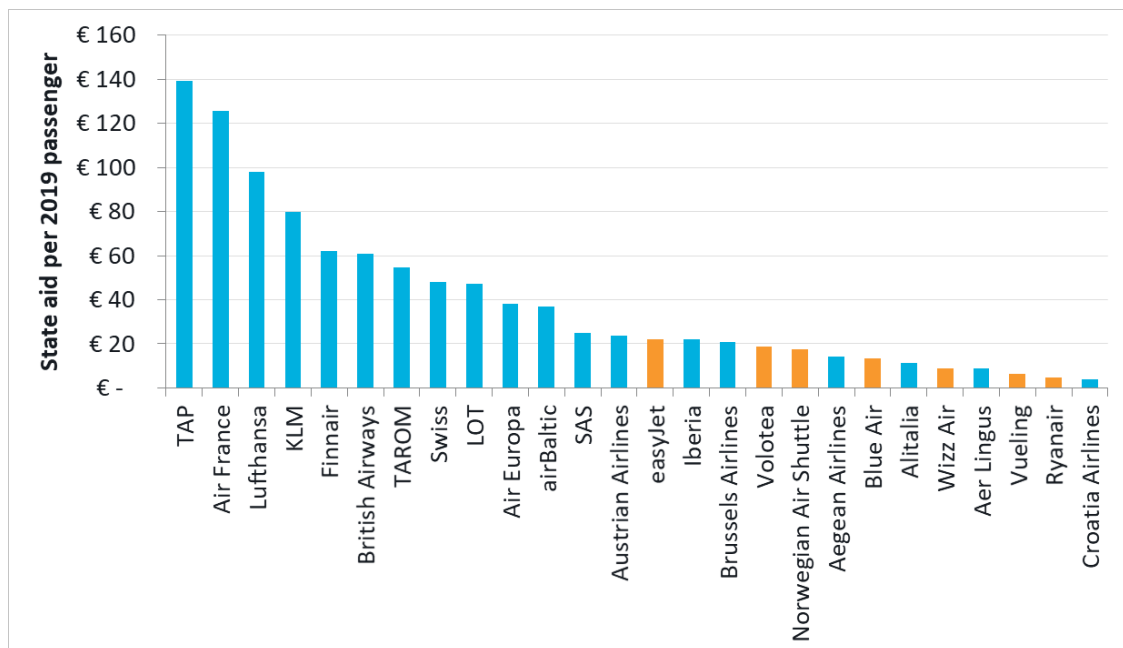


Source: Steer analysis

3.86 In Europe, Air France-KLM benefitted from the largest bailout (from French and Dutch Member States). Total package from France totalled over €9bn (including equity injection, and debt conversion into quasi-equity) while the Netherlands granted €2.7bn in bank loans with guarantees, and a €1.1bn direct loan. In addition, KLM received a tax deferral of €1.53bn.

3.87 Whilst larger airlines typically received larger amounts of public aid, the link between airline size and state aid provided is not linear. Additionally, low-cost carriers typically did not receive the same amount of aid relative to their size: Figure 3.25 below presents the public aid compared to passengers transported in 2019. We observe that Ryanair, the largest European airline by 2019 passengers, received the second lowest State aid per passenger of airlines receiving State aid. There are at least two reasons for this: firstly, that low-cost airlines were usually in a better financial situation pre-pandemic (this is further discussed in Chapter 4) and needed less support during the crisis. But also, that low-cost airlines are not “flag-carriers” compared to most full-service airlines (whose business name still usually relates to their Member State) and were perhaps not considered as nationally important as their full-service competitors by the national authorities. However, the European Network Airlines Association shared in the workshop conducted as part of this study that many low-cost carriers did not apply for State aid, suggesting that the former explanation is more significant.

Figure 3.25: Airline State aid per 2019 passenger



Source: Steer analysis

3.88 Whilst State aid in Europe was predominantly provided to airlines, a number of airports also received financial support for a total of €6.7bn, the full details of which are set out in Appendix B. In the majority of cases, support took the form of compensation for damages caused by travel restrictions due to the COVID-19 pandemic; however, Member States approaches to support airports with State aid differed: Denmark offered its 13 airports a share of €4 million in aid representing 25% of eligible charges, matching the 25% support of fees offered to airlines flying to, from and within Denmark, which totalled €20 million. Elsewhere, state-owned airport operators Finavia, Riga International Airport and Swedavia all benefitted from equity/capital injections. The governments of Croatia and France both made general temporary relief available to the airport sector, in the form of loan guarantees and repayable advances respectively. In the case of Croatia, the aid was specifically targeted at international airports.

3.89 The German national and regional governments supported three airport operators. Each support measure was tailored to the company. The airport in Berlin received low-interest

loans; the airport in Munich received a direct subsidy; and the state-owned airport in Cologne/Bonn was recapitalised by the regional government. The government of Iceland recapitalised the wholly state-owned airports of Reykjavik. The government of Latvia is prepared to do the same with Riga airport, pending approval by the European Commission. In the case of Iceland, the transaction included two payments of ISK 4 billion (approx. €26m) in 2020 and ISK 11 billion (approx. €74m) in 2021. The government of Lithuania supported its state-owned airports with three schemes (each involving relatively modest amounts of around €12 million) including a reimbursement for salary expenses; reimbursement for directly COVID-19 related expenses; and a delay of profit distribution from the airports to the state shareholder. The government of Norway supported its state-owned national airport operator through three different channels. The company was in 2020 granted a grace period on state loans and exempted from paying dividends to the state owner for the financial year 2019. The company was also given an operating subsidy of NOK 3.6 billion. In Sweden the government recapitalised its national airport operator by SEK 2.5 billion. The company was, and remains, 100% owned by the state.

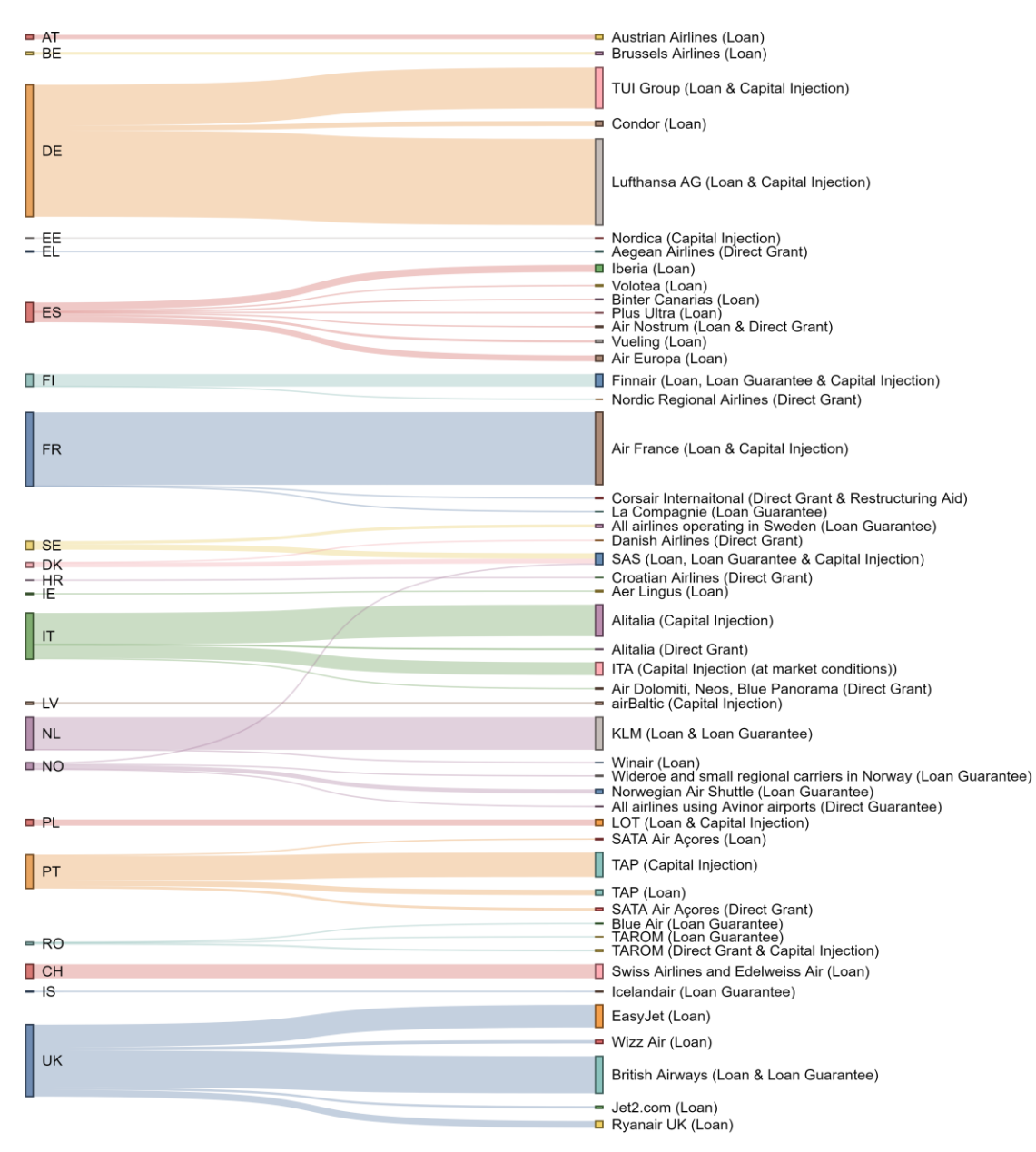
- 3.90 Support from Member States granted to groundhandling companies was far less common than support granted for airports and airlines. Based on desk research and the input of stakeholders from across the groundhandling industry, we found that less than €100 million was distributed in state aid. Airport Services Association (ASA) noted as part of the stakeholder consultation that the majority of aid received by groundhandling companies came from measures from the wider economy (e.g. wage support, furlough schemes). ASA also added that government support in Europe for groundhandling companies totalled less than 1% of support offered in the USA. The German groundhandling representative VDF stated that groundhandling companies in Germany did not receive any specific support other than measures open to the wider economy, though groundhandling companies failed to access this as they did not meet the preconditions to receive support.
- 3.91 A number of organisations from the aviation eco-system who took part in consultation (such as groundhandling companies, airport retailers, car rentals, etc) reported that “aid did not trickle-down”. What they meant was that they expected that where a major client of theirs had received aid, they hoped that somehow this aid would benefit the eco-system downstream, not necessarily in a financial form but perhaps with less commercially aggressive terms or other form of support by those who had received aid. This contrasted to for example the CARES Act in the US, where aid provided to airlines and airports was expected to trickle down and was also designed to retain connectivity services.

*Impact of State aid on integrated internal market competition*

- 3.92 It is perhaps important to start by highlighting that the fact that gathering the information presented in Appendix B was complicated and makes the assessment of a playing-field harder, as it could be easy to miss aid provided to a specific company. We would suggest that for a fair playing field, transparency and easily accessible records should be necessary to start with.
- 3.93 Secondly, what we observe is the nationalistic approach taken in many instances in the case of airline state aid. Airlines are highly mobile companies, some more pan-European than others and there are many instances in Europe of airlines with bases in many other Member States than that of their AOC certificate. At the same time, what we show in the graphic below is that where State aid is allocated to airlines, in almost all cases it is provided by the airline’s domestic government, and not by governments where airlines may have established operations.



Figure 3.26: Distribution of public aid



Source: Steer analysis

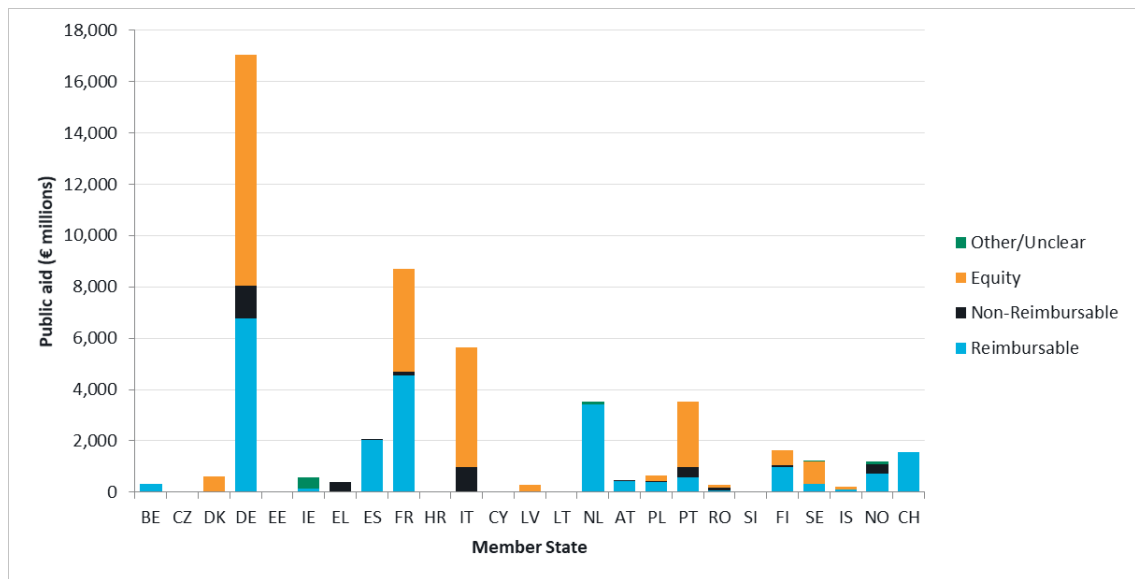
- 3.94 Anecdotally, we also see that a condition attached to Smartwings’ support by the Czech Government was the requirement to change its name to Czech Airlines, which shows that airlines are still very much seen as a national advert board in Europe (and beyond).
- 3.95 For airports which are necessarily only under the oversight of one Member State, the varying degrees of aid received by the Member States also somehow provides different recovery profiles, which impacts airport domestically, intra-EU and as intercontinental hubs.
- 3.96 There are many forms of support that have been distributed by Member States across Europe, and beyond, and not all forms are equal. Grants for instance is money given to a business without a requirement for the money to be repaid. This provided an instant benefit to a company compared to loans where there is a requirement for money to be repaid usually with



interest on top. Clearly for loans, it is important to know whether the requirement to repay exists or is only an expectation. Interest rates also need scrutiny as aid may also exist in the form of subsidised interest rates for loans, which provides cheaper access to private finance than on a purely commercial basis with a degraded balance-sheet. Where loan guarantees are provided, the State will assume the debt obligation if the company defaults. Other form of support includes equity injections where a company does not take on further debt but instead liquidity is provided in return for increased equity ownership by the State. Other forms of public aid may also include tax exemptions, deferred collection of fiscal or social contributions, preferential interest rates, indemnities against operating losses as well as less transparent forms of support such as contracts not opened to competitive tendering, etc.

- 3.97 The main types of state support provided in Europe include loans/loan guarantees (45%) or direct equity injection (46%). The rest of the aid has been distributed in the form of grants (8%) or other mechanisms. What is important to acknowledge is that a significant share of this aid to airlines has been provided in the form of reimbursable support, and not as aid given “once and for all”. This aid has been offered to “bridge the gap” and allow airlines to keep operating during the crisis and maintain their networks to a similar extent to what they were pre-pandemic. Where aid has to be reimbursed, these loans will have to be repaid.
- 3.98 What we show here is that aid has been distributed in an uneven manner across Europe.
- Some Member States have mostly distributed aid in the form of non-reimbursable aid, such as Greece, Croatia and Slovenia also noting that the amount of aid distributed was small in value;
  - Some Member States focussed on equity, such as Estonia, Latvia, Portugal, Sweden; and
  - Some Member States distributed public aid only in a form that has to be reimbursed: Austria (almost all), Belgium, Denmark (almost all), Spain, Cyprus, Switzerland.
- 3.99 As a result, we note that not all State aid allocations will carry the same burden for companies in the aviation industry. Differences in whether aid was provided that is reimbursable or not will consequently affect how companies in receipt of State aid will recover from the crisis in the coming years. We expect that companies receiving aid that does not have to be reimbursed will face less of a financial burden than those required to repay aid: for example, companies with significant State aid repayments may seek to limit their capital expenditure, giving a competitive advantage to companies with a smaller State aid reimbursement requirement, and potentially causing a disruption to the level playing field of European aviation.
- 3.100 The Member States who distributed the largest amounts of support usually did so using a mix of forms. Both France and Germany gave more than 50% in the form of equity, whilst the remainder was in the form of mostly reimbursable aid. The Netherlands chose to use reimbursable aid only, whereas Italy used mostly equity and non-reimbursable support. Portugal, which is not in the five largest aviation markets in the EU+3, had the fifth largest amount of support distributed. There may well be good reasons for this, such as based on different degrees of financial hardships, but it is clear that the level of support has been unequal and offers better recovery terms to some, meaning that the potential for market distortion cannot be ruled out.

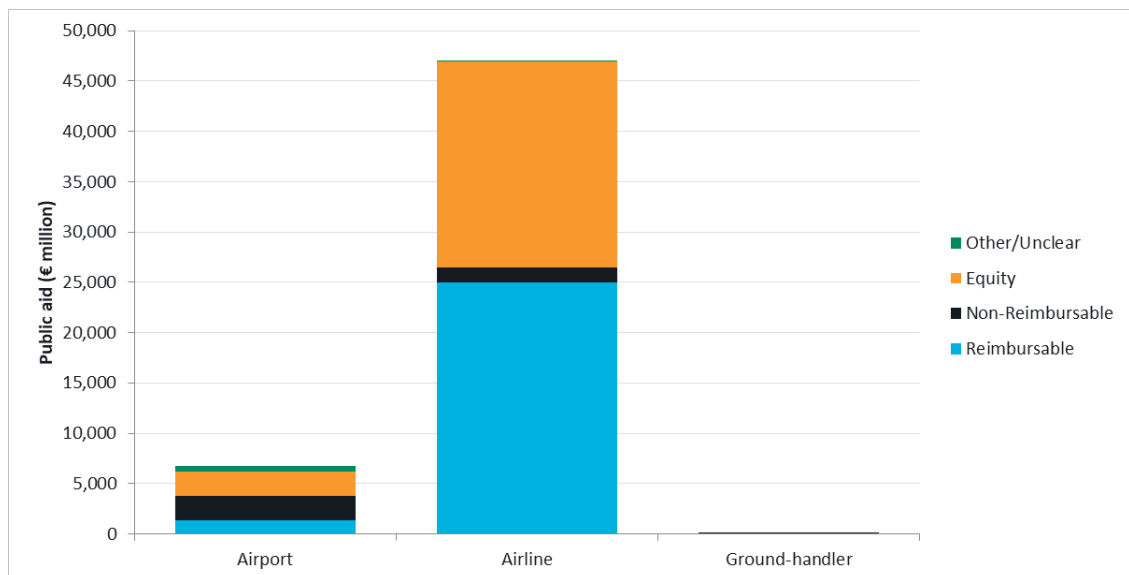
**Figure 3.27: Type of state aid granted by Member State, EU27+3**



Source: Steer analysis. Note: includes aid distributed to airlines, airports and groundhandling companies. Excludes aid to ANSPs

3.101 We also observe that not all stakeholder types have received aid under the same form. Figure 3.28 shows that over half of the aid distributed to airlines is categorised as reimbursable, with only a small proportion of State aid classified as non-reimbursable. Airports have received a larger proportion of State aid as non-reimbursable aid in comparison to airlines; this is due to airports in some Member States (such as Germany and Italy) receiving damage compensation from governments in the form of direct grants.

**Figure 3.28: Type of aid distributed by stakeholder type, EU27**



Source: Steer analysis

3.102 In addition, in some specific areas of the aviation eco-system, as there are different forms of ownership of suppliers, there is an increased risk of market distortion there: this is the case for instance but not limited to groundhandling, where there was no issue for airlines with

groundhandling services in-house to use state aid (if granted) to support their groundhandling operations thereby degrading the state of the competition with third-party handlers.

- 3.103 Despite the requirement for the separation of accounts as required by the Groundhandling Directive (Article 4), we have been unable to determine whether State aid granted to airports has trickled down to airport handling subsidiaries. From the stakeholder consultation process, no airport identified that their groundhandling companies accessed State aid. It is worth noting that the Temporary Framework on State aid does not allow the use of recapitalisation aid to cross-subsidise integrated companies which were in economic difficulties before 31 December 2019, meaning that groundhandling companies who were struggling prior to the crisis would not be eligible for cross-subsidisation of recapitalisation aid.

## Summary

- 3.104 The aviation industry in Europe faced its biggest demand crisis ever in 2020 and 2021. A radically different environment post-pandemic could have been expected, but as presented in this section, there have been only a limited number of bankruptcies and changes to the market structure. Because of the characteristics of the pandemic and in particular Member States travel restrictions, the sector most negatively impacted has been international passenger commercial traffic.
- 3.105 With extra-EU travel and travel for business purpose most impacted, as expected there have been some winners and losers: Ryanair and Wizzair emerge from the crisis in a relative strong position as they are more focussed on leisure/VFR markets and had better finances pre-pandemic. For the full-service airlines, Lufthansa and Air France remain part of the top ten airlines, but lost market share (as did British Airways, SAS, etc). Widerøe and Binter remain the largest regional airlines of Europe. Skyexpress has made the most of the pandemic, contrary to Braathens. For airports, whilst the volumes of passenger traffic have decreased, there has not been too much change to the top 20 European airports.
- 3.106 We note that the European air transport industry has suffered from constrained single market freedoms during the pandemic as most decisions impacting air travel were taken at national level without European coordination. Outside of the EU, we also observe non-EU carriers who were able to maintain important levels of capacity, explained by generous national support schemes provided (in the US and Turkey for instance, although not everywhere, as well as large domestic markets to rely on e.g. Brazil). The resulting situation increased competitiveness concerns of some European-based companies vs. Turkey, the Gulf, USA..
- 3.107 A limited number of European airlines went bankrupt during the pandemic, usually as a result of pre-existing factors. The limited bankruptcies are explained by the significant amounts of public support which has been distributed across the EU to the industry and general support in the form of employment subsidies but also more targeted interventions at sector-level or company specific support.
- 3.108 Company specific support was distributed all over Europe, but with enormous disparities between recipients of the aid, conditions attached to it (if any), type of aid, nationality of the recipient, etc. Airlines have received the vast majority of this aid. Airports access to support also varied widely across Member States, but where available was much lower than that of airlines, but significantly higher than that of groundhandlers. Many stakeholders expected aid to “trickle-down”: airports expected it from airlines, groundhandlers expected it from both airlines and airports, retailers and car rentals expected it from airports, etc, but apart from when conditions were attached to aid, few stakeholders have reported that aid was shared.

- 3.109 Specifically on airlines, clearly low-cost carriers typically did not receive the same amount of aid relative to their size than network airlines: they had more robust financial positions pre-pandemic but unsurprisingly perhaps, national interests were at the forefront of the support distributed (although not universally). Most airlines emerge the crisis having survived but with significant debts to reimburse: indeed state aid was mostly provided to them in the form of reimbursable support to “bridge the liquidity gap” and allow airlines to keep operating during the crisis and maintain their networks to a similar extent to what they were pre-pandemic. Few received direct subsidy (although some did receive equity injections).

## 4 Airline impacts

### Airline commercial and financial situation prior to the pandemic

- 4.1 In this section we consider the financial situation of European air carriers as they entered the pandemic. While their financial situations varied, their starting points are used to understand the impact of the crisis. The airlines<sup>41</sup> considered in this analysis are the low-cost carriers Ryanair, easyJet, Wizz Air, full-service carriers<sup>42</sup> Lufthansa Group, Air France-KLM and IAG, regional carriers Widerøe and SATA Air Azores, and the cargo airline Cargolux. Data for this analysis is found in the annual reports published by each airline respectively.
- 4.2 The majority of airlines report financial data from January to December in their financial year. However, the three low-cost carriers, Ryanair, Wizz Air, and easyJet, report their financial data over different periods. Both Ryanair and Wizz Air's financial year ends on 31 March, whilst the financial year for easyJet ends on 30 September.
- 4.3 In order to make data more readily comparable, quarterly financial updates have been used to convert Ryanair's financial statements into data for January to December. However, the same conversion has not been possible for Wizz Air and easyJet, as full statements are not published every quarter. Therefore, these results should be caveated when comparing against others that they do not refer to the same reporting period.
- 4.4 To make results as comparable as possible given the constraints, data for Wizz Air for 2019 refers to their FY20 report, as it covers the period April 2019 – March 2020, giving the best indication of pre-crisis performance. Data for 2020 refers to their FY21 report, and so on. For easyJet, data for 2019 refers to their FY19 report, covering the period October 2018 – September 2019, and so on for 2020 and 2021.
- 4.5 As a result of these differences in reporting periods, it is expected that a) Wizz Air may appear comparatively worse off than others, as more of their reporting timeframe for 2020 covers the pandemic versus others, and b) easyJet may appear comparatively better off than others, as more of their reporting timeframe for 2020 precedes the pandemic versus others. This should be noted when interpreting these results.
- 4.6 All of the airlines considered were profitable in 2019. LCCs generally entered the crisis with marginally higher net profit margins in 2019 compared to FSCs. The highest profit margin was reported by Ryanair at 12%, whilst Air France KLM and Cargolux reported the lowest profit margins at 1%. The airline industry is typically low margin, meaning that airlines were

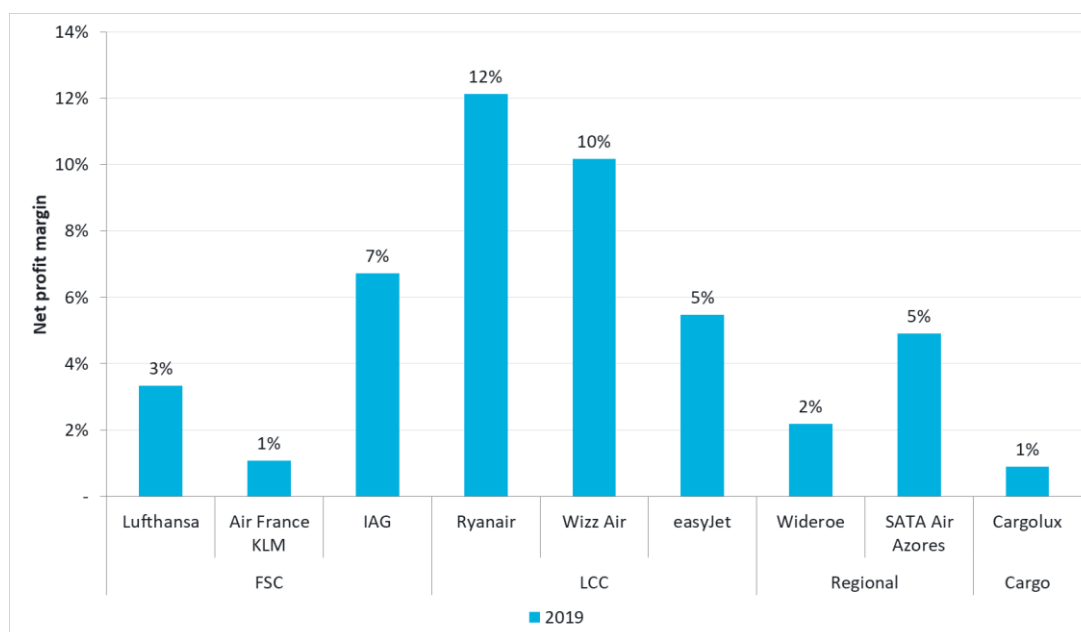
---

<sup>41</sup> Airline analysis is conducted at group level for Lufthansa (Lufthansa Group), Air France-KLM, and IAG. Analysis is conducted at airline level for the remaining companies. "Lufthansa" refers to the group unless specified otherwise.

<sup>42</sup> Analysis is conducted at a group level for these airline groups. Whilst the predominant airlines in these groups are full-service carriers (hence the categorisation), these airline groups also include low-cost subsidiaries (Lufthansa Group: Eurowings; Air France-KLM: Transavia; IAG: Vueling, LEVEL).

particularly exposed to the crisis in the sense that even a small percentage reduction in revenues would have led to operating losses with the same cost base.

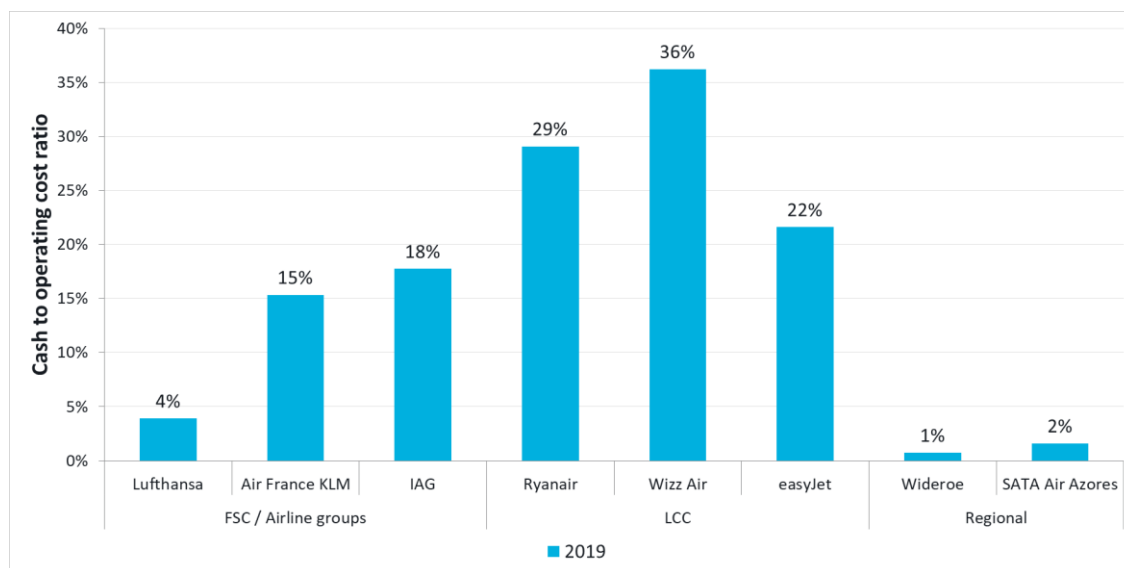
**Figure 4.1: Net profit margins, European airlines/airline groups, 2019**



Source: Steer analysis of airline annual reports

- 4.7 Another consideration of the financial position of European carriers' pre-crisis is the extent to which they could cover their operating costs without relying on future revenues. We have analysed the ratio of cash and cash equivalents to operating costs. Figure 4.2 outlines what the position of the eight airlines in-scope was before the crisis began. We observe that LCCs had more cash available before the pandemic to cover their operating costs versus full-service airlines, and hence were not necessarily as reliant on borrowing during the crisis. The two regional airlines, Widerøe and SATA, had the lowest cash to operating cost ratios compared to the other airlines studied; however, Lufthansa had a cash to operating cost ratio of 4%, significantly lower than the other FSCs and LCCs studied.
- 4.8 All airlines had a ratio under one, meaning that none had enough cash to cover their operating costs for the full year in 2019. This does not mean that these six airlines were necessarily in a bad financial state pre-crisis, but that they expected the cash-flow from their operations to pay their costs. Many airlines also held current assets with a longer maturity than cash. In normal times, it would generally be considered an inefficient use of cash held if there is enough to cover an entire year's operating costs, as cash could be used more productively by investing in the business. Therefore, the fact that companies could not cover their operating costs with cash before the crisis is not an indicator of financial risk or difficulties before the crisis, although a very low cash to operating costs ratio may leave the company more exposed to liquidity risks arising from a shock such as the pandemic. The pre-crisis situation provides a good comparison to the situation during the crisis as discussed later in this chapter.

**Figure 4.2: Cash to operating cost ratio, 2019**



Source: Steer analysis of airline annual reports

4.9 Another consideration of the financial situation pre-crisis is how reliant airlines were on debt as a source of funding, measured by the gearing ratio<sup>43</sup> as shown in Figure 4.3. The gearing ratios of airlines generally did not vary systematically by segment, though variations between airlines existed. The highest-gearing airline in 2019 of those analysed was SATA, with a gearing ratio of 1.18. A gearing ratio over 1 indicates that a firm has more debt than total capital employed (debt plus shareholder equity).

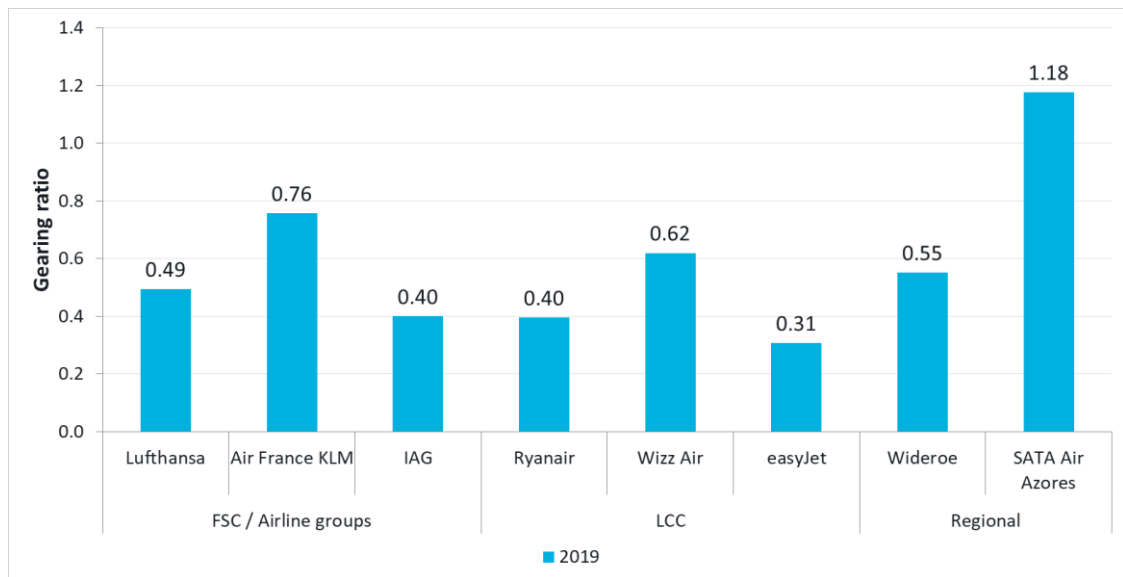
4.10 It should be noted that a high gearing ratio, whilst an indicator of financial risk, does not always imply a company is in a poor financial position. For example, undertaking a large capital expenditure programme by raising debts will naturally increase debt relative to equity. However, in the case of SATA, the company was indeed already in financial difficulties entering the pandemic, with negative equity and operating losses in the years before the pandemic<sup>44</sup>.

<sup>43</sup> Gearing is a financial measure of the ratio of short-term debt and long-term debt to shareholder equity. It reflects the proportion of a company’s funding which derives from external debt rather than from equity held by the company (such as retained earnings).

<sup>44</sup> [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_20\\_1489](https://ec.europa.eu/commission/presscorner/detail/en/ip_20_1489)



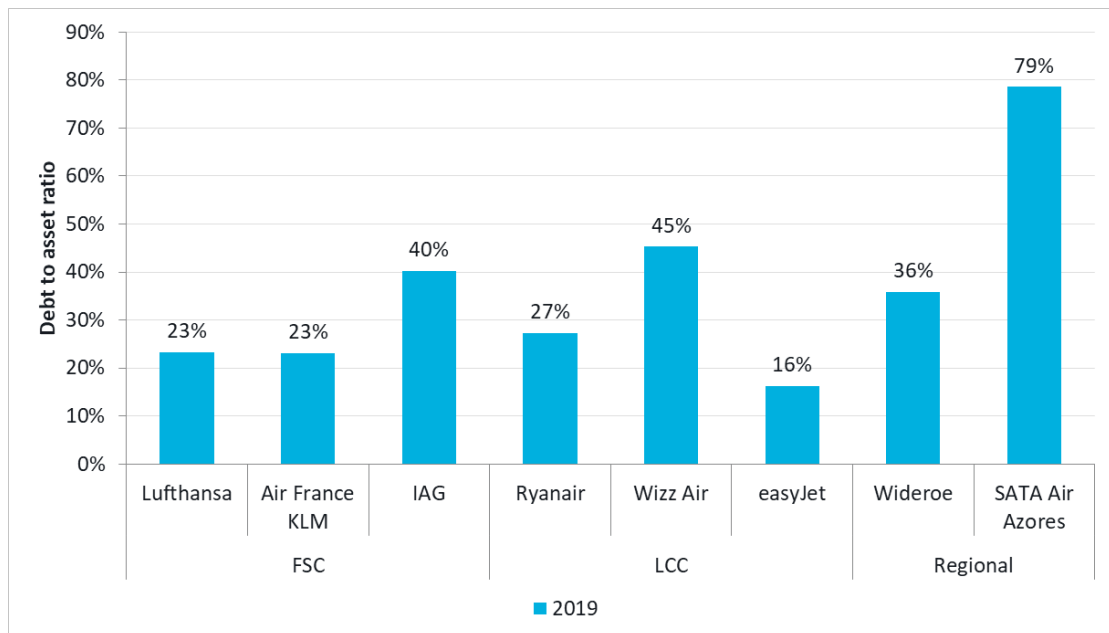
**Figure 4.3: Gearing ratios of European airlines, 2019**



Source: Steer analysis of airline annual reports

4.11 Another way to assess the financial situation pre-crisis is by comparing the levels of debt against the total assets owned by the airline, known as the debt to asset ratio. This ratio shows the degree to which an airline has used debt to finance its assets, and hence can reflect the financial stability of airlines. The higher the proportion, the greater extent that an airline is reliant on financing from creditors for its assets.

**Figure 4.4: Debt to asset ratio of airlines, 2019**



Source: Steer analysis of airline annual reports

4.12 For all airlines except for SATA, the debt to asset ratio was below 50%, indicating that the majority of the funding of their assets came from its shareholder equity rather than from raising debt. There are no apparent systematic differences by market segment in terms of this ratio. SATA is the outlier in this chart, with a debt to asset ratio of 79%. As discussed above,

this reflects the fact that the airline was already considered to be in financial difficulty before the crisis began.

## Market impacts of the pandemic

What are the main competitive changes in the market structure triggered by COVID-19 (number and size of the undertakings, concentration, new entrants etc.) and which of these changes can be expected to remain present in the future?

### Change in airline market structure

#### *Airlines ceasing operations*

- 4.13 European airlines identified as ceasing operations due to the COVID-19 pandemic have been listed in Table 4.1. In many cases, this represents airlines who have permanently ceased operations as a result of liquidation, bankruptcy or an orderly wind down. However, some airlines temporarily ceased operations and have since recommenced operations.

**Table 4.1: Airlines ceasing operations in 2020 and 2021**

MS	Airline	Ceased operations	Received state-aid? (inc. parent company)	Notes
UK	Flybe	05-Mar-20	No <sup>45</sup>	Airline had been previously struggling prior the pandemic. The early impact of COVID-19 on forward bookings and revenue collation caused Flybe to suspend operations in early March 2020. Operations restarted in April 2022 under new ownership.
SE	BRA Braathens Regional	06-Apr-20	Yes	Airline ceased operations and filed for debt restructuring in April 2020. SEK 200m loan guarantee of 90% granted by Sweden's national debt office in late 2020. 580 (of 600 staff) were dismissed. Limited operations have since resumed service as of Jun 2021.
DE	German Airways (previously LGW)	Apr-20	No	Subsidiary of Air Berlin until purchase by Lufthansa in 2017. Operated capacity for Eurowings until April 2020, when the contract was terminated.
AT	LEVEL Europe (VK)	18-Jun-20	Yes	Level Europe ceased operations in June 2020, wider Level brand is still operating; parent company Vueling received aid.
DE	SunExpress Deutschland	23-Jun-20	Yes	German arm of company liquidated, route network partially taken over by SunExpress (Turkey) and Eurowings. Part of the Lufthansa group which received State aid.
FR	LEVEL OpenSkies (LV)	08-Jul-20	Yes	OpenSkies shut down in July 2020; wider Level brand is still operating; parent company Vueling received State aid.
DK	Jet Time	21-Jul-20	No	Charter airline; relaunched in October 2020 under the name Jetttime.

<sup>45</sup> We understand that the UK government had planned to defer passenger duty payments worth £100m, but that IAG filed a complaint with the European Commission

MS	Airline	Ceased operations	Received state-aid? (inc. parent company)	Notes
SK	Go2Sky	19-Aug-20	No	Charter airline; restarted operations in August 2021.
AT	Laudamotion	Oct-20	Yes	Subsidiary of Ryanair; ceased operations in Oct 2020, replaced by Lauda Europe (Malta); Ryanair received State aid.
UK	Norwegian Air UK	Jan-21	Yes	Placed aircraft into storage in March 2020, ceased operations in Jan 2021; parent company Norwegian Air Shuttle received aid and is still operating.
NO	Norwegian Long Haul	Jan-21	Yes	Placed aircraft into storage in March 2020, ceased operations in Jan 2021; parent company Norwegian Air Shuttle received aid and is still operating.
IE	Norwegian Air International	Apr-21	Yes	Aircraft transferred to Norwegian Air Sweden; parent company Norwegian Air Shuttle received aid and is still operating.
BE	Air Antwerp	11-Jun-21	No	Company liquidated.
IE	Stobart Air	12-Jun-21	No	Loss of Flybe contract (bankruptcy) and Aer Lingus Regional contract (competitive tender) and failed takeover (May 2021) led to liquidation in June 2021.
EL	Orange2Fly	Sep-21	No	Ceased operations September 2021, after suspending operations in Jan 2021 with plans for restructuring. Applied for State loan in February 2021, but application was rejected.
DK	Great Dane Airlines	11-Oct-21	No	Filed for bankruptcy and ceased operations.
IT	Alitalia	15-Oct-21	Yes	Assets transferred to ITA Airways. Alitalia begun bankruptcy process in 2017 but was not bought. Italian govt took control in March 2020 to help survive C19 pandemic but ceased operations in October 2021.
IT	Blue Panorama/Luke Air	26 Oct 2021 (suspended)	Yes	Formerly Blue Panorama; suspended all flights in Oct 2021 due to financial difficulties owing to C19 pandemic. Filed for and granted bankruptcy protection in November 2021.

Source: Steer analysis of OAG data and media reports

4.14 In almost all cases, the airlines identified were either struggling or operating unprofitably prior to the pandemic. The impact of the pandemic either worsened their financial position, requiring them to enter bankruptcy, or caused their parent companies to re-evaluate their investments. The airlines identified in the table above can be broadly allocated into three categories:

- Regional airline closures (highly dependent on business travel traffic and already in financial difficulty due to environmental concerns): Flybe, BRA Braathens Regional and Air Antwerp;
- Cessation of activities as a result of major European airline restructuring their activities:

- Lufthansa cancelling contracts with partners German Airways and SunExpress Deutschland and their subsequent closure (focus operations on “in-house” subsidiaries);
- IAG closing subsidiaries Level Europe and Level (Openskies), which were loss-making prior to the pandemic;
- Ryanair closing Austrian subsidiary Laudamotion and its replacement with Maltese subsidiary Lauda Europe;
- Norwegian closure of three subsidiaries (UK, International and Long-Haul) to re-focus their operation on the Nordic countries;
- Alitalia replacement with ITA Airways after Government takeover;
- Stobart Air closure caused by the cancellation of Aer Lingus Regional contract and the loss of the Flybe contract after its bankruptcy; and
- Closure of small charter/leisure airlines: Great Dane, Orange 2 Fly, Go 2 Sky, Jet Time, Luke Air.

4.15 What the table above does not show is the extent to which carriers which received aid were prevented from ceasing operations as a result of this support. This is likely to include some full-service carriers such as Lufthansa or Air France/KLM as well as others. The aid provided by some Member States to a selection of carriers and other air transport operators has protected some from the pandemic and explains to an extent why only a limited number of carriers has truly ceased operations. Additionally, Regulation 2020/696 on airline operating licences also contributed to preventing airlines from ceasing operations, again reinforcing the point that airlines may have avoided ceasing operations through interventions made as discussed.

4.16 Where market exits occurred, Member States did not provide any specific accounts of their experiences or on the impact that market exits had on passengers. Sweden made a more general point that market exits can have a short-term impact by forcing passengers to change their mode of transport, but in the long run it may enable new airlines to enter the market. On the impact on passengers, BEUC added that even where airlines have not exited the market, the financial difficulties and subsequent restructurings of some airlines have already led to operational changes such as reducing routes, negatively impacting the choice and supply for air passengers.

*New entrants*

4.17 Table 4.2 presents airlines established or planned to be operational in EU27+3+UK countries in 2020 and 2021. The majority of new airlines have been set up to serve new regional markets or are new charter airlines. Flyr (Norway) was likely established to compete with Norwegian, which was encountering financial difficulties in the period before the pandemic, whilst ITA airways and PLAY airways are replacing/reviving carriers which used to operate under a different name.

**Table 4.2: Airlines established in Europe in 2020/2021**

MS	Airline	Description	Status
DE	Eurowings Discover	Airline to serve mid and long-haul leisure destinations. Owned by Lufthansa Group	Operating
EL	Grecian Air	Seaplane operator in Greece	Planned
ES	Canarian Airways	Project of the Tenerife hotel industry to ensure supply of customers, wet lease	Should be operating but unclear

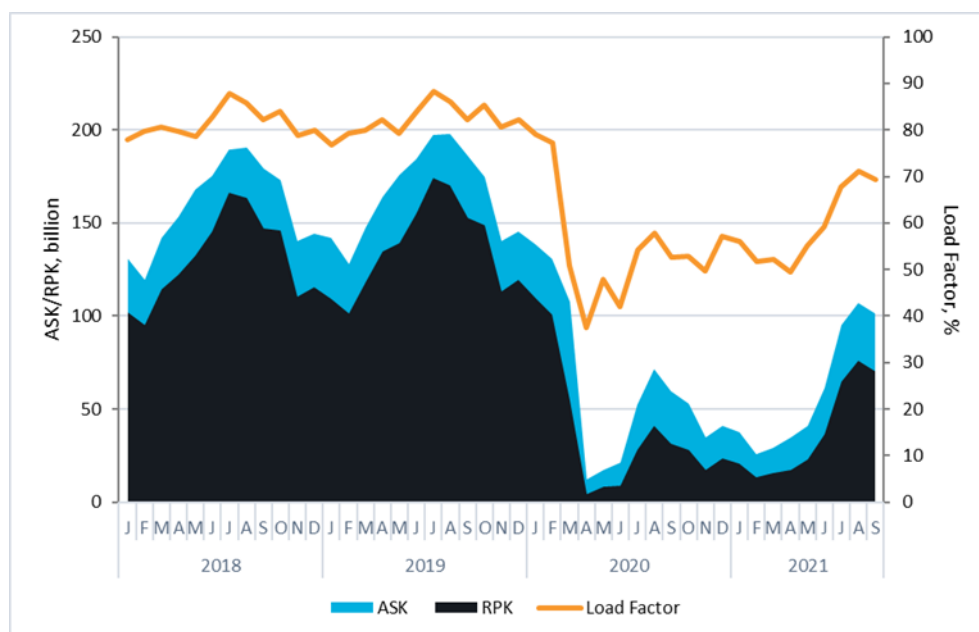
MS	Airline	Description	Status
ES	World2Fly	Long-haul leisure airline (owned by Iberostar hotels)	Operating
ES	Islas Airlines	Seaplane operator in the Balearic Islands	Planned
ES	Uep	Focus on intra-Balearic connectivity with ATR72 aircraft	Planned
FR	Air Catalogne	Airline offering regional flights from Perpignan	Launch planned for S21, but aborted
IS	PLAY	New Icelandic LCC offering connectivity to Iceland and transatlantic connections (revival of WOW air)	Operating
IT	SkyAlps	Regional airline flying from Bolzano (In Dolomites)	Operating
IT	ITA Airways	Replacement for Alitalia	Operating
IT	EGO Airlines	Charter carrier planning to expand into the Italian domestic market	Planned
LT	Heston	Wet lease, charter flights, cargo flights	Operating
NO	Flyr	New Norwegian LCC to operate on trunk domestic routes and Mediterranean destinations	Operating
NO	Norse Atlantic	Low-cost long-haul airline	Operating
RO	Flylili	Scheduled flights from Romania to Munich and ACMI/Cargo ops	Planned
SE	AirGotland	Regional airline connecting Visby and Stockholm	Operating
SE	Northern Airlines	Plans to operate 3 737 aircraft by the end of 2021 on leisure routes	Planned

Source: Steer analysis of public sources

### Impact on profitability of normally competitive routes

How did the different stages of the crisis affect the profitability of normally competitive routes? At the level of individual routes, what was the relationship between supply and demand?

- 4.18 In order to understand the impact of the crisis on airline route profitability, we have started by examining the evolution of indicators of route financials through time, for all flights departing from EU27+3 Member States and the UK. The graphic below shows the monthly average seat kilometre (ASK) and revenue passenger kilometre (RPK) of all departures from EU27+3. ASKs are a measure of available capacity (or supply), whilst RPK are a measure of the paying passengers transported and therefore is a measure of passenger demand.
- 4.19 For the period pre-pandemic, we observe the expected seasonality of traffic with peaks in the summer season. Overall, supply and demand moved in step before the pandemic, with (weighted average) load factors of 81.8% in 2018 and 82.5% in 2019, in spite of marked difference in RPKs between low-demand and high-demand months.

**Figure 4.5: European air transport supply and demand data, EU27+3, 2018-2021**

Source: DLR analysis of Sabre MI data

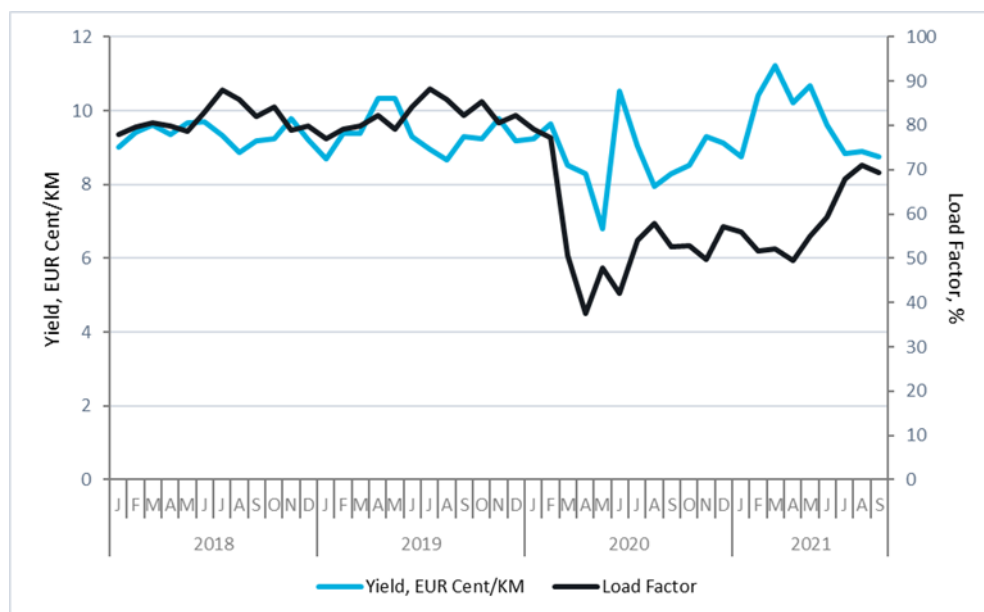
- 4.20 Figure 4.5 above shows that when the pandemic started demand and capacity fell very sharply with airlines cancelling flights, stopping operating routes and grounding some part of their fleet. However, what the load factor line shows from March 2020 is that airlines were less able to match capacity to demand with the same balance as before: whilst in 2018 and 2019, airlines' RPK were 18 and 17 percentage points away from ASK, in March and April 2020, the gap increased to 49 and 62 points respectively. That meant that passenger demand fell further than the reduction in capacity, and thus airlines experienced lower load factors.
- 4.21 Overall, we also see that load factors achieved collectively by the airline industry on European routes averaged 61.7% in 2020 and 66.8% in 2021 (up to July). These collective load factors are below a break-even load factor of 77%, estimated by IATA as required to run financially sustainable operations<sup>46</sup>. These lower load factors may at least partially reflect the social distancing requirements on board rather than a failure of airlines to match supply to demand.
- 4.22 What is less clear is whether there was unmet demand where capacity was not sufficiently provided by airlines – therefore, it cannot be stated with certainty that all demand was met by capacity supply. What is true is that when airlines offered more ASKs, customer demand as measured by RPKs also increased and vice versa.
- 4.23 In terms of passenger yields<sup>47</sup>, we see from Figure 4.6 below that there is no clear correlation between load factors and yield in Europe and that high load factors do not necessarily translate into high yields as evidenced in the summer 2018 and 2019 seasons. A drop in yield can be seen in March – May 2020, possibly due to airlines reducing fares to stimulate demand and/or lower load factors on aircraft as the effects of COVID-19 emerged. A sharp increase in

<sup>46</sup> <https://www.iata.org/en/iata-repository/publications/economic-reports/social-distancing-would-make-most-airlines-financially-unviable/>

<sup>47</sup> The yield is the revenue earned per passenger.kilometre.

yield in Summer 2020 can be seen as airlines attempted to maximise airlines' opportunities to earn revenue from re-emerging demand with the loosening of border restrictions, but whilst consumer demand was uncertain. The initial spike in yields quickly dissipated throughout the summer to August 2020, after which a steady increase for the remainder of 2020 was observed. During the winter 2020-2021 season load factors remained at around 50%, whilst yields gradually increased to an average of €11.0 per kilometre, higher than during all of 2018 and 2019. As the European market began to open in summer 2021, load factors improved from levels of around 50% to a peak of 71% in August, however this was combined with a drop in yield to €9.0 per passenger kilometre, which slightly lower than the 2018/2019 yield of €9.4.

Figure 4.6: European passenger yield and load factors, EU27+UK, 2018-2021



Source: DLR analysis of Sabre MI data

#### *Relationship between supply and demand at market level*

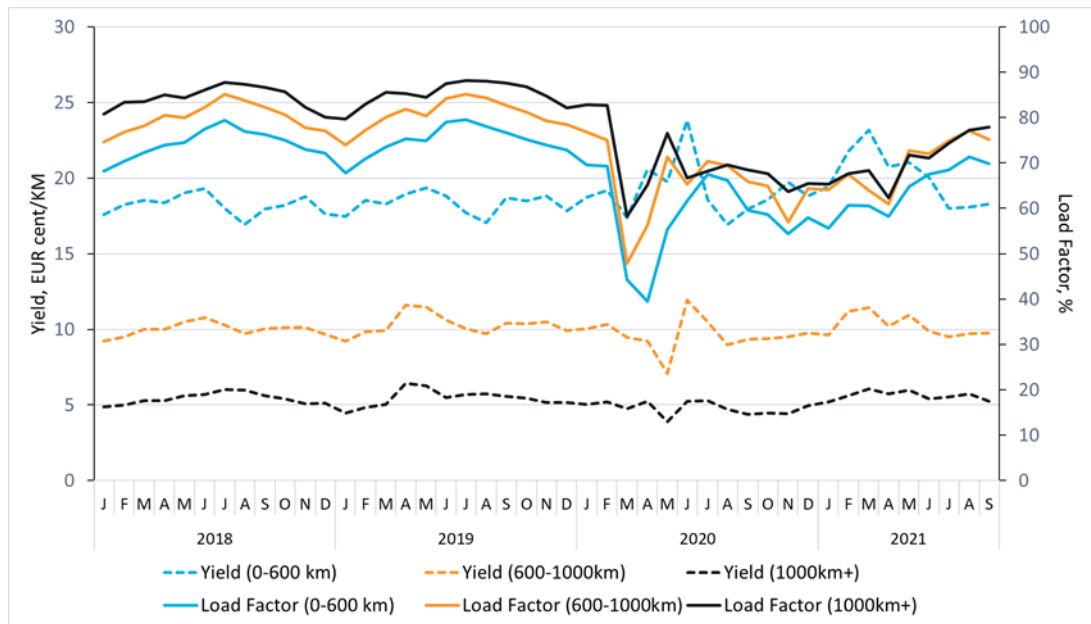
4.24 The relationship between supply and demand at market levels was also investigated. It was originally planned to conduct this at individual route level with a selection of route agreed with the Commission, however the lack of reliability of MIDT at route level can cause the results to be misrepresentative. This analysis has now been conducted at network level so that the reliability of the results is more accurate. Analysis for the following route groups has been conducted:

- Intra EU+3 (including Domestic)
  - Routes of up to 600km;
  - Routes of 600km-1000km in length; and
  - Routes of over 1000km in length.
  - PSO route (at route level).
- Extra EU+3
  - Africa;
  - Asia-Pacific;
  - Latin America (LATAM) and the Caribbean;
  - Middle East; and
  - North America.



4.25 Figure 4.7 below presents yields and load factors on intra-EU+3 routes between 2018 and 2021. Yields are variable across the different route groups owing to higher costs per km associated with shorter routes as non-variable costs impact the yield more. Across the three groups, yield has remained broadly consistent on routes of 600km or more indicating that some of the changes witnessed at total level are also driven by changes in market composition. Decreases in yield can be seen from February and March 2020, however these had recovered to pre-pandemic levels by mid-summer. Interestingly the yield on routes of less than 600km in length did not decline at the start of the COVID-19 pandemic and instead increased between March and July 2020. This was however combined with the strongest reduction in load factor (-30%) compared with -18% for the other two groups. Many of the routes operated in this category will have been required for local connectivity and fare increases may have been implemented to maximise revenues from passengers required to travel during this period to minimise operating losses. Yield on routes of 600km or less remained most volatile during H2 2020 and 2021. By September 2021 load factors had yet to recover to pre-pandemic levels in all markets. This, combined with the fact that yields have remained relatively unchanged, implies that all routes will be operating either less profitably than before the pandemic or not profitably at all.

Figure 4.7: Yield and load factor: Intra EU27+3 (including domestic) 2018-2021



Source: Steer analysis of Sabre MI data

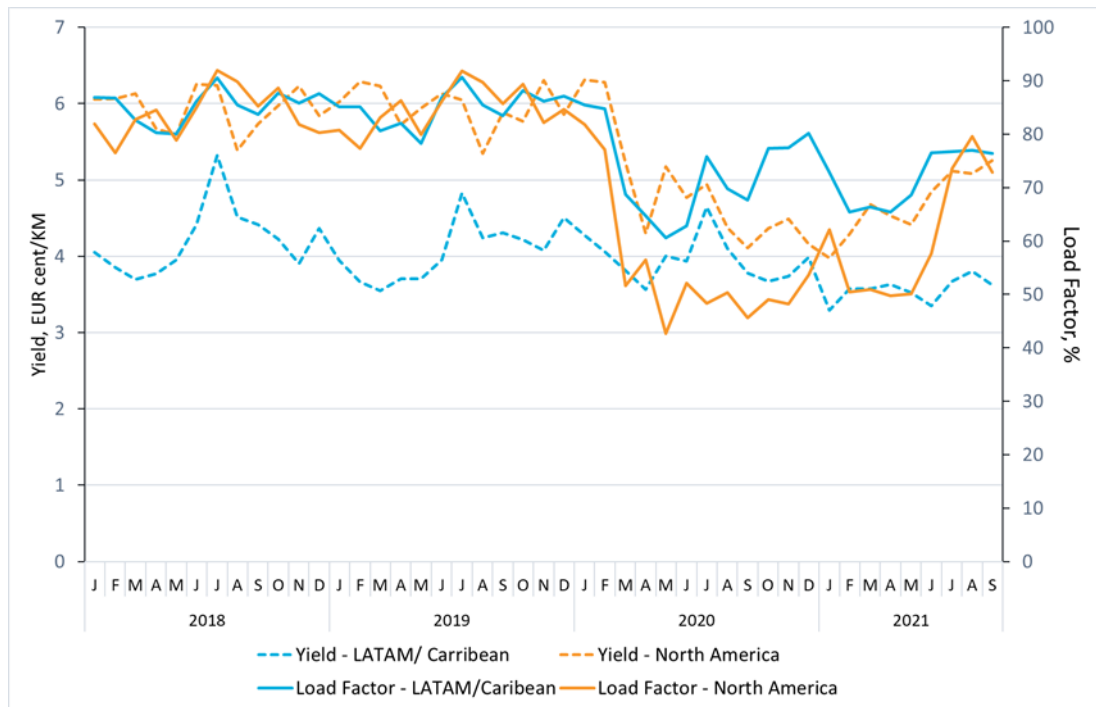
4.26 Figure 4.8 presents yields and load factor on routes between EU27+3 Member States and Latin America/Caribbean and North America. Load factors in both markets were comparable at around 84% until March 2020 when load factors to Latin America/Caribbean reduced by around -20% and to North America by -34%. Load factors to North America remained around 50% until summer 2021, when they increased to levels of 70% to 75%. The trend in load factors to Latin America/Caribbean was gradually returning to levels around 76% by September 2021, excluding a period of reductions during early 2021 when much of Europe was in lockdown.

4.27 Yields to North America also fell sharply with a -20% reduction in yield being recorded between 2019 and Q2 2020. Yields to North America remained suppressed until the end of

2020 after which they steadily began to return to 2019 levels. In Q4 2021 yields to North America were -4% lower than the 2019 average. Yields to Latin America/Caribbean were far less volatile and it is difficult to distinguish between the impact of COVID-19 and pre-existing variation due to seasonality. 2020 Q2 yields were -5% lower than the 2019 average and remained at a lower level until September 2021.

4.28 Route profitability to North America will have been significantly impacted by the combination of prolonged low load factors and low yields. Routes to Latin America will have been affected by low patronage, however more recently this will have been assisted by increasing yields on these routes. It was not possible to include the impact of cargo revenues, which may have significantly improved route economics.

Figure 4.8: Yield and load factor: Extra-EU+3, 2018-2021 (1)

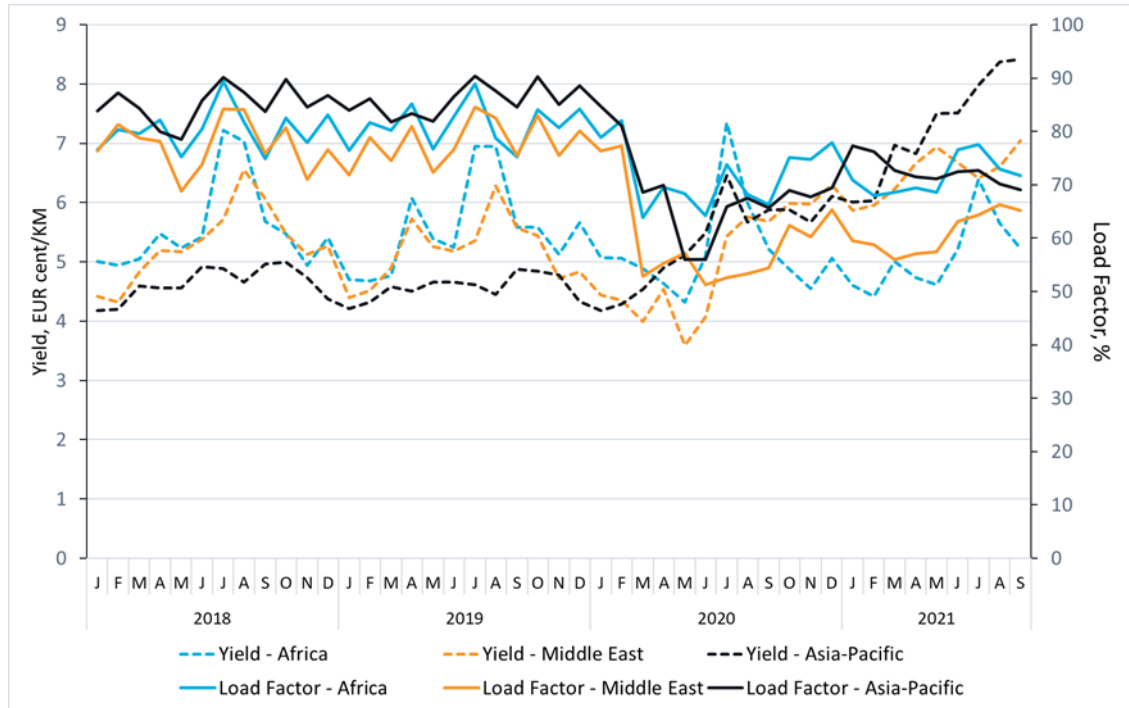


Source: Steer analysis of Sabre MI data

4.29 Figure 4.8 presents yields and load factor on routes between EU27+3 Member States and Africa, the Middle East and Asia Pacific. Load factors for the three markets differed in 2019. Routes to Asia-Pacific had the highest load factors, averaging at 86% in 2019. The average load factor to Africa was 81% in 2019, while to the Middle East it was 78%. The impact of COVID-19 on routes to the Asia-Pacific region can be seen in from January 2020, when load factors started to fall; by May 2020 load factors had fallen by an average of -28% to 56%, however for this point the trend in loads factor gradually recovered to 70% in Q3 2021. In contrast to all other markets, yields to the Asia-Pacific region actually increased from 2019 averages throughout 2020 and 2021, reaching a peak of euro cents 8.26 (+80%) in Q3 2021. Normally this would signify significant capacity constraints, however with load factors averaging at 70%, this was instead likely caused by external factors such as border restrictions and bilateral restrictions on flight frequencies/capacity together with airlines being aware that demand from passengers with valid reasons to travel would likely be price inelastic. Based on the figures available it can be assumed that flights to Asia-Pacific destination were operated profitably but will have been operated at considerably lower frequencies.

4.30 Yields to African and Middle Eastern destinations were highly seasonal prior to the pandemic, however a drop in yield of -16% to Africa and -25% to the Middle East can be seen between Q2 2019 and Q2 2020. Load factors also decreased by a similar magnitude, -17% and -29% respectively. By September 2021 yields to Middle Eastern destinations had improved significantly and were +26% higher than in September 2019. This combined with a load factor reduction of -14% indicates that revenues per flight on these routes had exceeded pre-pandemic levels. On routes to Africa, yields by September 2021 were +6% higher than the 2019 average, whilst load factors were -12% lower indicating that revenues per flight had not fully recovered.

Figure 4.9: Yield and load factor: Extra-EU+3, 2018-2021 (2)



Source: Steer analysis of Sabre MI data

4.31 By combining changes in load factor together with changes in yield, an indication of revenue levels obtained per flight in comparison to 2019 levels can be derived. This shows that revenues on Intra-EU+3 routes have been consistently lower than 2019, which will impact route profitability. Revenues per flight to Asia-Pacific destinations have exceeded 2019 levels since Q3 2020 due to severe capacity constraints, whilst improvements to the Middle East and Latin American can be seen in September 2021. The North American market has been significantly impacted, and in Q3 2021 remained its position as the least recovered in terms of revenue per flight.

**Table 4.3: Route profitability index versus 2019 – Indicative of change in passenger revenues per flight**

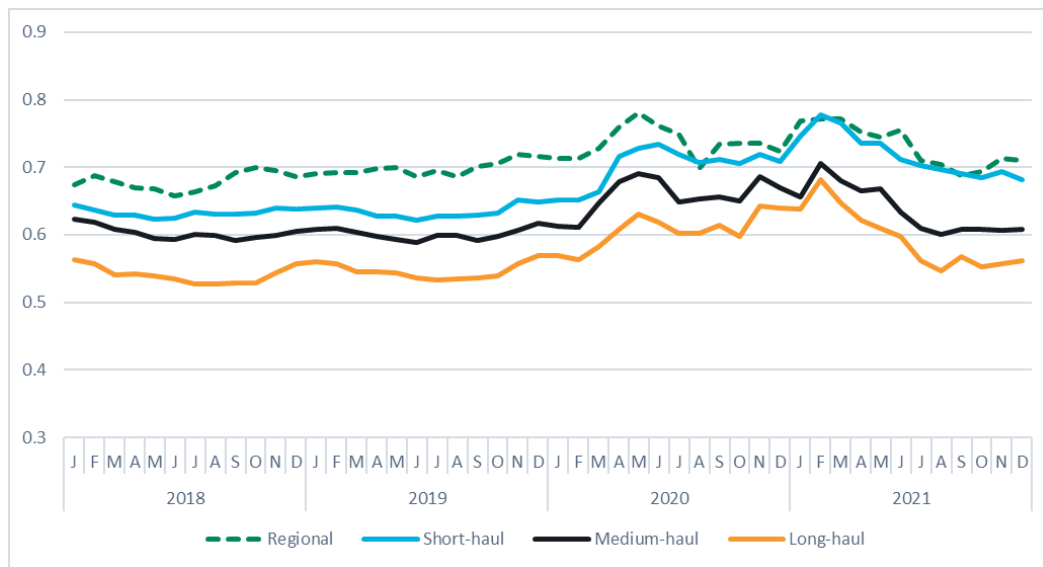
		Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021
Intra EU+3	0-600km	-18.0%	-18.7%	-16.2%	-20.9%	-7.8%	-4.5%	-7.6%
	600-1000km	-20.4%	-27.1%	-20.9%	-28.8%	-15.7%	-14.7%	-12.0%
	1000km+	-19.6%	-28.4%	-29.1%	-34.9%	-18.9%	-15.8%	-9.3%
Extra EU+3	Africa	-17.0%	-30.1%	-4.9%	-18.8%	-28.4%	-23.2%	-5.7%
	Asia-Pacific	-13.6%	-20.1%	1.6%	3.2%	21.9%	33.2%	48.9%
	LATAM/ Caribbean	-6.4%	-30.2%	-13.9%	-13.7%	-31.1%	-28.7%	-17.6%
	Middle East	-27.5%	-45.2%	-25.7%	-5.7%	-13.6%	-1.0%	7.9%
	North America	-17.6%	-52.7%	-57.4%	-56.8%	-53.5%	-52.2%	-23.3%

Source: Steer analysis of Sabre MI data. Note: analysis excludes changes in cost per flight.

### Market concentration

4.32 Figure 4.10 below presents how market concentration on European city pairs has evolved between 2018 and 2021 as measured using the Herfindahl-Hirschman Index (HHI)<sup>48</sup>. In 2018 and 2019, the average HHI was just under 0.6, indicating that the majority of routes were operated by at least two carriers (an HHI of 0.5 would indicate a market duopoly), with some routes being operated on a monopoly basis.

**Figure 4.10: Market concentration on city pairs between EU27+3 2018-2021 (passenger-weighted average)**



Source: Sabre MI, DLR analysis.

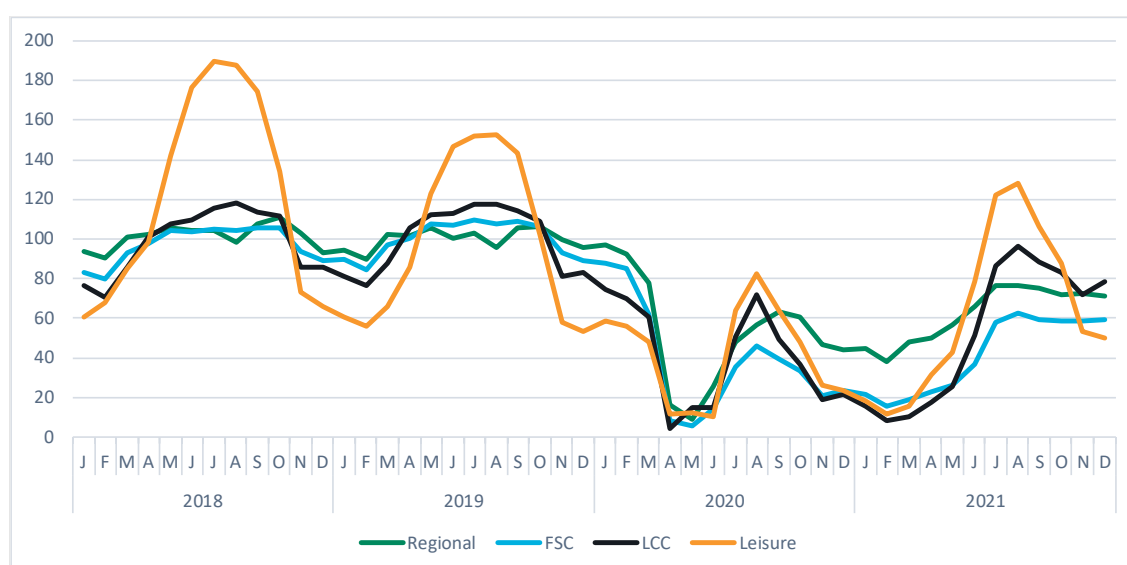
4.33 We observe that in the summer months, the intensity of competition was higher (lower HHI) in both 2018 and 2019, which can be attributed to higher levels of capacity operated in the

<sup>48</sup> The HHI indicates the degree of competitive intensity as a number between zero and one. A number close to zero indicates perfect competition (no market power) while the number one indicates a monopoly (maximum market power). For this analysis a market has been defined as an origin-destination pair between two cities (city-pair approach). Airlines with common ownership are treated as a single firm (for example, Ryanair UK, Ryanair Sun (Buzz), Malta Air, and Lauda Europe as part of Ryanair Holdings as they are not truly operating in competition with each other).

higher-demand summer months. With the advent of the COVID 19 pandemic, flight capacities declined sharply, causing the HHI to increase in May 2020 across all types of routes, which is 20% higher than in the corresponding month in 2019.

- 4.34 In the summers of 2020 and 2021, the intensity of competition increased again with the seasonal increase in supply. However, in the low-demand winter of 2020/2021, the average HHI reached its maximum value in February 2021, which is almost 23% higher than in the corresponding month in 2019. The decline in competition intensities provide a plausible explanation for the observed price increases in the corresponding months (see Figure 6.14).
- 4.35 When compared against seat capacity operated (Figure 4.11 below), an inverse relationship can be seen between seat capacity offered and market concentration. The variance in capacity operated by different airline types shows that leisure carriers and LCCs are providing more competition in the summer months. The combination of fewer business travellers (less seasonal than leisure/VFR) and higher COVID-19 virus infection rates over the winter has increased the impact of seasonality of demand.

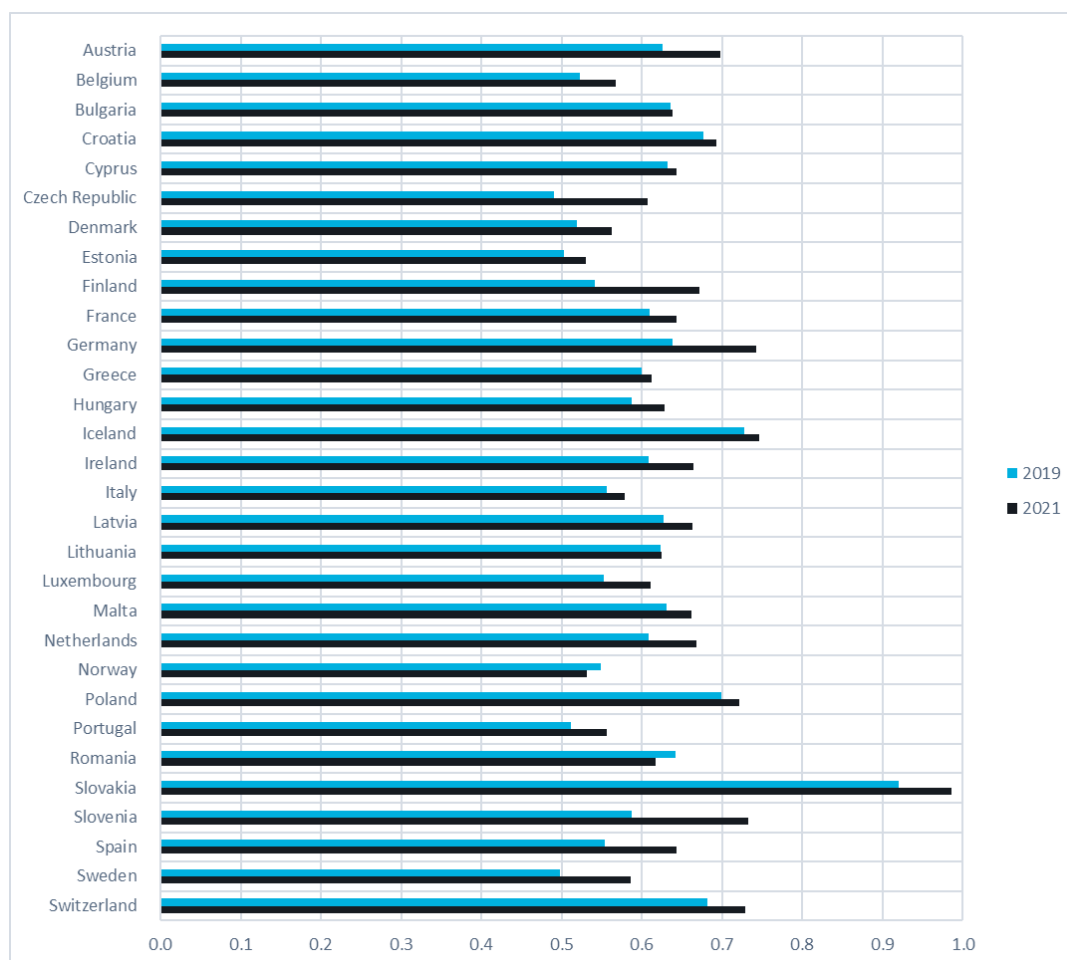
**Figure 4.11: Seat capacity, intra EU27+3, 2018-2021 by airline type (2019 = 100)**



Source: Sabre MI, DLR analysis.

- 4.36 Figure 4.12 below displays the average market concentration measured by the HHI on European city pairs in 2019 and 2021, differentiated by the Member State of the departure airport. Market concentration has increased in almost all Member States, apart from Romania and Slovakia, meaning that across the EU, air passengers have less choice in 2021 than they had in 2019. This is particularly the case in Finland (+31% concentration), followed by Czechia (+24%), Sweden (+24%), Luxembourg (+22%) and Spain (+23%). Some of the large aviation markets have not as significantly affected, such as France (+9%) and Italy (+8%) with Germany (+17%) and the Netherlands (+17%) more impacted.

**Figure 4.12: Market concentration on European city-pairs by EU27+3 in 2019 and 2021**



Source: Sabre MI, DLR analysis

## Impacts on airline commercial and operational models

### Impacts on operations models

Does the new financial situation facing airlines affect their need for, and ability to provide operational flexibility? Please take into account fleet reduction and changes in terms of ownership/leasing of aircraft. What is the impact of fleet changes on connectivity?

- 4.37 Faced by the lack of demand, airlines have temporarily parked aircraft and retired some of their older (and less efficient aircraft) such as the B747 (Air France KLM, British Airways), A380, A340 (Air France KLM, Iberia). The changes in fleet sizes have however not been too dramatic: A4E reported via the stakeholder consultation process that the fleet size of the members for which they have data was an estimated 3,089 aircraft in 2019 and had reduced to 2,720 aircraft in 2021 (these figures include both owned and leased aircraft).
- 4.38 Overall, the in-service fleets (which include parked aircraft) of airlines have slightly reduced. However, airlines still took deliveries of newer aircraft (such as A220, A350, B787/10, etc.) during the pandemic as most of these deliveries correspond to orders placed before the crisis, which airlines have to honour. For instance, interviews with stakeholders revealed the following information:

- A4E explained that its members with data are expected to take delivery of an estimated 730 new aircraft this decade (before 2030);
- Lufthansa (passenger aircraft) explained that due to weak finances and proposed government fleet renewal support not materializing many deliveries of new generation aircraft had to be postponed (mostly A320neo family aircraft). Further activities for advancing the renewal of the short haul fleet were postponed as well. On the positive side 14 latest generation widebodies (A350s and 787-9s) were purchased/leased at attractive conditions to accelerate the modernization of the long-haul fleet. This will also enable the retirement of less efficient widebody types that were parked during the crisis;
- Lufthansa Cargo reported that the pandemic had no influence on the final phase-out date of all MD-11 freighters. However, the sale of certain specific aircraft was delayed somewhat between the start of the pandemic and the end date, mainly because of the urgent need for aircraft to transport personal protective equipment.

4.39 Some (but not all) airlines have nonetheless reduced the rate at which new aircraft were previously planned to enter the fleet: whilst they could not reduce their prior commitments for completed deliveries, they sometimes delayed future deliveries for orders not yet committed to protect their current cash-flow position.

4.40 Some airlines have also changed their ownership models to an extent: in order to create liquidity, they have utilised the aircraft on their balance sheet to source cash funds for the business by selling and leasing back a proportion of their fleet. The outcome is a higher total cost of ownership, while a lower residual value exposure on aircraft.

4.41 On the question of the impact of fleet changes on connectivity, Table 4.4 outlines the views of airlines. We reflect that connectivity and fleet changes are two different things and it was not the fleet changes that changed network connectivity across Europe. As stated by Lufthansa, it was the travel bans and lack of demand and travel bans that resulted in a significant change in connectivity (see Chapter 6). The limited change in the fleet structure of European airlines (as detailed above) during the pandemic should enable them to reintroduce the former network connectivity in the longer term if sufficient demand returns.

**Table 4.4: Airline responses to the impact of fleet changes made due to the pandemic on connectivity**

Airline	What is the impact on your airline connectivity of fleet changes you made as a result of the pandemic?
Air France KLM (FR/NL)	Older aircraft are phased out more rapidly, introducing more fuel-efficient aircraft, with more capacity (esp. within Europe)
Lufthansa Group (DE/AT/BE/CH)	<p>With traffic rebound, flights and aircraft were reinstated step by step. Traffic levels are still well below 2019 levels. During these adaptations LHG tried to allow for a minimum connectivity through the large hubs, enabling key markets to be connected. During these times network was served with less aircraft types in operation, these being mostly the most cost efficient, smallest and versatile types. However, it was not the fleet changes that changed network connectivity. Lack of demand and travel bans forced LHG to adapt schedules accordingly – this resulted in many aircraft being parked. The fleet structure itself was not fundamentally changed, therefore enabling LHG to reintroduce the former network connectivity in the longer term if sufficient demand returns. Older aircraft that might not be brought back into service were usually replaced with similar aircraft in terms of capacity/range, having no connectivity impact on the network logic – only being more efficient.</p> <p>Lufthansa Cargo: The biggest impact on offered capacity and connectivity was the significant decline of passenger flights and, thus, the associated reduction of belly capacity. An increase of freighter productivity could only compensate a very small part of</p>



Airline	What is the impact on your airline connectivity of fleet changes you made as a result of the pandemic?
	the loss. In pre-Covid times Lufthansa Cargo's belly-freighter capacity split was roughly 50/50. Especially during the urgent need of PPE, shortly after the beginning of the pandemic, Lufthansa Cargo offered so-called "preighters", passenger aircraft transporting cargo only, in addition to real freighters.
IAG (ES/IE/UK)	We retired aircraft to control for cost and this has in turn reduced capacity that impacts the available connectivity
LOT Polish Airlines (PL)	We have limited the frequencies on most of routes, but maintained at least daily connections on most important passenger flows NAM<>CEE, WE<>CEE, WE<>ASIA
Luxair (LU)	Hub-feeding routes are severely under pressure resulting in reduced connectivity.
AIRE	Less demand for FEDA services, new arrivals postponed, limited the frequencies on most of routes.
IATA	There should not be any decrease in connectivity due to aircraft fleet changes. In most cases older aircraft have been replaced by newer more efficient models which offer enhanced range and lower unit costs. Aircraft such as the B787, A350, A321LR, and A220 can serve a wider range of markets including some that could not be economically flown by the aircraft they replaced. The result is that that there is an opportunity to build even greater connectivity.
EEA	Due to the implosion of passenger traffic and the increased demand for air cargo, there was (and still is) a shortage of capacity. One of the possible solutions is (wet) leasing of additional aircraft. Wet leasing is a valuable common practice, particularly among air cargo carriers. It permits the efficient deployment of aircraft and air capacity. An EU carrier's ability to wet lease in additional capacity permits it to respond to increased demand or to expand its network, which is necessary during the current COVID-19 pandemic. However, there is a shortage of aircraft which we could (wet) lease in. EU carriers should be able to wet lease in capacity from third country carriers (provided that safety requirements are met), as long as it is operationally required or extraordinary circumstances such as the ongoing COVID-19 pandemic necessitate. For intra-EEA leasing, our view is that prior approval should not be necessary as safety is commonly overseen by EASA.

Source: Steer analysis of stakeholder consultation responses

- 1.42 In most cases, older aircraft have been replaced by newer, more efficient models (such as B787, A350, A321LR and A220) which offer lower unit costs and enhanced range. COVID-19 resulted in an acceleration of the shift towards cleaner (more fuel efficient) transport by accelerating airline fleet renewal.
- 4.43 In respect of cargo, the biggest impact on offered capacity and connectivity was from the significant decline in passenger flights and the associated reduction of belly capacity. The increased freighter productivity could only compensate for this to a small degree. Therefore, some airlines offered so-called "preighters", passenger aircraft transporting cargo only, in addition to real freighters.

#### Impacts on commercial models

What are the commercial/business models developed in view of the impact of the crisis and can further changes still be foreseen?

- 4.44 Operators have responded in various ways to the COVID-19 crisis. For the airlines, we have observed (as per tables below) a number of approaches ranging from increases in ancillary revenues, changes to their yield management techniques and /or distribution channels, to

restructuring of their operations. These changes concern both full-service carriers (FSCs) and low-cost carriers (LCCs), although full-service carriers that traditionally got most of their profits from premium business travel have had to rethink their long-haul offerings. For example, possible options include potentially expand premium economy, developing a leisure offer to attract some the low-cost demand, as well as trying to leverage the cargo window of opportunity that the pandemic has created.

**Table 4.5: Airlines – Changes in ancillary revenues approaches**

Airline	Category of ancillary	Description
Lufthansa Group	On-board catering	<ul style="list-style-type: none"> <li>Since May 2021, on European flights in economy class (LH and CityLine), economy passengers have to pay for food and drinks on European flights that are longer than 60 minutes;</li> <li>Since December 2021, on long-haul economy and premium economy (LH and CityLine), cabins snacks and spirits available for purchase in addition to the regular economy and premium economy meal services</li> <li>AUA and SWISS started similar concepts in March 2021 to charge for meals in economy class</li> </ul>
easyJet	Hand luggage policy	<ul style="list-style-type: none"> <li>Pre-pandemic all passengers regardless of fare, were allowed to take one bag onboard as hand luggage. Since Feb 2021 and Nov 2021 new charges for hand luggage<sup>49</sup>: only a small piece of hand luggage that can fit under the seat in front is free of charge. Larger bags into the cabin on a standard ticket is between €5.99 and €32.99.</li> </ul>

Source: Steer and DLR analysis

#### 4.45 Changes to yield management and distribution of tickets include the following in Table 4.6:

**Table 4.6: Airlines – Changes in revenue management and distribution approaches**

Airline	Category	Description
Lufthansa Group (LH, LX, OS – not SN), AF/KLM (on selected markets)	Yield management (Continuous pricing) and ticket distribution	<ul style="list-style-type: none"> <li>Since Oct 2021: new fare-setting system for Lufthansa Group apart from the traditional buckets – pricing no longer tied to fare classes<sup>50</sup>. More prices can be offered within the same traditional bucket, instead of one price</li> </ul>

<sup>49</sup> <https://www.moneysavingexpert.com/news/2021/11/easyjet-abandons-its--hands-free--policy-as-it-shakes-up-its-hol/>

<https://www.independent.co.uk/travel/news-and-advice/easyjet-hand-luggage-policy-change-cabin-bags-b1800292.html>

<https://www.independent.co.uk/travel/news-and-advice/easyjet-cabin-baggage-allowance-cut-b1764410.html>

<https://www.easyjet.com/en/help/baggage/cabin-bag-and-hold-luggage>

<sup>50</sup>

[https://www.lufthansaexperts.com/shared/files/lufthansa/public/mcms/folder\\_102/folder\\_3212/folder\\_4994/file\\_148593.pdf](https://www.lufthansaexperts.com/shared/files/lufthansa/public/mcms/folder_102/folder_3212/folder_4994/file_148593.pdf), <https://www.businesstravelnewseurope.com/TMC-Distribution/Lufthansa-launches-NDC-continuous-pricing-for-lower-fares->, <https://www.kambr.com/articles/what-lufthansa-groups-continuous-pricing-solution-means-for-the-airline-industry>, <https://www.businesstravelnews.com/Procurement/Airline-Continuous-Pricing-Gains-Traction-but-Widespread-Use-a-Ways-Off>

Airline	Category	Description
only) with other airlines quoted to follow (IAG, Qantas)		<p>level per bucket. This is especially relevant for the lower fares, before large price jumps when a fare class closed.</p> <ul style="list-style-type: none"> <li>Only implemented through direct distribution channels, not yet via travel agents using a CRS system.</li> </ul>
easyJet	Dynamic pricing for ancillary products	<ul style="list-style-type: none"> <li>Introduction of a Revenue / yield management for ancillary products<sup>51</sup>: from Dec 2021 there is a different price based on demand, route, time, date, day of the week, etc.</li> </ul>

Source: Steer and DLR analysis

4.46 There have been a number of approaches witnessed to restructure operations to save costs:

- British Airways EuroFlyer - Gatwick subsidiary is a concept similar to BA CityFlyer in London City. British Airways launched new subsidiary at Gatwick, largely to compete with easyJet<sup>52</sup> on point-to-point traffic. The subsidiary will operate on short or medium-haul destinations (mostly leisure routes) from March 2022 (Athens, Berlin, Faro, Ibiza, Madrid, Malaga, Marrakech, Milan Malpensa, Santorini and Tenerife) and will operate under British Airways name but will be a distinct entity with a lower cost base, mainly resulting from lower levels of pay rates for new joiners. Lufthansa Group is pursuing a similar approach with its Eurowings Discover airline;
- Other airlines have also restructured their businesses by setting up new subsidiaries.

4.47 There are some differences between how the three major airlines of Europe are implementing their “lower-cost” subsidiaries. IAG has set up a lower cost subsidiary carrier, whilst maintaining flag carrier branding (BA Euroflyer). Lufthansa Group refocused its LCC carrier Eurowings on short haul routes only and established low-cost long-haul airline Eurowings Discover. Nonetheless, there remains an operating cost advantage for low-cost airlines of the like of Ryanair, Wizz Air and easyJet compared to the major airline groups. For regional carriers, it was noted that they do not anticipate further consolidation in the regional market itself or from big players to small players.

## Financial impacts of the pandemic

What is the overall financial situation in the sector (including the division by segments) and how is it expected to evolve?

Which are the segments most heavily hit by the crisis and what are the reasons?

How did the financial situation and business models of carriers going into the crisis affect their ability to access funding? What are the expected longer-term effects of the changes in airlines’ funding on these businesses and the market as a whole? How has it impacted the profitability or even viability of different operations? What is the impact on financial flexibility? How are

<sup>51</sup> <https://centreforaviation.com/news/easyjet-coo-weve-successfully-introduced-dynamic-pricing-on-ancillary-products-1108946>

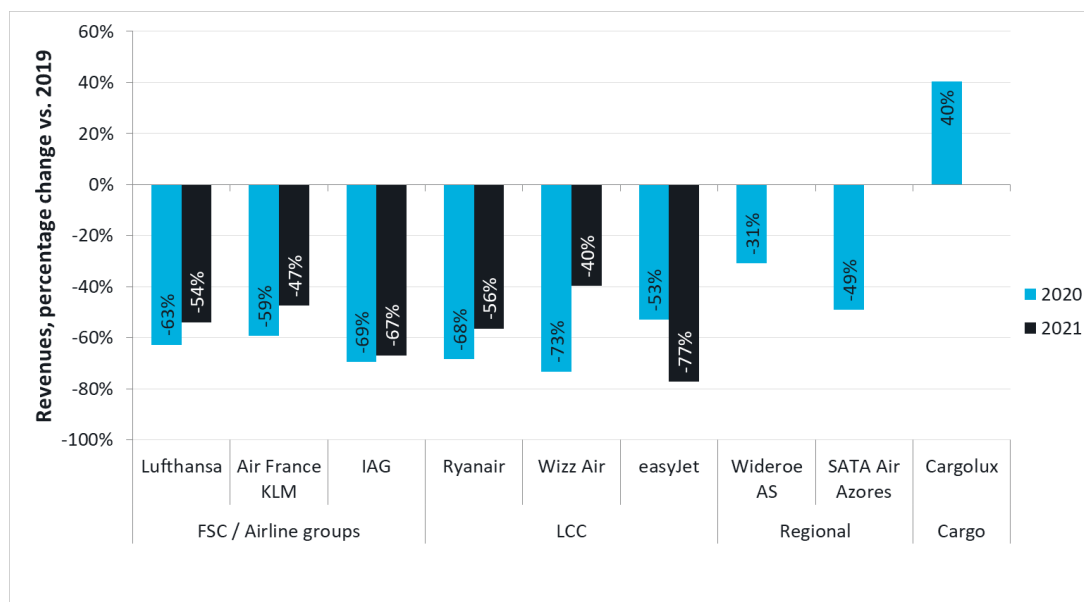
<sup>52</sup> <https://www.independent.co.uk/news/uk/gatwick-british-airways-british-santorini-berlin-b1975684.html>, <https://jerseyeveningpost.com/news/uk-news/2021/12/14/british-airways-creates-short-haul-gatwick-subsiary/>

airlines adapting their balance sheet following the crisis? Would a secondary slot market have helped airline financing?

### Airline revenues

- 4.48 The COVID-19 pandemic has caused significant financial challenges across the aviation industry. Steer analysis finds that passenger airlines all experienced significant reductions in revenues in 2020 and 2021, as shown in Figure 4.13.

Figure 4.13: 2020/2021 airline revenues, percentage change vs. 2019

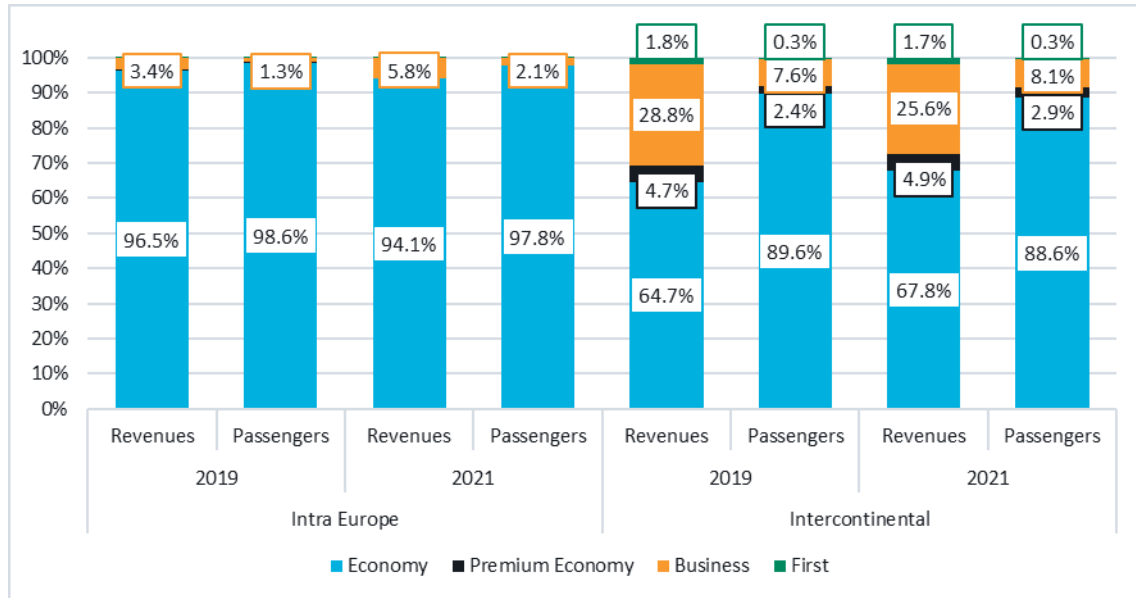


Source: Steer analysis of airline annual reports

- 4.49 Reductions in passenger airline revenues varied between -31% and -73% for passenger carriers in 2020. FSCs all witnessed reductions in revenues between -59% to -69%, whilst LCCs also struggled with Ryanair reporting a revenue reduction of -68%. Wizz Air had a larger revenue reduction of -73%, whilst easyJet appears to have had a smaller reduction in revenues; however this is mostly a function of their reporting year differences and therefore is not directly comparable to the other airlines. Revenue reductions amongst the regional carriers analysed are the smallest, but nonetheless significant. Norwegian regional carrier Widerøe's revenues reduced by -31% and Portuguese regional carrier SATA Air Açores' by -49%. Cargo-only airline Cargolux is an exception and its revenues relative to 2019 increased by +40% in 2020.
- 4.50 For airlines with data available for 2021, revenues remained significantly lower than 2019 levels, although a small increase in revenue relative to 2020 was possible for all airlines except easyJet (due to its financial reporting period). This indicates that from a financial perspective, 2021 has been marginally better than 2020, but still posed significant challenges for the airlines analysed.
- 4.51 A breakdown of airline revenues and passenger numbers by cabin class is shown for the first three quarters of 2019 and 2021 in Figure 4.14. As can be seen, in intra-European traffic both the share of business class revenue and the share of business class passengers increased between 2019 and 2021. However, in intra-European traffic, airlines flexibly divide the cabin between business and economy class and the higher share of business class passengers could

also reflect an increased demand for free middle seats. On intercontinental routes, on the other hand, the share of business class revenue has declined significantly. The reason for this could be the increased use of digital forms of communication, which particularly affects business travel.

**Figure 4.14: Airlines – Breakdown of revenues and passengers by cabin class, 2019 vs. 2021**



Source: DLR analysis of Sabre MI data

*Other sources of revenues: potential impact of a secondary slot market on airline financing*

4.52

Exchanging slots for a monetary value or consideration is known as secondary trading. Regulation EEC 95/93, as amended by Regulation (EC) 793/2004 (The Slot Regulation) does not currently include provisions for secondary trading, however in section 5 of COM(2008) 227 the Commission acknowledges that secondary trading takes place at some, but not all, congested airports in the European Union. Views of secondary trading are varied across European coordinators:

- Secondary trading is not favoured by the slot coordinators in Belgium, France, Germany and Greece;
- The coordinators in Spain, the Netherlands, Austria, Portugal and Italy do not formally oppose secondary trading and would welcome it being formalised in the Regulation. However, none of these coordinators currently allow secondary trading and indicated that a clear framework should be put in place if secondary trading is to be formalised; and
- Slot trades in Ireland and the UK are more readily facilitated.

4.53

Some examples of secondary slot trades at UK airports have been outlined in Table 4.7 below. Slots at Heathrow vary widely in price depending on the time of day they are scheduled for, with early morning slots allowing arrival from Asian and North American long-haul markets being the most valuable. Slot trades at London Gatwick since 2017 highlights the airport reaching its capacity constraints then.

**Table 4.7: Examples of secondary slot trades, €2020 prices**

Year	Airport	Sell-side	Buy-side	Daily slots pairs	Transaction cost	Cost per slot (€, 2020)
2020	LHR	Air New Zealand (arr ~11:00)	Unknown	1	US\$27m	€23.6m
2019	LGW/BRS	Thomas Cook	easyJet	12/6 <sup>53</sup>	£36m	€2.3m <sup>54</sup>
2019	LGW	Flybe	Vueling	3	£4.5m	€1.7m
2017	LHR	SAS	American	2	£60m	€34m
2016	LHR	Kenya Airways (arr ~05:30)	Oman Air	1	£58m	€66m
2015	LHR	SAS	Turkish	1	US\$22m	€19m
2015	LHR	SAS	American	1	£48m	€55m
2014	LHR	Cyprus Airways (arr ~12:00)	American	1	US\$31m	€27m
2014	LHR	Cyprus Airways (arr ~20:30)	MEA	1	US\$8.3m	€7.2m
2013	LGW	Flybe	easyJet	25	£20m	€0.9m

Source: Steer analysis of public news sources

4.54 Table 4.8 below presents the value of slots presented on airline balance sheets where they could be located. The majority of slots valuations relate to slot purchases made in the United Kingdom, where secondary slot trading is more readily facilitated. This shows that airlines view some slots as an asset and which they can use as collateral to raise finance.

**Table 4.8: Slots on airline balance sheets**

Airline	Balance Sheet	Value	Description (if available)	
Aegean	2018 - Intangible assets	€22m	LHR slots	
Delta	2019 Annual report - Intangible assets	US\$2.6bn	International routes and slots, pacific route authorities and slots at capacity constrained airports in Asia and Europe	
Air France-KLM	2019 - Financial statements Intangible assets	€280m	Trademarks and slots – indefinite useful life so not depreciated.	
LH Group	Lufthansa	2018 - Financial reports	€112m	N/A
	Austrian	2018 – Impairment test	€23m	3 LHR Slot pairs
	Swiss	2018 – Impairment test	€129m	N/A
Turkish	2018 – Other intangible assets	US\$44m	Slot rights and acquired technical licences	
easyJet	2019 annual report Intangible assets – landing rights	£132m (+£36m for Thomas Cook slots)	“Landing rights”	

<sup>53</sup> The transaction included 12 summer and 8 winter slot pairs at London Gatwick and 6 summer and 1 winter slot pairs at Bristol airport.

<sup>54</sup> Assuming equal value across the portfolio.

Airline	Balance Sheet	Value	Description (if available)	
Ryanair	2019 annual report Intangible assets – landing rights	€146m	Intangible assets – landing rights Acquired with the acquisition of Laudamotion, 2019 (€99.6) and Buzz Stansted, 2003	
IAG	2018 IAG Balance Sheet - Item 14, Landing Rights	Iberia	€423m	N/A
		British Airways	€767m	Only slots purchased via secondary trading at LHR and LGW since 1998
		Vueling	€89m	Flybe slots acquired for €4.5m
		Aer Lingus	€62m	“Slots acquired for value”
Virgin Atlantic	2018 annual report, Intangible assets, Landing Rights	£91m	Raised £220 from mortgaging LHR slots	

Source: Steer analysis of airline annual reports, stakeholder consultation responses

- 1.55 Airlines have also successfully mortgaged their slots to raise debt. In 2015 Virgin Atlantic used its London Heathrow slots to raise £220m. The deal required Virgin to create a new subsidiary airline, Virgin Atlantic International Ltd (VAIL), to which it transferred the ownership of the majority of its Heathrow slots. Virgin Atlantic retain the rights to use the slots, but this mechanism ensures the slots were protected in the event Virgin Atlantic entered bankruptcy. In September 2019 Norwegian successfully used its slot portfolio at London Gatwick airport as part of an exchange package to delay repayment of unsecured bonds. Norwegian sought a two-year extension to its unsecured bonds NAS07 and NAS08. Norwegian stated that the value of its Gatwick slot portfolio exceeded the €340m (US\$380m) nominal value of the bonds.
- 4.56 It should be noted that in both cases that only slot portfolios at airports in the United Kingdom were mortgaged as due to the permission of secondary trading, the value of the slots could be recognised. The impact of extending this practise (if it were to be allowed) to all Member States has been quantified in the analysis below. Traffic and capacity at Europe’s 30<sup>th</sup> busiest airports<sup>55</sup> were compared to determine which airports were subject to capacity constraints.
- 4.57 Slots at airports where capacity utilisation was less than 60% were assumed to hold no value as the availability of slots available in the pool (free to carriers) would undermine the value of allocated slots. Where utilisation was less than 60% it was assumed that slots would be available in the pool throughout the day (i.e. including during peak times). The valuation of slots at other airports was assumed to increase as capacity constraints become more prevalent. These are listed in Table 4.9. The average daily slot portfolio by airline group for 2019 was then overlaid to determine the theoretical value of slots on their balance sheets if all major European airports were included.

<sup>55</sup> Milan Linate due to known capacity constraints



**Table 4.9: Slot valuation assumptions**

Capacity utilisation	Assumed value (per slot pair)	Assumption
<60%	No value	Sufficient slots available in the pool for airlines at all times of day
60%-70%	€0.5m	Some constraints in peaks hours
70%-80%	€1.0m	Constraints in peak hours
80%-90%	€1.5m	Constraints in peak and shoulder hours, some off-peak capacity.
90%-100%	€2.5m	Based on easyJet 2019 slots purchase at LGW (€2.3 but average reduced by Bristol slots included in transaction)
LHR	€10m	Valuation of slots vary between €66m at most desired time and €7m at least desired time. €10m reflects a conservative valuation if a significant volume of slots were to become available at one time

Source: Steer own assumptions

- 4.58 The value of slots at all European airports was estimated to be worth €16.3 billion of which 58% was held by the three major legacy European airline groups, IAG (€5.0 billion), Air France/KLM (€2.0 billion) and Lufthansa Group (€2.4 billion).
- 4.59 In March 2021, IAG offered slots at London Heathrow and London Gatwick as collateral against a \$1.8bn (approx. €1.5bn) revolving credit facility. Whilst this shows that offering slots as collateral could be a way of securing finance, the proportion of IAG’s slots which can be used as collateral is thought to be small<sup>56</sup>, possibly signalling that using slots as collateral may have limited use in raising finances for airlines. Additionally, airlines may be reluctant to offer slots as collateral – Goodbody stated that slots are the “crown jewels” for airlines and as such are not typically part of financing<sup>56</sup>.
- 4.60 Given that in the case of IAG, a small proportion of slots could be used as collateral, and more generally airlines do not typically offer their ‘crown jewel’ slots as collateral, we expect that the potential for European airlines to use slots as collateral would have had a small impact on the allocation of State aid to airlines. Assuming that other airlines obtained similar terms to IAG (loan worth 30% of total slot portfolio), we estimate that €4.9bn<sup>57</sup> in loans could have been raised from using slots as collateral for loans across all European slots. In comparison to State aid allocations of €39bn for airlines, the potential for airlines to use slots as collateral for loans instead of accessing State aid is limited.
- Other sources of revenues: revenues from loyalty programmes*
- 4.61 We examined whether European airlines may try to raise revenues from their loyalty programmes, in order to generate liquidity. In theory airlines can use their loyalty programmes as collateral for loans, pre-selling points or miles to partners or pre-selling award seats to separate loyalty companies.

<sup>56</sup> <https://www.ft.com/content/e32c78b6-1c68-4e0d-9fa9-bd71c1813b05>

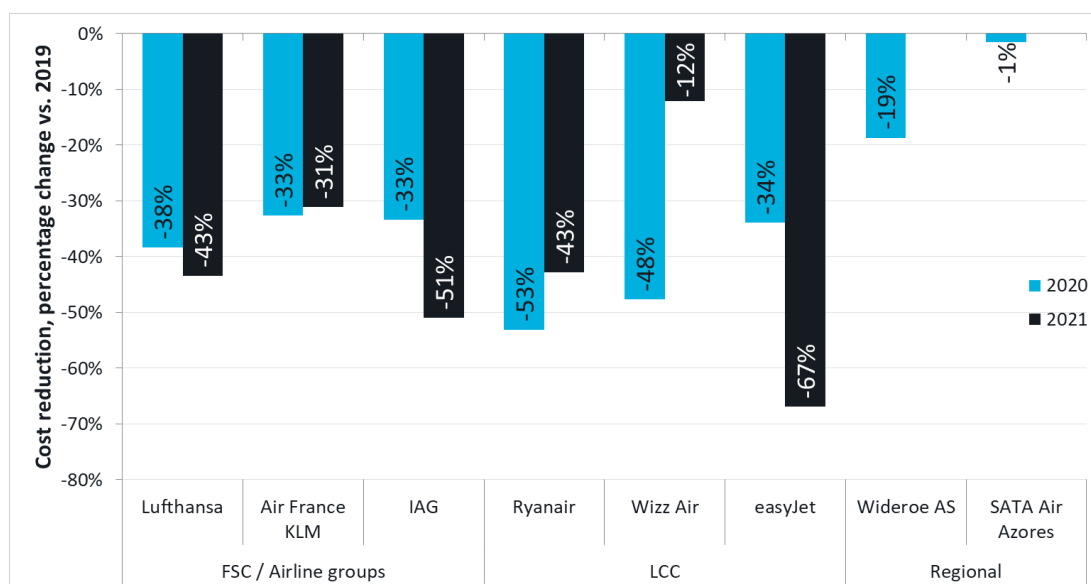
<sup>57</sup> We estimate that loans worth 30% of the total estimated value of slots at European airports (€16.3bn) could have been secured if the terms of the IAG slot collateral were applied across all European slots (loan of €1.5bn vs. estimated slot portfolio value of €5bn).

- 4.62 We have found evidence of pre-selling of points: in July 2020, IAG announced that American Express had agreed to pay €833 million (£750 million) to Avios, IAG loyalty programme, a significant part of which would be a pre-purchase of Avios points<sup>58</sup>. Elsewhere airlines have used the future cash flows of their loyalty programmes as a collateral to raise loans: this has not been observed in Europe, but it is getting traction in the US where United, Spirit, Delta and American airlines have used this method to improve their cash position<sup>59</sup>. We have not found evidence of loyalty companies pre-purchasing reward seats from the airline they are affiliated for future usage.

### Operating expenses

- 4.63 Cost containment became a key priority for airlines as revenues were drastically reduced in both 2020 and 2021. Figure 4.15 outlines how airlines reduced their operating expenses in 2020 and 2021 to respond to the crisis. Note that Cargolux is not included in this analysis as data is unavailable on costs.

Figure 4.15: Cost reductions in 2020/2021 (to date) vs. 2019



Source: Steer analysis of airline annual reports

- 4.64 The largest cost reductions were made by Ryanair, cutting operating expenses by 53% in 2020, whilst Wizz Air also cut costs significantly by 48% relative to 2019. Network carrier groups such as Lufthansa Group, Air France KLM and IAG also reduced expenditure significantly, although to a slightly lesser extent than the low-cost carriers. The two regional carriers considered, Widerøe and SATA Air Açores, cut costs the least of the airlines considered in this study, with reductions of 19% and 1% respectively. These two carriers also experienced the smallest declines in revenues of the airlines studied.

- 4.65 In 2021, the cost base of most airlines remained significantly lower than in 2019. However, whilst some airlines increased their operating expenses (Air France KLM, Ryanair), others

<sup>58</sup> <https://www.headforpoints.com/2020/07/24/american-express-iag-credit-card-contract-750-million-avios/>

<sup>59</sup> <https://hbr.org/2021/04/how-loyalty-programs-are-saving-airlines>

made further reductions on 2020 (Lufthansa, IAG, easyJet). Wizz Air's operating expenses rebounded in 2021, to just 12% below 2019 levels, as part of an expansion of operations. A further discussion on how reduced revenues and costs have interacted is presented below.

- 4.66 By comparing the reduction in revenues to the reductions in operating expenses, it is possible to see the extent to which airlines manage to offset their lost revenues through operating cost reductions. Table 4.10 below outlines how far the selected airlines achieved this in 2020 and 2021.

**Table 4.10: Comparison of airline revenue and operating cost changes (2019 vs 2020)**

Airline	2020			2021		
	Revenues	Total opex	Percentage of lost revenue recovered through opex reductions <sup>60</sup>	Revenues	Total opex	Percentage of lost revenue recovered through opex reductions <sup>61</sup>
Lufthansa	-63%	-38%	62%	-54%	-43%	81%
Air France KLM	-59%	-33%	49%	-47%	-31%	58%
IAG	-69%	-33%	43%	-67%	-51%	68%
Ryanair	-68%	-53%	67%	-56%	-43%	66%
Wizz Air	-73%	-48%	57%	-40%	-12%	27%
easyJet	-53%	-34%	60%	-77%	-67%	81%
Widerøe	-31%	-19%	65%	N/A	N/A	N/A
SATA Air Açores	-49%	-1%	6%	N/A	N/A	N/A

Source: Steer analysis of airline annual reports. Opex = operating costs

- 4.67 In 2020, five of the eight airlines studied managed to recover over 50% of their lost revenues by cutting their operating costs. The highest proportion of this was Ryanair, recovering 67% of their reduced revenues. SATA Air Azores did not reduce costs significantly, despite the 49% decrease in revenue; the cost reductions corresponded to only 6% of their lost revenues on 2019 levels. By 2021 of the airlines with data available, five of six airlines managed to recover more than half of the lost revenues through reduced operating expenses, with both Lufthansa and easyJet recovering 81% of lost revenue. Overall, whilst airlines made a significant proportion of lost revenues back through reduced costs to minimise losses made, it was not possible for any airline studied to reduce their operating costs and cover the losses in revenue.
- 4.68 In terms of reducing operating costs, variable costs (e.g. fuel, airport charges, groundhandling charges) make up a significant proportion of airline costs (typically over 50%, and more so for LCCs) which are only incurred when flights are operated; this permitted airlines to successfully

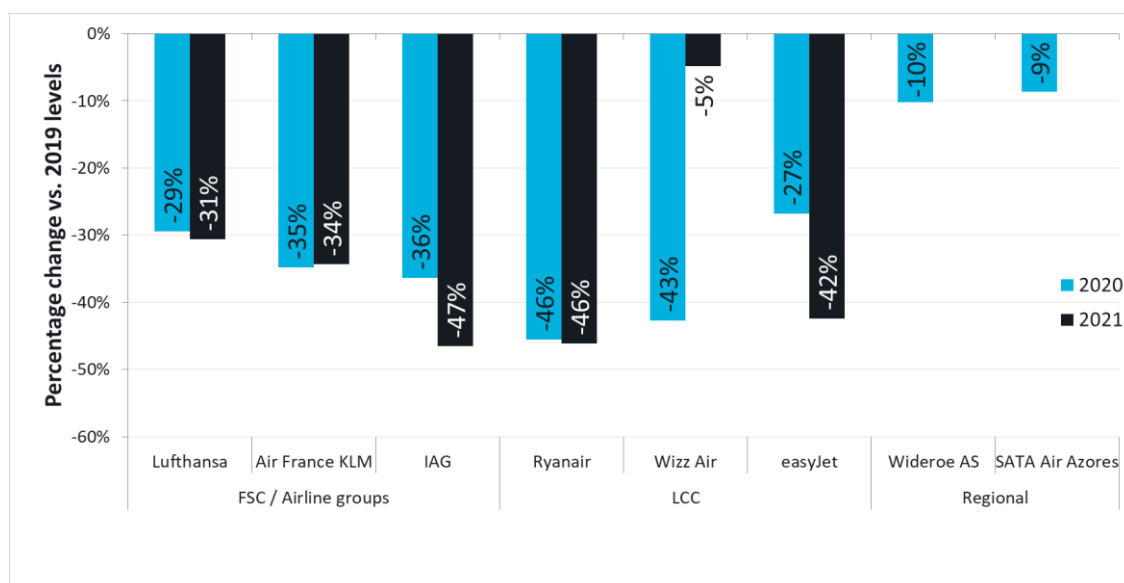
<sup>60</sup> This is calculated by comparing the cost reductions achieved to the reductions in revenues experienced by airlines and airports. A figure of 100% would indicate that the airline has managed to reduce its operating costs in proportion to its loss in revenues in the same period.

<sup>61</sup> This is calculated by comparing the cost reductions achieved to the reductions in revenues experienced by airlines and airports. A figure of 100% would indicate that the airline has managed to reduce its operating costs in proportion to its loss in revenues in the same period.

reduce a significant proportion of their costs. Other costs such as crew costs, aircraft and maintenance costs and office costs will have been more difficult to reduce and will be dependent on the level of wage subsidies available for staff (dependent on base location and/or employment structure) as well as whether aircraft are financed, leased or wholly owned.

4.69 Staff costs were a source of operating cost reductions for a number of companies. Figure 4.16 below outlines the percentage change of staff costs in 2020 and 2021 relative to 2019. The smallest reductions in staff costs in 2020 came from the two regional airlines considered, Widerøe and SATA Air Azores. The most notable reduction in staff costs was made by Ryanair, reducing its staff costs by 46% relative to 2019. In 2021, Wizz Air staff costs have increased to just 5% below 2019 levels, rebounding more strongly than overall operating expenses.

Figure 4.16: Percentage change in staff costs, 2020/2021 (to date) vs. 2019



Source: Steer analysis of airline annual reports

4.70 Airlines have globally reduced the scale of their fuel hedging strategy due to the adverse impact they had to record in their Profit and Loss account (P&L) at the beginning of the pandemic (when hedging instruments were no longer classified as “hedge” due to the absence of traffic), according to Airbus’s response provided in consultation. Some airlines have publicly commented that they do not intend to continue implementing a fuel hedging strategy (e.g. Wizz Air) considering the risk of massive losses that would be incurred in case fleets were to be grounded again in the future.

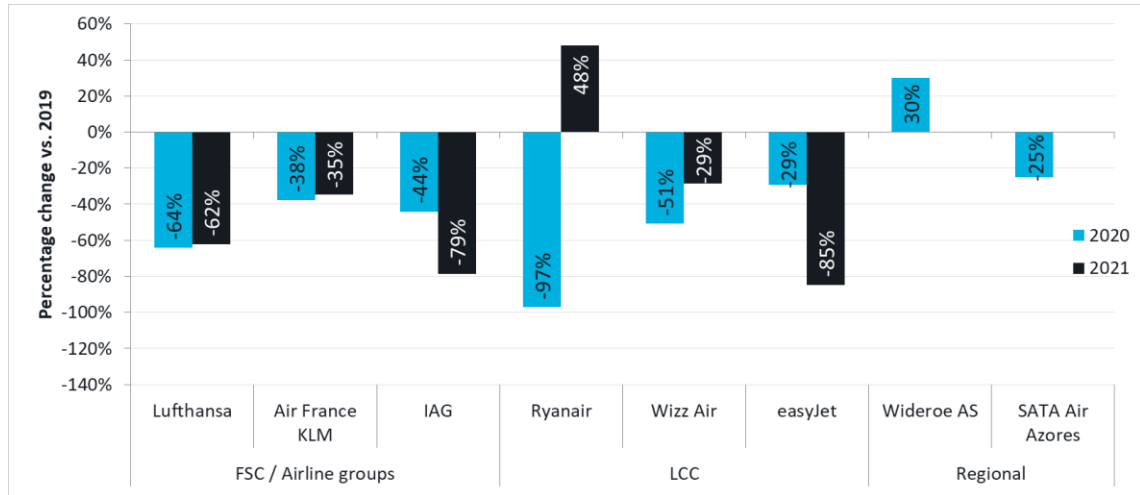
### Capital expenditure

4.71 Another way for airlines to implement cost containment was to scale back on immediate capital expenditure plans (capex) in response to the crisis. Across the airline industry, stakeholders have noted that investment plans were postponed or cancelled in response to the crisis both as a measure to reduce costs but also to reflect the lower demand for air travel during the crisis. Figure 4.17 below outlines how airlines studied altered their capital expenditure spending in 2020 and 2021 relative to 2019.

4.72 Whilst many airlines have continued with reduced capex programmes for 2021, Ryanair has significantly increased its capex by 48% on 2019 levels for the 2021 calendar year. Included in

this programme between April and December 2021 is the delivery of 41 aircraft and aircraft pre-delivery deposits. The two regional airlines took different approaches to capital expenditure in 2020 – Widerøe increased spending by 30% on 2019 totals, whilst SATA Air Azores decreased spending by 25%.

Figure 4.17: Percentage change vs. 2019 in capital expenditure



Source: Steer analysis of airline annual reports

#### Effect of COVID-19 on planned investments in greening and digitalisation

How has COVID-19 affected planned investments for the greening and digitalisation of airlines and airports (incl. groundhandling equipment)?

- 4.73 Fuel typically accounts for 25 to 30 percent of operational costs of long-haul routes and produces 3.15 kilograms of CO<sub>2</sub> per kilogram of fuel consumed. For economic reasons alone, airlines therefore have a strong incentive to improve their own fuel efficiency, and this goes hand-in-hand with reduction of the carbon footprint of flights powered by jet fuel, particularly as usage increases from current negligible amounts (0.05% of fuel). ERAA reflected on the paradox of the pandemic that it has accelerated the airlines’ commitments to net-zero, but as airlines need the financial means to make the required investments, it had delayed investments towards decarbonisation.
- 4.74 Therefore, we expect that investments in greening are expected to continue by airlines due to the economic incentives of improving fuel efficiency, though the financial burden the pandemic has placed on airlines cannot be disregarded as a limiting factor in the scope of these investments. A4E notes that airlines will continue to invest in greener aircraft and in SAF, but the continuing commitment to these investments will depend heavily on the ability of airlines to raise funding, particularly from sustainable finance sources. This comment is broadly representative of the responses from other airline stakeholders. A4E added that Regulation 2020/852 on sustainable finance taxonomy<sup>62</sup> for aviation and groundhandling is expected to be an important way to access green financing. Additionally, airBaltic suggested that in the absence of funding to renew fleets, airlines may instead opt for carbon offsetting in place of reducing emissions.

<sup>62</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32020R0852&from=EN>

**Table 4.11: Expected airline's greening investments by 2030**

Company	Expected airline's greening investments by 2030
Air France KLM (FR/NL)	Majority of investments are linked to Fleet renewal – A220-300, A350-900 for AF; 787-10 and Embraer 195-E2 for KLM ; A320/A321 NEO for KLM/HV/TO.
Lufthansa Group (DE/AT/BE/CH)	Lufthansa Group invests into (a) fleet, (b) sustainable aviation fuels (e.g. off-take commitments, partnerships), and (c) operational efficiency to meet its CO <sub>2</sub> reduction goals. In addition, further measures are taken to reduce the environmental footprint, e.g. avoiding waste and reducing noise. For Lufthansa Cargo: Fleet rollover to most modern B777 Freighter has been finalised in 2021; In 2022 start to equip all 11 LCAG B777 with sharkskin technology and other investments such as light weight containers and pallets, investments in infrastructure/warehouses, etc.
airBaltic (LV)	Due to overall movement and pressure applied to airlines as one of CO <sub>2</sub> emitters, the airline industry will definitely take part and create plans for offsetting CO <sub>2</sub> emissions. However if support from state institutions is absent, or if new aircraft models do not deliver expected financial gains compared with older generation of aircraft, investments towards “green course” will be retroactive. Meaning, not in new greener aircraft, but different schemes to offset airline’s CO <sub>2</sub> emissions.
LOT Polish Airlines (PL)	By 2030, we intend to take strategic measures by introducing projects that enable fuel consumption reduction, taking into account the limitation of environmental factors (CO <sub>2</sub> reduction / offsetting, rationalization of waste management) and to introduce environmentally friendly products on board our aircraft to reduce the consumption of plastic and waste.
Luxair (LU)	Airlines (cargo and passengers) have consistent plans to renew their fleets in the coming 10 years towards greener aircraft.
A4E	Amidst the crisis, several airlines and airline groups are investing in decarbonisation technologies and sustainable fuels in particular. IAG is investing US\$400 million (approx. €379m) in the development of sustainable aviation fuel in the next 20 years together with, LanzaJet and Velocys. Lufthansa has bought \$250 million (approx. €237m) worth of SAF over the next three years. By the end of 2025, Finnair expects to spend some €10 million annually on SAFs.

Source: Steer analysis of stakeholder consultation responses

- 4.75 On digitalisation, the expectation of the vast majority of stakeholders is that investments will continue due to their increasing importance. Areas considered will be data management, maintenance, flight operations and customer services, as digital technologies not only facilitate a rapid transformation towards a more sustainable future but lower operational costs (by increasing the efficiency of airline operations and improving passenger experience).
- 4.76 On the precise volume of digitalisation investments, stakeholder feedback was less clear, as some airlines thought it would remain as per pre-pandemic (Air France KLM), some thought it would double or triple (Luxair), whilst A4E anticipated a slower rate of growth. Whilst the differences in opinion are not explained by stakeholders, it could reflect airlines being at different points of their investments in digitalisation, and hence with different expectations for future investment plans.
- 4.77 Airline representatives reported the concern that investments already made will not provide the benefits as planned due to delays in upgrades of the ANSP ground infrastructure.

**Table 4.12: Expected airline's digitalisation investments by 2030**

Company	Expected airline's digitalisation investments by 2030
Air France KLM (FR/NL)	Investments for digitalization (IT in general) will continue and will stay at a relatively high level (around €200m per year). The main reasons are the need for increasing the top line, improve our basics and better perform with accurate and real-time KPI's for making decision, ability to join ecosystems and Business Platforms, data-driven
Lufthansa Group (DE/AT/BE/CH)	Examples: workplace digitalisation, development and implementation of new tools, Digitalisation and automisation of business processes (sales, booking platforms, data exchange along transport chain – incl. Authorities, infrastructure, security)
airBaltic (LV)	We expect that the trend in digitalisation will continue as competition in the post pandemic environment will only increase and airlines will take each and every opportunity to attract more passengers or enhance efficiency.
Luxair (LU)	Digitalisation investments are expected to double or even triple in the next coming years
A4E	Digitalisation as part of efficiency programs will continue, maybe a bit slower. Concern is that investments already made will not provide the benefits as planned due to delays in upgrades of the (ANSP) ground infrastructure.
AIRE	Increasing in priority and importance.
ERAA	Digitalisation of the industry, particularly in ATM is moving forward. Investments will have to be made, however what is not clear is the implementation timeline. Airlines have made several investments (particularly with airframes) and not been able to glean maximum benefit from these mainly due to the capability of ground infrastructure not aligning at the same time. So naturally airlines are guarded ensuring they make the right investments at the right time in order to get the best benefit.
IATA	Airlines will continue to invest in digitalization across their operations in nearly all areas including data management, maintenance, flight operations and customer services. Digital technologies can not only facilitate a rapid transformation towards a more sustainable future but lower operational costs. The continued growth in digitization and the application of technology is increasing the efficiency of airline operations and also improving the passenger experience. At the airport, for example, the increased adoption of mobile and self-service and touchless technology is resulting in a more seamless and safer passenger journey.

Source: Steer analysis of stakeholder consultation responses

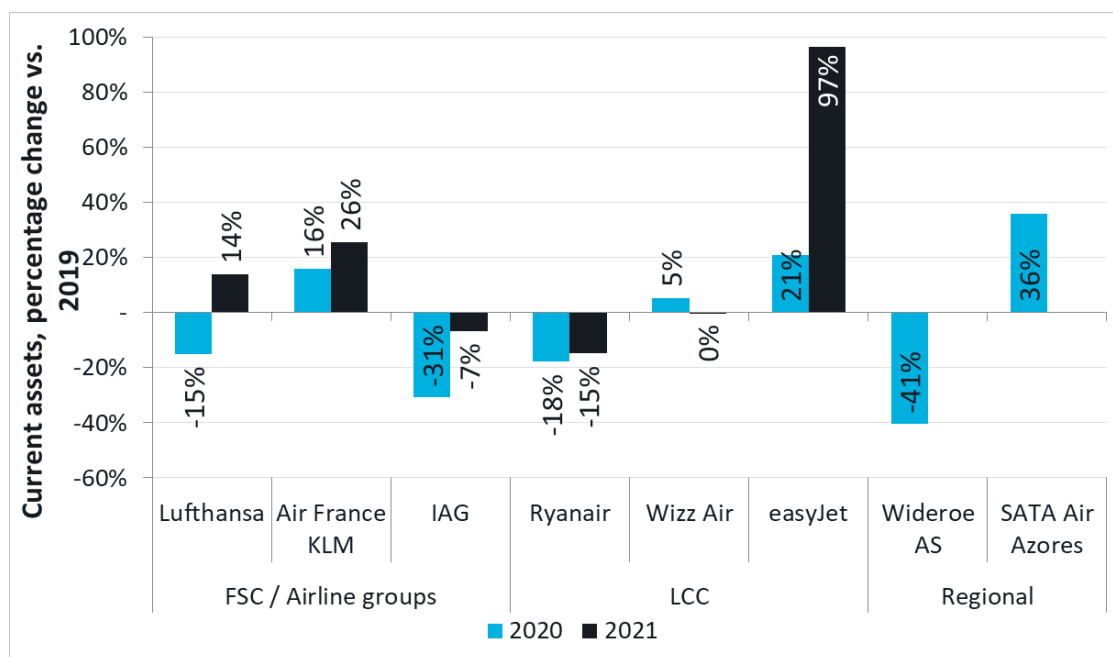
### Changes to airline balance sheets

- 4.78 Airlines have taken different approaches to managing their balance sheets in response to the crisis. In 2020-2021, the change in current assets<sup>63</sup> held varied significantly between airlines, as shown in Figure 4.18. It should be noted that balance sheets reflect a company's financial position at a point in time; the reason for easyJet's large increase in current assets relates to a rights issue in September 2021, a few weeks prior to the end of their financial year. Additionally, in the case of Lufthansa and Air France – KLM, the State aid loans received by each airline respectively may inflate current assets.

<sup>63</sup> Current assets = cash and other assets that are expected to be converted to cash within a year. Current assets are typically liquid assets.



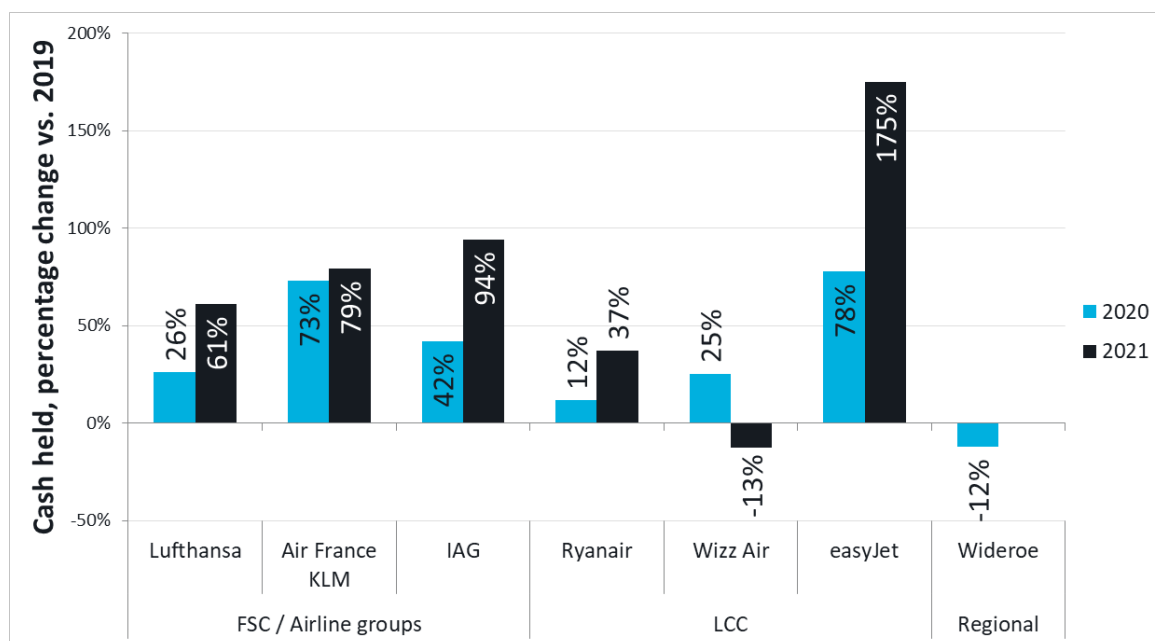
Figure 4.18: Change in current assets held by selected European airlines, 2021 vs. 2019



Source: Steer analysis of airline annual reports

- 4.79 Six out of seven airlines with data available for 2020 increased their cash holdings relative to 2019; five out of six airlines with available data in 2021, increased their cash holdings further compared to 2020 levels. Wizz Air reduced cash held in 2021 to below 2019 levels (see also figure 4.20 on non-current assets). Whilst the percentage increases in cash held varied, this reflects the fact that different airlines entered the crisis with different balance sheets – airlines with an already strong cash balance naturally had less reason to increase their cash held.
- 4.80 Airlines raised cash using a variety of different measures, primarily by taking out loans (either State loans or private bank loans), issuing bonds, and by pausing the payment of dividends to shareholders. In the case of loans and bonds, the cash raised from these methods also incurs a cost of borrowing due to the repayment of interest. The effect of increasing cash held was that firms had liquid assets to pay their operating costs and, given that revenues were reduced during the crisis, this was a necessary measure to allow firms to continue to operate through the challenging conditions.

Figure 4.19: Cash held by airlines, 2020-2021, percentage change compared to 2019 levels



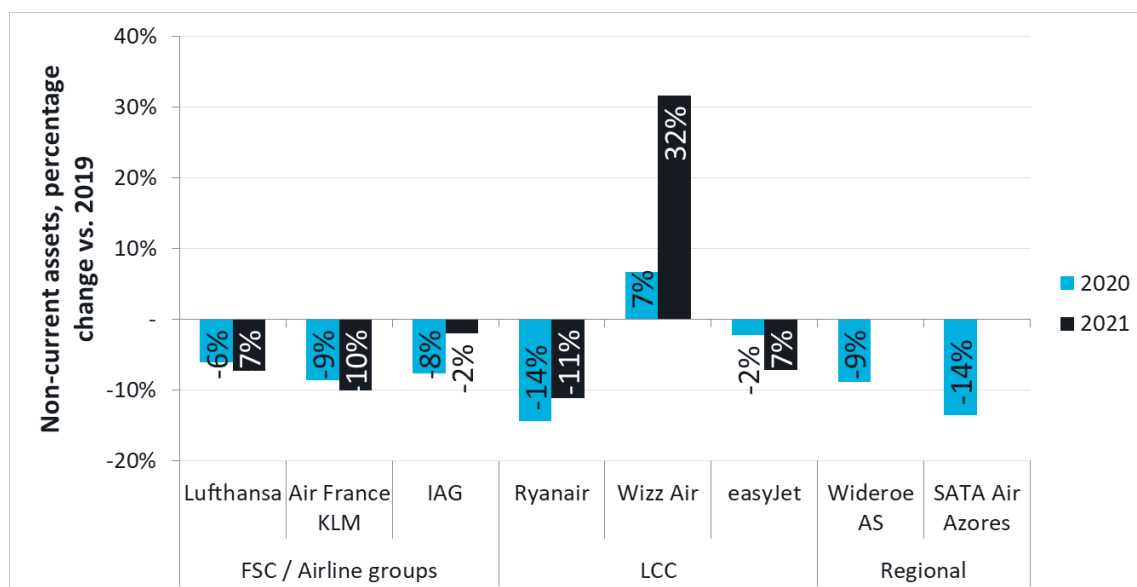
Source: Steer analysis of airline annual reports

- 4.81 Airlines have generally reduced their non-current assets<sup>64</sup> from 2019 levels since the crisis began, shown in Figure 4.20. One primary way this was achieved was through aircraft on the balance sheet – for example, Air France KLM recorded aircraft disposals of €959m in 2020 and €1.8bn in 2021. Another way that non-current assets have reduced through aircraft is by depreciation outstripping new additions – for example, Lufthansa’s aircraft and reserve engines on its balance sheet recorded depreciation above the additions made in 2020, also leading to a reduction in aircraft assets from €18.3bn in 2019 to €15.8bn in 2020.
- 4.82 The exception to the trend is Wizz Air, who have consistently increased their non-current assets held relative to 2019 levels in both 2020 and 2021. Its company reports indicate that the airline has increased its holding of aircraft assets and parts, and increased its advances paid for aircraft. Wizz Air have utilised sale and leaseback agreements to finance aircraft; where special purpose vehicles used in these agreements are controlled by the company, these are reported in the company balance sheet. Notably, Wizz Air also increased their current assets held as described above, indicating that not only have Wizz Air invested in new aircraft but they have also increased their liquid assets at the same time. This is indicative of Wizz Air’s intention to expand its market share whilst maintaining a strong balance sheet position.
- 4.83 In terms of resilience and viability, whilst companies have generally reduced their non-current assets through various means (such as reducing fleet size, selling property, or other means), it is reasonable to conclude that these measures seek to reduce the costs of airlines arising from through owning assets (e.g., depreciation, maintenance) that would otherwise be underutilised during the crisis. This may help airlines to be more resilient in the short-term

<sup>64</sup> Non-current assets = assets whose value will not be realised within a period of one year since they are not easily converted into cash. They are typically long-term investments and may include brand name, aircraft or aircraft parts (if owned) etc.

whilst demand remains lower than pre-crisis levels, but once demand returns and supersedes pre-crisis levels, this lower non-current asset base may become stretched. In particular, any airline which has reduced its fleet size may find it challenging to offer the same service frequency or number of routes compared to pre-crisis, affecting the viability of parts of their route network. However, as stated earlier in the chapter, changes to the fleets of European airlines have been limited, and consequently it is not expected that fleet reductions will lead to a shortage of supply in aircraft in the short-term as demand returns to pre-crisis levels in the coming years.

Figure 4.20: Change in non-current assets held by selected European airlines, 2020/2021 vs. 2019

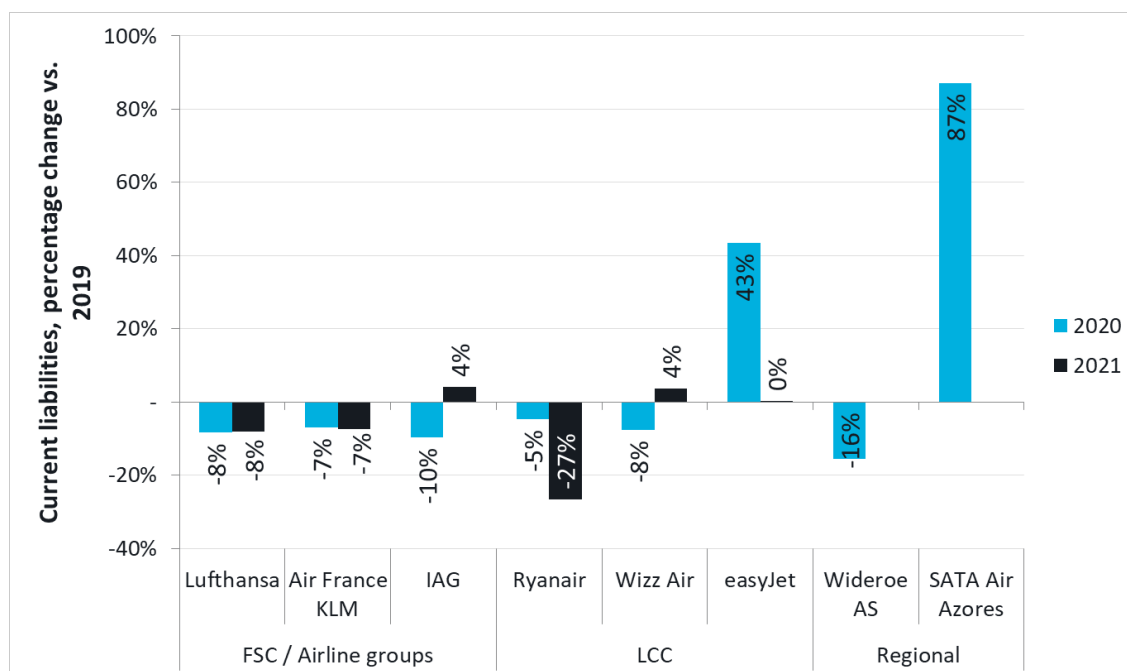


Source: Steer analysis of airline annual reports

- 4.84 Airlines have taken differing approaches to managing current liabilities<sup>65</sup>. Whilst six of the eight airlines decreased current liabilities in 2020, the remaining two significantly increased current liabilities. Both easyJet and SATA Air Açores increased their current liabilities predominantly through sourcing a short-term loan. By 2021 of the six airlines with available data, only Wizz Air and IAG had increased their current liabilities on 2019 levels; easyJet reduced its current liabilities back to 2019 levels after the increase in 2020.
- 4.85 Airlines reducing their current liabilities means that the short-term debts and creditors that they owe have reduced, thus helping airlines to manage liquidity in the extraordinary operating conditions. These measures both improve the resilience of airlines (reduced current liabilities reduces the risk of insolvency), and ultimately their viability as a result. It should be noted that the two airlines increasing their liabilities did so through short-term loans, which is another method of improving liquidity to increase the resilience and viability of airlines.

<sup>65</sup> Current liabilities are obligations listed on the balance sheet due within a year. They typically include the amount for passenger tickets sold by the operator but not yet used or refunded. Also include pre-paid amounts for the carriage of baggage, freight and mail, taxes and social security liabilities accrued and unpaid, dividends accrued and unpaid, overdraft and short-term loans, etc

Figure 4.21: Change in current liabilities of selected European airlines, 2020/2021 vs. 2019

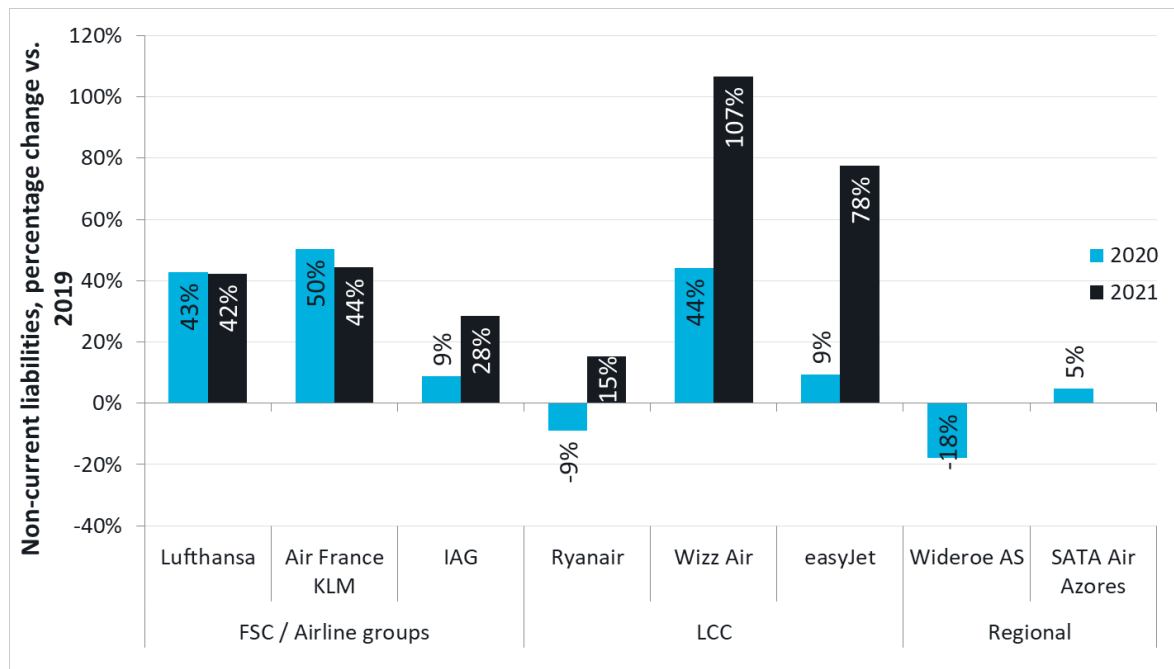


Source: Steer analysis of airline annual reports

- 4.86 Airlines also increased their non-current liabilities<sup>66</sup> during the crisis, most commonly through taking on medium to long-term debt to provide financial stability, or by restructuring current debts to a longer timeframe. In 2020, six of the eight airlines studied increased their non-current liabilities. By 2021 of the airlines with data available, all increased non-current liabilities significantly versus 2019 levels.
- 4.87 The increase in non-current liabilities is predominantly driven by an increase in long-term debt. Further discussion on long-term debt is presented in 4.93. The impact of sourcing this borrowing means that airlines can borrow significant funds to continue operating throughout the challenging operating conditions with lower demand and lower revenues, with payback periods lasting several years to allow airlines to repay their debts with the presumed increase in demand and revenues in the coming years. As a result, these measures seek to increase the resilience of firms by providing cash funds to maintain operations whilst revenues remain low.

<sup>66</sup> Non-current liabilities are obligations listed on the balance sheet not due for more than a year. They typically include long-term loans and lease obligations, bonds payable and deferred revenue.

Figure 4.22: Change in non-current liabilities of selected European airlines, 2020/2021 vs. 2019

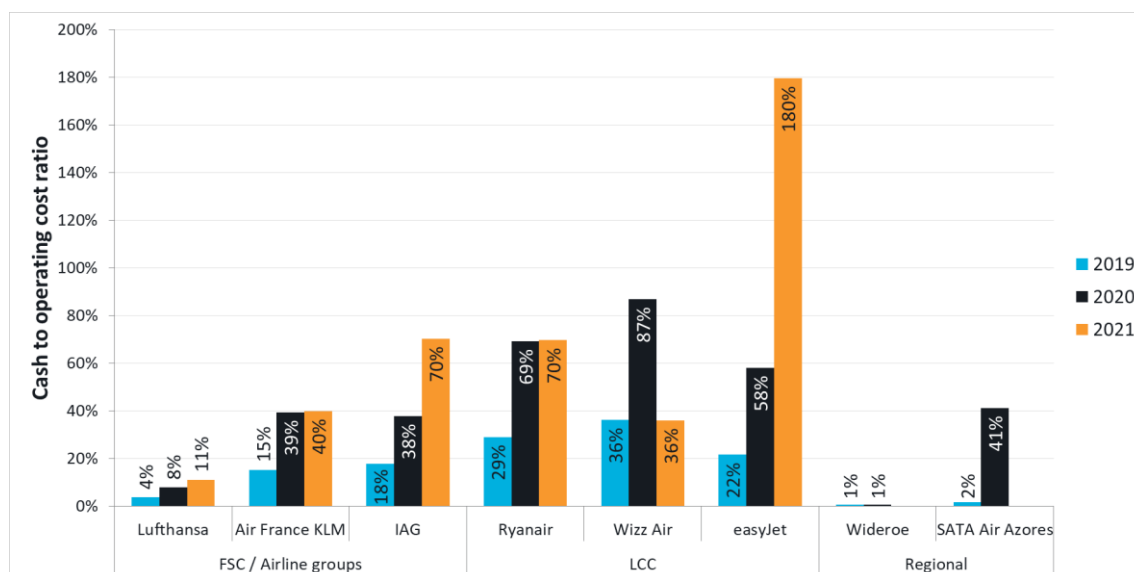


Source: Steer analysis of airline annual reports

### Liquidity

4.88 The sudden decline in air travel demand posed challenges for the liquidity<sup>67</sup> of companies in the aviation sector. Prior to the pandemic, the airlines studied operated with a cash to operating costs (opex) ratio of 40% or below, indicating that the cash held by the company would cover up to 40% of the company’s operating expenses for the year. With significantly diminished revenues in 2020, companies had to improve their cash to opex ratio to offset the damages caused by the pandemic and provide great resilience to further weeks and months of cash negative operations, also within the context of operating cost reductions. Figure 4.23 demonstrates how the airlines studied increased their cash to opex ratio from 2019 to 2021.

<sup>67</sup> Liquidity refers to the ease with which an asset, or security, can be converted into ready cash without affecting its market price

**Figure 4.23: Cash to operating cost ratio, 2019-2021**

Source: Steer analysis of airline annual reports

- 4.89 As the crisis developed, it became increasingly clear that the impact of the pandemic would be long-lasting, hence the likelihood of existing cash reserves being sufficient to cover operating costs during the periods of restrictions became increasingly implausible. Airlines reacted by significantly increasing their cash to operating costs ratio during the pandemic, with LCCs generally more able to do so than network airlines. Boosting this ratio can be done in two ways; by increasing cash held (borrowing or other sources of funds – equity, non-payment of liabilities, liquidation of illiquid assets), and by reducing operating costs (or both). Therefore, the figure can mask significant variations in the changes in cash held, as shown in Figure 4.19. For example, Ryanair increased its cash held by 7% between 2019 and 2021, whilst IAG increased their cash held by 94% - but both airlines had a cash to operating costs ratio of 70% in 2021.
- 4.90 One of the strategies used by many airlines to keep cash was to encourage the reimbursement of passengers with vouchers for cancelled flights rather than cash at the onset of the pandemic. This was a common issue for passengers, travel agents and their representatives which is further detailed in Chapter 8. We note that over time, the airlines eventually unwound their voucher positions and issued refunds in cash. Action from the European Commission, the Consumer Protection Cooperation (CPC) Network and passenger representatives eventually allowed passengers of most, but not all, airlines to get a refund in cash.
- 4.91 The two regional airlines varied significantly. Both Widerøe and SATA held a small percentage of their operating costs as cash going into the crisis; whilst Widerøe have maintained this small amount, SATA has increased its cash balance, matching the general trend from other airlines in different segments. However, it cannot be inferred from this that Widerøe has performed poorly; it should also be noted that Widerøe experienced some of the smallest declines in its net profit margins and maintained traffic at a higher proportion of 2019 levels compared to the other airlines in this analysis.

### Sources of financing, anticipated long-term effects on changes to airlines' funding

What are the main sources of financing in the sector and what will be their expected availability in the coming years?

How sustainable is the level of debt of the sector?

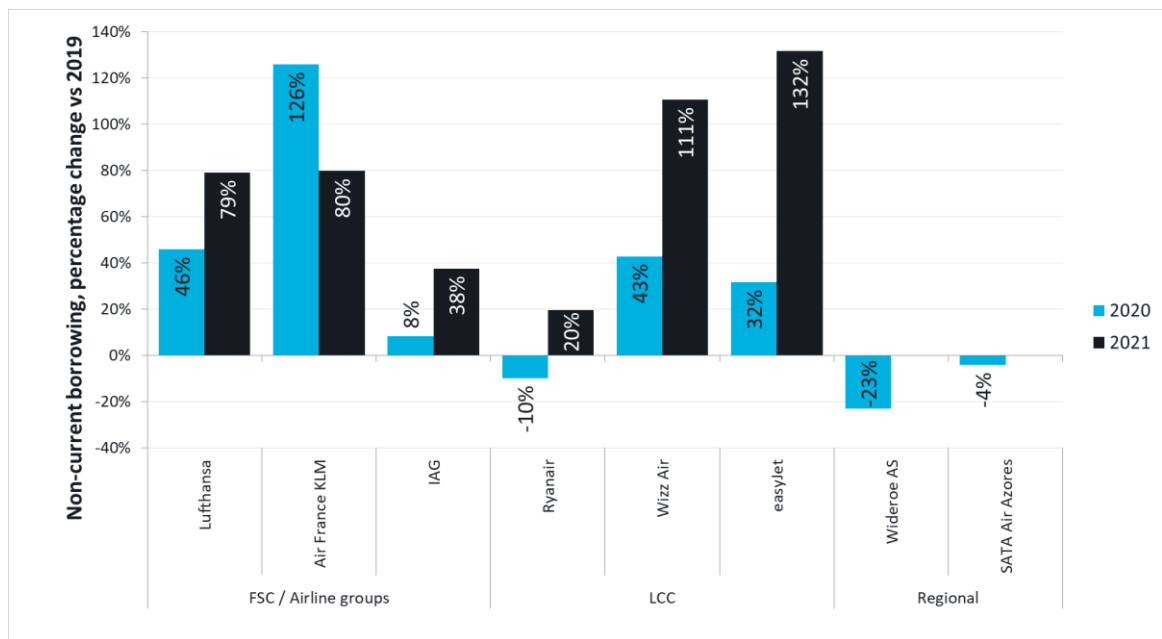
How will debt service burden impact financial performance?

4.92 There are two main sources of funding for a business: debt and equity. We start by looking at debt and then turn to equity.

4.93 Across the airline industry, companies have taken on more non-current debt to (at least partially) offset the revenues lost due to the pandemic, and to provide a buffer of resilience for potential future impacts on net revenue streams from the impact of the pandemic. Non-current debt is analysed in this section because a majority of companies analysed significantly increased their non-current debt in 2020 and 2021. Whilst other sources of finance have been used, including short-term debt, non-current debt was identified as a key source of financing for multiple companies.

4.94 Figure 4.24 shows that, relative to 2019, the majority of companies analysed increased their non-current borrowing in 2020 and 2021: we see that some of these businesses have non-current debt twice the levels of 2019: IAG (2020), Wizz Air (2021) and easyJet (2021) all meet this category.

Figure 4.24: Non-current borrowing of selected European airlines, percentage change vs. 2019 totals



Source: Steer analysis of airline annual reports.

4.95 Full-service carriers studied have varied in their approaches: IAG borrowed 8% more in 2020 compared to 2019, whilst Lufthansa borrowed 46% more, and Air France KLM borrowed 126% more. Low-cost carriers also had split approaches: Ryanair decreased its non-current borrowing by 10% on 2019 levels, before increasing borrowing by 20% in 2021; Wizz Air and easyJet increased non-current borrowing significantly more, by 43% and 32% respectively in 2020, and further increased this in 2021 to 111% and 132% of 2019 levels respectively. Both



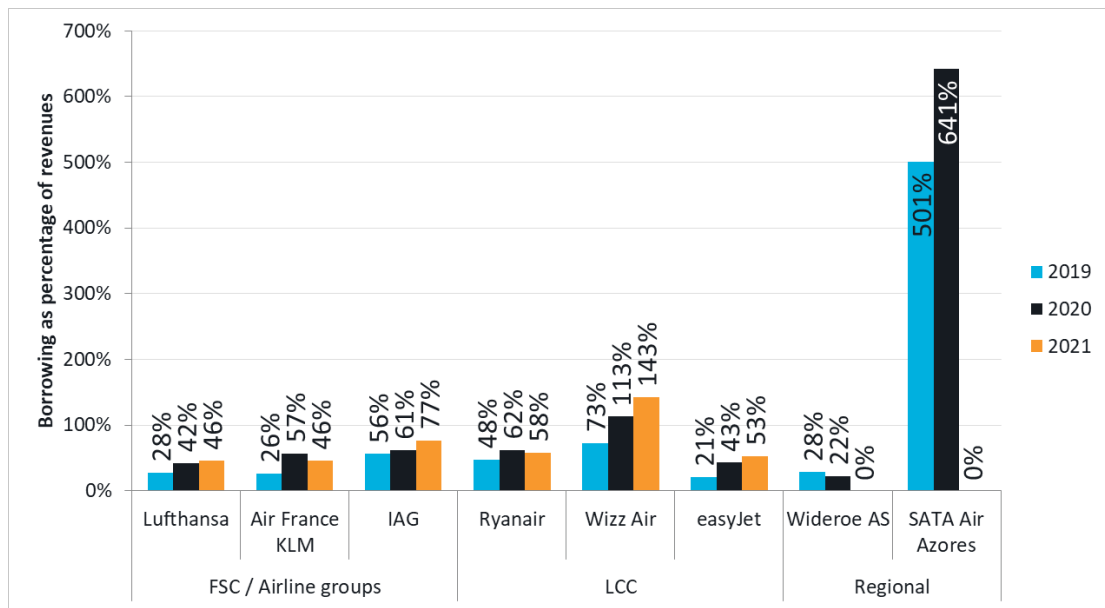
regional airlines studied (Widerøe and SATA Air Açores) have decreased their non-current borrowing in 2020, with data currently unavailable for 2021.

- 4.96 There are a number of reasons why non-current borrowing may differ between airlines, of which some possibilities are listed below:
- Companies may have different sources of finance other than borrowing (i.e. capital injections as discussed below, cash reserves, government support other than loans);
  - Companies may have different investment plans and require different amounts of non-borrowing accordingly; and
  - Companies may have negotiated credit facilities at different rates, making borrowing more/less favourable for different companies.
- 4.97 In terms of cash reserves affecting demand for non-current borrowing, Figure 4.23 and Figure 4.24 show that Air France – KLM and Lufthansa both had low cash to opex ratios and both took significant increases in non-current borrowing; Ryanair had a high cash to opex ratio and took a decrease in non-current borrowing. However, there are outliers to this trend – Wizz Air had a strong balance sheet pre-crisis but still increased non-current borrowing significantly in 2020 and 2021, whilst IAG had a lower cash to opex ratio and increased non-current borrowing a small amount. This suggests that there are other factors at play determining non-current borrowing for airlines.
- 4.98 One example is the investment plans and expansion of certain airlines. We note that Wizz Air has sought to grow rapidly throughout the pandemic, opening 18 bases, commencing over 400 new routes, and taking delivery of 39 aircraft<sup>68</sup>. This is one possible reason why Wizz Air have continued to increase non-current borrowing despite entering the crisis with strong cash reserves.
- 4.99 In terms of negotiating credit at different rates, we refer readers to Table 4.13 which shows different credit ratings of selected airlines. Lower credit ratings are associated with higher risk for investment, and so will increase the cost of borrowing for airlines individually. Consequently, borrowing will be more/less advantageous to different airlines compared to other sources of finance depending on the rates they are offered, and so will affect airlines' borrowing choices.
- 4.100 Figure 4.25 compares the borrowing of airlines to their 2019 revenues. Pre-crisis, airlines in general operated with borrowing below their revenues in 2019, with the exception of SATA which was in financial difficulties leading into the pandemic. In 2020 and 2021, most airlines studied increased this ratio due to increased borrowing. Notably, in 2020 Wizz Air's borrowing exceeded its 2019 revenues, indicating a particularly strong reliance on borrowing for this airline in particular.

---

<sup>68</sup> <https://wizzair.com/en-gb/information-and-services/about-us/news/2021/12/22/wizz-air-announces-significant-growth-at-gatwick-airport>

Figure 4.25: Borrowing as percentage of 2019 revenues for airlines, 2019-2021

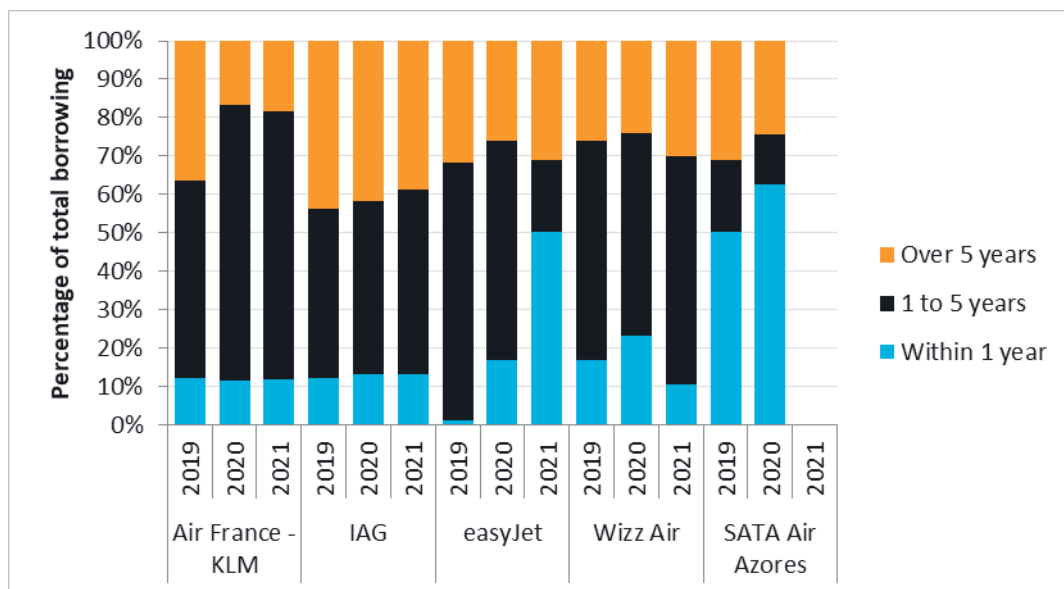


Source: Steer analysis of airline annual reports

4.101 Figure 4.26 outlines the maturity profiles for airline borrowings as reported in the respective annual reports. From this figure, we see that borrowings repayable within 1 year as a proportion of total borrowings remained constant at around 12% for the full-service carriers Air France – KLM and IAG; instead, an increase in the proportion of borrowing repayable between 1 and 5 years is observed. For the LCCs, both easyJet and Wizz Air increased the proportion of borrowings repayable within 1 year in 2020, particularly easyJet who took a short-term loan as previously discussed. SATA Air Azores already owed the majority of its borrowings within 1 year before the pandemic, but this proportion rose further in 2020.

Overall, we observe that the FSCs studied relied more heavily on debts repayable in 1 to 5 years’ time, whilst the LCCs studied increased their reliance on short-term borrowings repayable within 1 year.

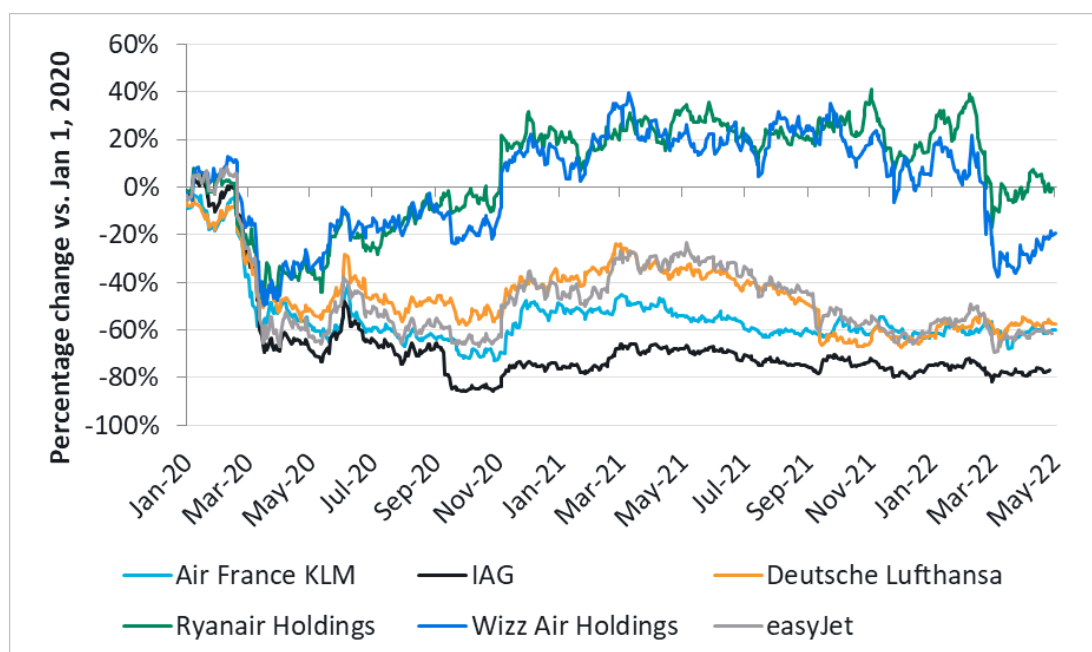
Figure 4.26: Maturity profiles of airline borrowings



Source: Steer analysis of airline annual reports

- 4.102 Raising funds through equity is also an approach that can be considered by businesses. For instance, Ryanair raised €400 million of new equity in September 2020. This transaction involved 3.2% of its share capital and allowed the airline to maintain its credit rating. Other notable increases in equity include easyJet offering two rights issues of £450m (approx. €530m) in June 2020 and £1.2bn (approx. €1.4bn) in September 2021, Deutsche Lufthansa offering new shares with a total value of €2.1bn in September 2021, Air France KLM increasing its capital by approximately €1bn in April 2021, and IAG increasing capital by approximately €2.75bn in September 2020.
- 4.103 In some cases, airlines have been recapitalised by these rights issuances which help airlines to shore up their cash reserves in a manner which also manages the debt-to-equity ratio, as discussed in more detail below.
- 4.104 The reduced income and increased levels of debt for companies in the aviation sector have led to an increase in the proportion of debt to equity, measured by the gearing ratio<sup>69</sup> (degree to which a company’s operations are funded by debts versus equity). This reflects the fact that whilst airlines have increased equity through rights issuances, the increase in debt raised during the pandemic has exceeded any increases in equity capital. It also reflects the fact that share prices for airlines have dropped since the pandemic, shown in Figure 4.27. Share prices have remained lower than pre-crisis levels for all of the airlines studied below, except for Ryanair; this corresponded with a decline in the gearing ratio for Ryanair in 2021.

Figure 4.27: Share price evolution of selected airlines, relative to baseline of January 1, 2020



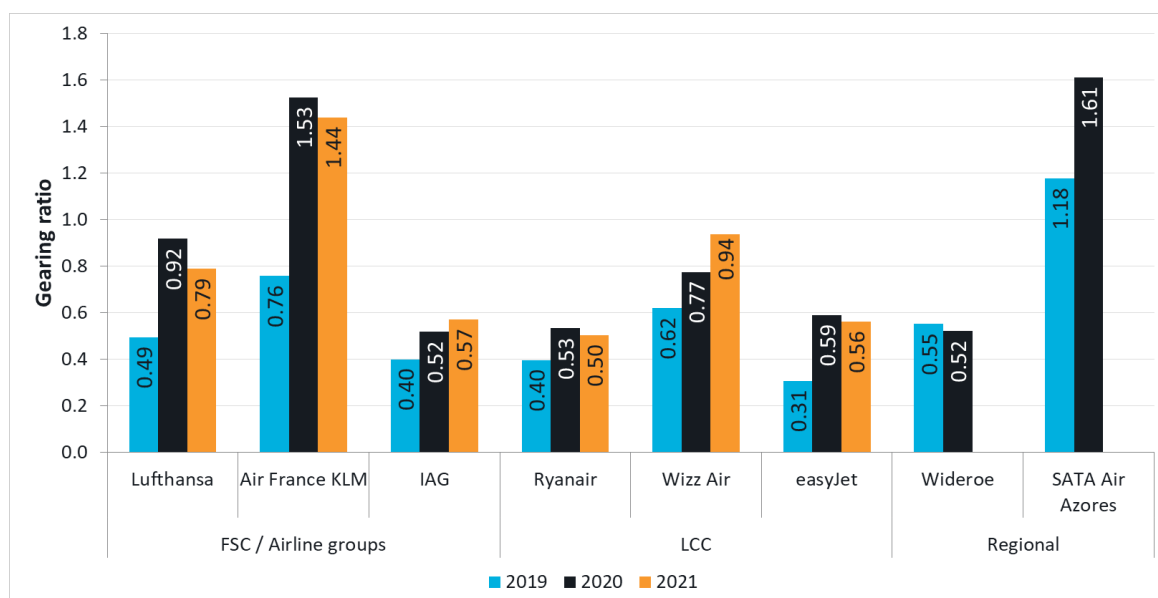
Source: Steer analysis of Yahoo Finance data. Note: Air France KLM listed in Paris; IAG, Wizz Air, and easyJet listed in London, Deutsche Lufthansa listed in Frankfurt, and Ryanair listed on NASDAQ.

<sup>69</sup> The gearing ratio is the sum of current and non-current borrowings divided by the sum of current and non-current borrowing and shareholder equity.

4.105 Figure 4.28 shows how the gearing of airlines has changed since the outset of the pandemic in early 2020. FSCs became more highly geared than LCCs in 2020, indicating the large amount of borrowing they have taken on to provide funding through the crisis. Most notably, Air France-KLM’s gearing has increased to 1.53 in 2020 and 1.44 in 2021, indicating negative equity. LCCs have also increased their gearing ratios compared to pre-pandemic levels. Airlines which have raised equity as well as debt have been able to keep their gearing relatively low, though this is a decision for each business and its attractiveness will depend on the share price at the time. Of the two regional airlines, Widerøe’s gearing ratio remained stable in 2020, whilst that of SATA Air Azores further increased to 1.61.

4.106 Businesses that have a high gearing ratio are not necessarily in a poor financial position *per se*, however it indicates a riskier position for businesses. Businesses that are reliant on debt for a significant amount of their funding are particularly exposed to prolonged or subsequent economic downturns, or a rise in interest rates. However, given the extraordinary operating conditions that the aviation industry is experiencing, an increase in gearing from pre-pandemic levels has been widely observed across the airlines and airports considered in this analysis.

**Figure 4.28: Gearing ratio of selected European airlines, 2019-2021 (to date)**



Source: Steer analysis of airline annual reports

4.107 The fall in traffic and the reduced prospects of a quick recovery also affect the credit rating of these businesses and their future access to the debt markets at a minimal cost compared to sovereign debt. The analysis below shows that there has been a clear trend for worldwide airlines of lower credit ratings since the start of the pandemic. We see that the median airline rating worldwide has shifted to the “highly speculative” category, and that more airlines have been re-classified into the lowest ratings categories, pointing to substantial investor risk or even potential default. Airlines which have fared best in terms of ratings downgrades typically had stronger balance sheets entering the crisis, such as Ryanair.

4.108 The consequence of a rating downgrade is that investors demand a higher rate of return (interest) to compensate them for the increased risk of lending to the company. Also impacted is the margin (and cost) compared to sovereign debt for new debt or bond offers. As an

example, easyJet issued three rounds of seven-year Eurobonds at €500m per round in February 2016, October 2016, and June 2019, with coupon rates of 1.75%, 1.125% and 0.875% respectively; a fourth seven-year Eurobonds offer of €1.2bn in March 2021 paid 1.875% in interest. The new bonds were rated Baa3 by Moody's, the lowest rung of the investment-grade category<sup>70</sup>. Comparing the rates from June 2019 to March 2021, we see that coupon rates have increased by 1 percentage point.

- 4.109 Table 4.13 indicates the pre-crisis and post-crisis credit ratings and stand-alone credit profiles (SACP), which analyses creditworthiness in absence of extraordinary support or burden, for selected European airlines in February 2020 and February 2021. All airlines considered in these ratings suffered a decline in credit ratings. Pre-crisis, five of the eight airlines were considered to be "lower medium" (Ryanair, easyJet, British Airways, IAG, Lufthansa), two were considered "non-investment grade" (airBaltic, TAP), and one considered "highly speculative" (SAS). Post-crisis, two of the eight airlines are still considered "lower medium" (Ryanair, easyJet), three are considered "non-investment grade" (British Airways, IAG, Lufthansa noting that state-aid was provided which probably protected the group from further credit rating downgrading), and three are considered "highly speculative" (airBaltic, SAS, TAP) in spite of sometimes also receiving government support.

**Table 4.13: Credit ratings of selected European airlines, Feb 2020 vs. Feb 2021**

MS	Airline	Feb 2020 Rating/Outlook (SACP)	Feb 2021 Rating/Outlook (SACP)	Notches downgraded due to COVID-19 (SACP)
UK	Ryanair	BBB+/Stable	BBB/Negative	1
UK	easyJet	BBB+/Stable	BBB-/Negative	2
UK	British Airways	BBB/Stable (bbb-)	BB/Negative (bb-)	3 (3)
UK/IE/ES	IAG	BBB/Stable	BB/Negative	3
DE	Lufthansa	BBB/Stable (bbb)	BB-/Negative (b+)	4 (5)
LV	airBaltic	BB-/Stable (b)	B/Stable (ccc+)	2 (2)
SE/NO/DK	SAS	B+/Stable	B-/Stable	7*
PT	TAP	BB-/Stable (b)	B-/Watch Negative (ccc)	3 (3)

Source: Steer analysis of S&P data. (\*) Note: SAS was downgraded by 7 notches to selective default (SD) in October 2020 as it completed debt restructuring; upgraded to B- in December 2020.

#### *Impact of debt servicing on future financial performance*

- 4.110 From the information provided by airlines and airline representatives, the opinions on the impact of higher debt servicing costs on future performance are mixed. IATA believe that the challenge of restoring balance sheets with the increased debt servicing costs is likely to take several years and weigh on financial performance. Similarly, AIRE note that debts have reached record levels and question the sustainability of these levels of debt for airlines. However, other airlines have expressed less concern and expect that the costs of debt servicing are manageable.

<sup>70</sup> <https://www.ft.com/content/0f0a52a6-da5a-4b70-b969-8bf9917d5ce8>

**Table 4.14: Airline debt servicing on future financial performance**

Company	How sustainable is your level of debt? How will debt service costs impact your financial performance?
Air France KLM (FR/NL)	Debt service costs have more than doubled compared to 2019 and will likely remain high in the medium term. This leads to a slower recovery of our equity, and a lower investment capacity.
Lufthansa Group (DE/AT/BE/CH)	Cost reductions to ensure quick return to profitability, repayment of stabilization measures and divestments are being implemented to strengthen LHG's balance sheet. The lower corporate ratings have led to higher credit spreads for LHG which impact the Group's financial performance.
airBaltic (LV)	The airline industry has stepped in record territory in terms of financial leverage due to the pandemic. It will not be viable long term and will severely impact profitability. Hence, either higher bankruptcy cases to be expected in upcoming years followed by fewer airlines and higher ticket prices due to less competition or passenger ticket prices should generally increase relatively soon to increase general profitability of airline industry and channel funds to decrease financial leverage.
IAG (ES/IE/UK)	The Group has raised a significant amount of debt during COVID-19 to ensure sufficient liquidity, however, with minimal near-term financial debt maturities and a strong liquidity headroom, the Group has sufficient coverage for debt repayment. The Group expects to deleverage its debt position with cash generation from operations as the airline business recovers and aims to return to investment grade as soon as possible.
AIRE	The debt has now reached record levels. It poses a serious question as to whether it is sustainable or not.
BDF (DE)	Restoring balance sheets will take several years and increased debt servicing burden will weigh on financial performance over that period.
IATA	IATA estimates that airlines globally have taken on in excess of \$200 billion (€176 billion) in additional debt to see them through the COVID crisis. Restoring balance sheets will take several years and increased debt servicing burden will weigh on financial performance over that period.

Source: Steer analysis of stakeholder consultation responses

- 4.111 In terms of the viability of networks, some of the airlines providing responses noted that debt servicing costs does not impact/has a small impact on their network planning decisions. However, IATA noted that the pre-crisis profits per passenger were relatively small, and so even a small increase in costs can quickly affect route viability, particularly for business-reliant routes which may recover more slowly. Viability will depend to a certain extent on the price sensitivity of customers: passengers who are more price inelastic, such as business passengers, may be more willing to absorb higher costs passed through into higher ticket prices. It will also depend on the competitive nature of routes: for example, a competitive route served by airlines with different debt servicing costs may provide the airline with the lowest costs with a competitive advantage, whereas routes operated by a single carrier with high debt servicing costs may not allow other carriers with lower costs to benefit in the short term.

**Table 4.15: Impact of debt service costs on the profitability/viability of networks**

Company	Impact of debt on the profitability/viability of airline network
Air France KLM (FR/NL)	The crisis led to the acceleration of the transformation program, mainly on domestic routes, which could not be sustainable as they were operated before. While debt service cost meant an even more important transformation, the crisis as a whole was the main driver.

Company	Impact of debt on the profitability/viability of airline network
Lufthansa Group (DE/AT/BE/CH)	Financial debt service costs are independent from network planning – only route relevant costs are considered in Lufthansa's route decisions. However, Lufthansa does have an even stronger focus on cash-positive operation than before the pandemic.
IAG (ES/IE/UK)	Given asymmetric impacts of the COVID pandemic, for example with fast recovery in USA domestic flying, European airlines have been particularly hard hit financially by the crisis.
AIRE	As long as interest rates remain low, debt service costs will not become a critical issue.
IATA	Across the industry globally, profit per passenger pre-crisis was less than \$6 (€5.29), so any increase in costs will mean route viability can quickly be affected. Routes reliant on corporate travel, which is facing a longer recovery timeframe, may be impacted to a greater extent than the others.

Source: Steer analysis of stakeholder consultation responses

What are the trends in terms of aircraft ownership vs leasing / financing? Will airlines become asset-free service companies?

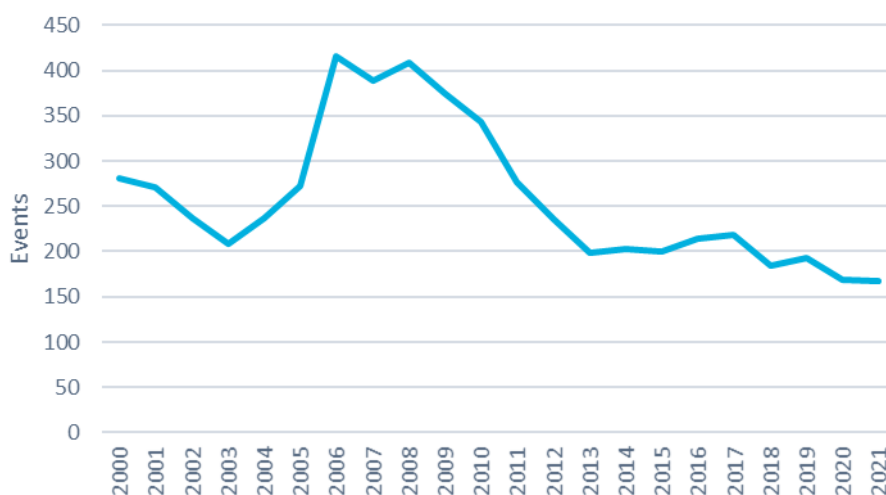
#### *Approach to aircraft financing*

- 4.112 When airlines wish to acquire an aircraft, they typically must decide between whether to purchase the aircraft itself or lease the aircraft from another owner. An airline deciding to purchase the aircraft will typically fund the acquisition through cash reserves, a bank loan, or financing from investors. An airline deciding to lease the aircraft (the lessee) will pay a certain amount per period to the lessor as per the terms agreed between the lessor and the lessee.
- 4.113 Airlines may decide to lease-in their aircraft to minimise capital expenditure and ease balance sheet pressure, either where aircraft costs are not recorded as debt but as a current expense, or because depreciation is not borne by the lessee. Other reasons to lease include:
- Leasing does not tie up equity to an aircraft;
  - Leasing shifts the risk of resale away from the airline, although some leases also can be written to vest ownership in the lessee at the end of the lease or to give the lessee an option to purchase; and
  - Leasing is a method of financing which can avoid the need for large cash outlays.
- 4.114 There are many leasing structures that may be used to finance aircraft, including:
- Operating leases: an owner or a lessor acquires or owns aircraft that it leases to an airline, retains substantially all the risks and rewards incident to the ownership of the aircraft, regains possession of the aircraft at the end of the lease term, and re-leases or sells the aircraft once it is returned by the previous lessee. There are two types of operating leases:
    - A “dry lease” in which the owner or lessor only provides the aircraft, and the lessee is responsible for operating, maintaining, insuring, and providing a crew for the aircraft.
    - A “wet lease” in which the lessor (an airline as it requires an operating licence under the Air Services Regulation to operate any flights) retains operational control of the aircraft, operates flights for the airline, maintains and insures the aircraft, and provides a crew for the flights.
  - Finance leases: an owner or a lessor buys an aircraft from a manufacturer which it leases to an airline, structures the lease so that rent payments return all or substantially all of the purchase price, and the lessee is required (or at least expected) to purchase aircraft at the end of the term;



- Leveraged leases: similar to a finance lease except that lenders provide the owner (typically an owner trust owned by equity investors, also known as owner participants) with loans to cover a portion (typically 70% to 85%) of the acquisition cost of the aircraft being purchased from the manufacturer. The balance of the aircraft’s acquisition cost is provided by the owner participants; and
- Sale and leaseback transactions: an airline sells either a used aircraft or its right to purchase a new aircraft from a manufacturer to a leasing company, then leases the aircraft back from that entity.

**Figure 4.29: Total sale and leaseback events**



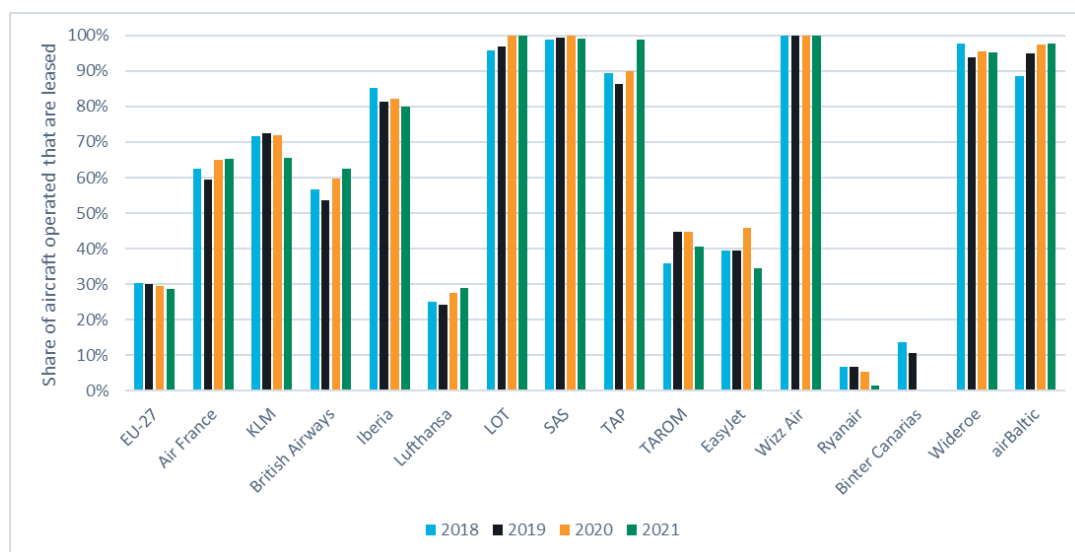
Source: DLR analysis of Cirium data

4.115 The graphic below illustrates that, pre-pandemic, there was no unique model for the European airlines shown below (and the average of airline fleets registered in the EU27 Member States) in terms of leasing or ownership: whilst some had high-rates of leased fleet (such as LOT and SAS with 96% and 99% of leasing rates respectively in 2018), there is no consistency across airline business models of airlines: for instance, considering low-cost airlines, Ryanair is an outlier by hardly operating any leased aircraft (with only a rate of 7% in 2018), with easyJet using leased aircraft for around 39% of its aircraft in 2018 whereas Wizz Air did not own any of its fleet then and leased it all. The same could be observed pre-pandemic for regional airlines and network airlines who all have different approaches to the ownership of their aircraft.

4.116 We also observe from the Figure 4.30 below that there have not been significant changes in leasing rates across these airlines:

- Limited increase recorded for Air France (4%), British Airways (10%), Lufthansa (16%), TAP (10%), Tarom (13%) and airBaltic (10%);
- Limited decrease recorded on average in the EU27 (-6%), KLM (-9%), Iberia (-6%), easyJet (-13%);
- The only significant movement is that of Ryanair which had 30 aircraft under leasing in 2018 and only 4 in 2021, and that of Binter Canarias which stopped leasing 3 aircraft during the same period.

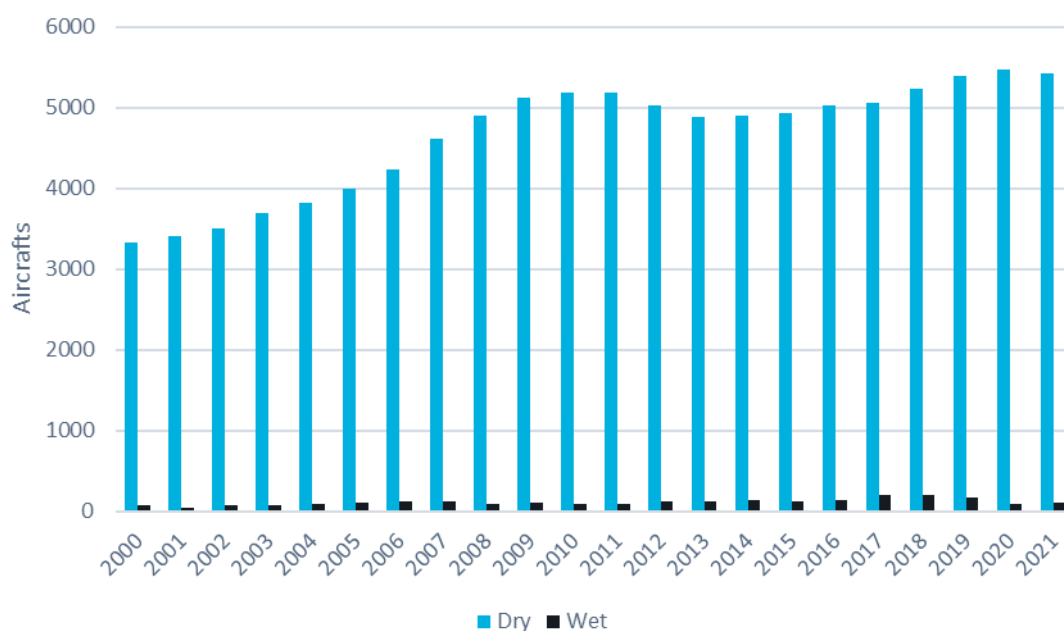
**Figure 4.30: Fleet (in service and in storage) under leasing by airline, 2018-2021**



Source: DLR and Steer analysis of Cirium data (accessed in December 2021). Note that business aviation is included in the total EU fleet numbers

4.117 On the impact of pandemic on wet lease, we note industry views<sup>71</sup> (not from stakeholders consulted as neither airlines, Member States or staff representatives reported on it) which suggest that it has been one of the sectors most impacted by the COVID-19 pandemic. Due to the lack of passenger demand and the inability of airlines to fully deploy their own capacity, dedicated wet lease lessors and airlines with excess capacity have found it extremely challenging to deploy their aircraft and crew into wet leasing projects. It was noted that this was in stark contrast to the summer of 2019, when the global grounding of the 737 Max fuelled a lack of narrow body supply. Airlines faced challenges then in sourcing enough wet lease aircraft to fill their capacity requirements.

<sup>71</sup> <https://www.accaviation.com/the-acmi-leasing-market-during-covid-19/>, <https://www.nortonrosefulbright.com/de-de/wissen/publications/895cf5ba/covid-19-and-the-practical-implications-for-the-global-aviation-industry>

**Figure 4.31: Evolution of wet and dry lease of EU27 operating airlines**

Source: DLR analysis of Cirium data

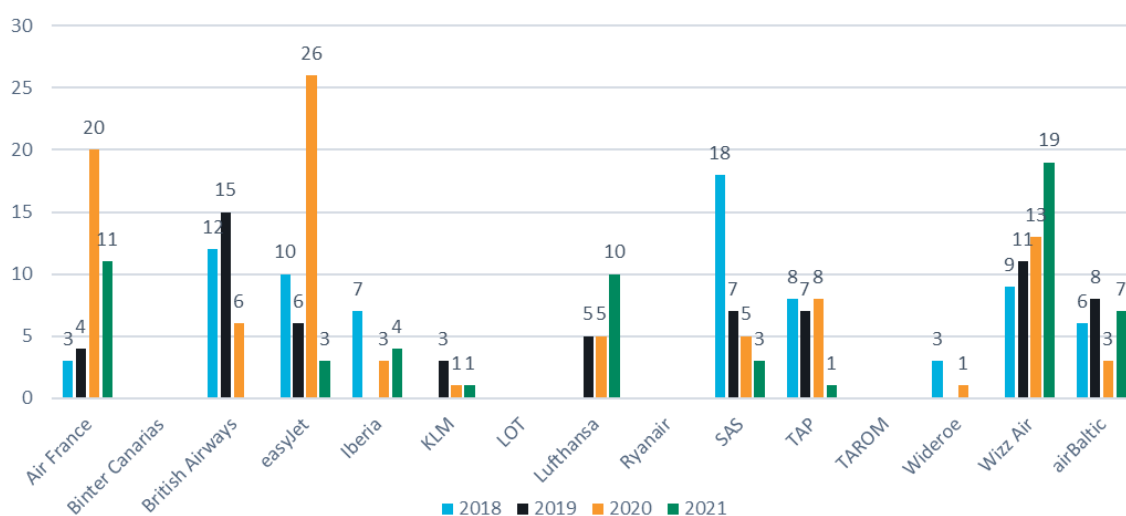
- 4.118 We note that, as the challenges for wet lease lessors were caused by a lack of passenger demand and airlines not fully deploying their own capacity, a return to pre-crisis levels of passenger demand should in turn return demand for wet leasing to pre-crisis levels. Additionally, wet-leased aircraft may provide greater agility for airlines to respond to rapid or seasonal changes in passenger demand compared to a need to acquire more aircraft and recruit more staff, hence these short-term opportunities during the later stages of the recovery from the crisis may be available to wet lease lessors.

*Will airlines become asset-free service companies?*

- 4.119 From the stakeholder consultation, there are no airlines which explicitly state that their aim is to become an asset-free service company. Whilst several airlines (such as IAG, and the Association of German Airlines (BDF)) note that operational flexibility and agility is a priority for airlines post-crisis, there is no indication from the responses that leasing aircraft is the primary manner of achieving this. airBaltic is more supportive of leasing, and notes that capital-intensive investments may have been a driving factor of airlines' liquidity issues during the crisis, and that airlines may be cautious in the future regarding investments in fleet renewal. Additionally, the highly leveraged nature of the industry post-crisis, as shown in Figure 4.28, may prevent airlines making significant investments in their fleet in the coming years.
- 4.120 There are two parts to assessing this question: firstly the demand part, i.e. is there a will for airlines to become asset free, and secondly is there a supply market to finance the aircraft?
- 4.121 On the demand side, we have reviewed fleet database information to check whether there had been any significant changes of behaviour by airlines, beyond the share of their leased aircraft. To do this, we have reviewed occurrences of "sale and lease-back" events, which are financial arrangements where the aircraft owner (the airline) sells the aircraft to the lender or lessor who then immediately leases the aircraft back to the original owner. This normally happens with no interruption or disruption of aircraft operations but provides the airline with

extra cash. There also may be changes concerning taxes and the way in which the aircraft is accounted for on the company's balance sheet.

**Figure 4.32: Airline fleets: sale-and-lease-back events, 2018-2021**



Source: DLR and Steer analysis of Cirium data (accessed in December 2021)

4.122 We observe that a minority of European airlines used this financing method, with again no pattern between airline business models, size, or other characteristics. According to Airbus' consultation response, over 30% of its orders in 2020 and 2021 were sale-and-leasebacks, compared to around 37% of orders financed by airlines through cash (17%) or debt (21%). There is of course no guarantee that past behaviours will continue, especially after the COVID-19 crisis, but numbers for 2020 and 2021 do not show changed behaviours pre and post pandemic. Some airlines which did not receive state-aid in 2020 or 2021 appeared to have used sale-and-lease-back more than pre-pandemic (such as easyJet or Wizz Air), whilst a decrease is noticeable for British Airways in the same period. Some airlines that did receive state-aid such as Air France used this arrangement too whilst others that were supported (such as KLM) did not.

4.123 On the supply side, we need to consider if there is or will be a finance market with enough capacity to make airlines asset-free. This is considered below.

*Approach to aircraft financing*

4.124 The aircraft finance market has a number of participants that operate in it (see bullet points below). The outcome of the pandemic on these participants needs to be considered to understand whether the supply side remains as it was pre-pandemic.

- Leasing companies;
- Capital markets: Airlines and leasing companies can raise funds in the debt capital markets. This generally involves investment banks; and
- Export credit agencies: national agencies (in Europe, in transactions involving Airbus there are three: COFACE (FR), Euler Hermes (DE), UK Export Finance) that promote the export of aircraft by directly financing or guaranteeing the purchase of aircraft by foreign buyers;

4.125 As the crisis unfolded, airlines took some steps to reduce their fleets by requesting deferral of payments to lessors, cancelling orders from manufacturers, and retiring or storing excess aircraft (Figure 6.6 presents the situation for aircraft retirements and storage). Whilst some

airlines have had support from governments, we are not aware that leasing companies have received any support. Leasing companies with the strongest finances or liquidity pre-crisis were less affected than others, but many had to manage their exposure to the crisis and re-finance their debt. Due to the decreased demand for leased aircraft, the aircraft prices “decrease by five to 25 per cent depending on the qualifications of the aircraft<sup>72</sup>”. This therefore had a strong impact on lessors since their asset value will have decreased. Specialist analysis<sup>73</sup> shows that of the hundred or so leasing companies that were operating pre-pandemic, many have stopped (some temporarily), reducing the market participants. The impact of the acquisition of GECAS by AerCap in 2021 will also have to be factored in as well as the implications for lessors of leased aircraft stranded in Russia.

- 4.126 Regarding capital markets, experts expect that “the volume of bank lending for aircraft acquisitions that has traditionally been seen in the past will not return<sup>74</sup>”. This is because there was inflated availability of capital markets products to finance aircraft pre-pandemic. The pandemic, with airlines defaulting on aircraft leases or loan payments, requesting payment holidays, led to banks temporarily or permanently withdrawing from aviation finance. However, the market has not disappeared completely, and it is very likely that the more financially robust or less risky airlines and lessors will still have access to capital markets. The future availability of capital markets to finance aircraft will depend upon financial market developments (i.e., risk appetite, expectations of investment yields), and therefore is not specific to the aviation sector.
- 4.127 Regarding export credit agencies, an OECD report<sup>75</sup> of March 2021 cites that these agencies have increased the capacity of existing programmes, created new facilities and extended their limits of cover to include new risks. Specifically on aircraft finance, OECD explains that the amount of officially supported export credits for aircraft transactions has decreased in 2020 and so has the number of transactions supported. However, the decrease observed is mild compared with how severely the aircraft sector has been hit by the crisis.

#### **Impact on airline profitability**

- 4.128 The net result of reduced income and the cost reductions identified were not sufficient to prevent passenger airlines/airline groups returning a loss after tax in 2020, with only Cargolux posting a profit in 2020 of the companies considered in this study. Figure 4.33 demonstrates how net profit margins evolved from 2019 to 2021.

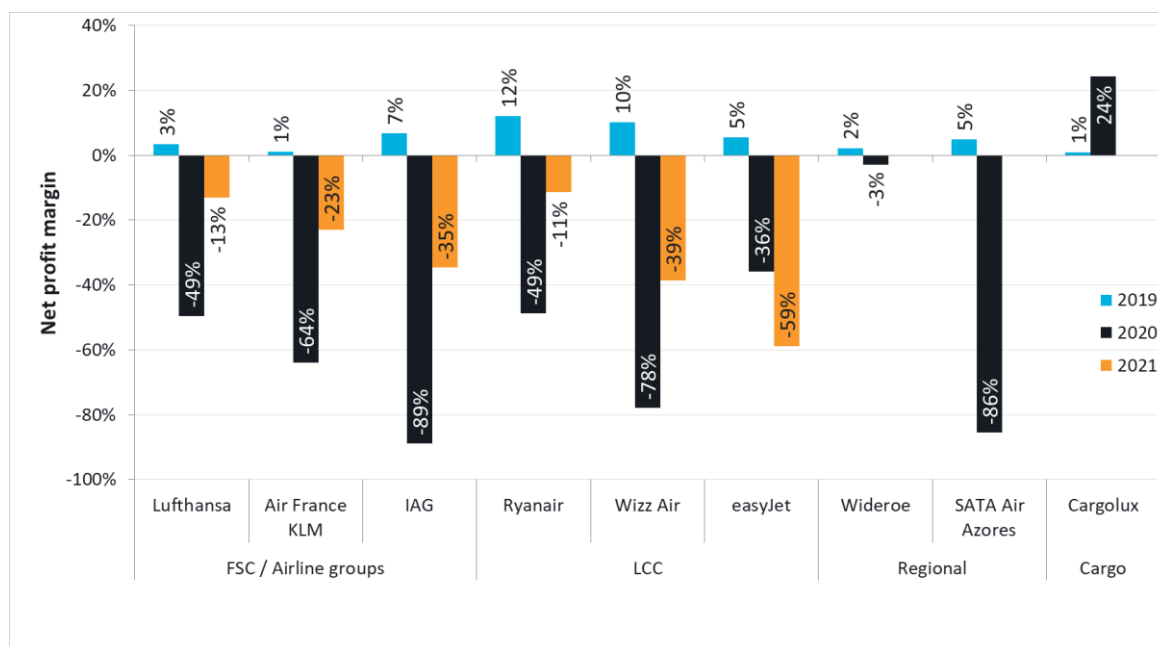
---

<sup>72</sup> <https://www.muzinich.com/opinions/aviation-finance>

<sup>73</sup> <https://www.muzinich.com/opinions/aviation-in-a-post-covid-world>

<sup>74</sup> Richard Moody, 2021, Managing Director, Global Head – Transportation Finance, Global Credit Trading at Deutsche Bank

<sup>75</sup> <https://www.oecd.org/coronavirus/policy-responses/trade-finance-in-the-covid-era-current-and-future-challenges-79daca94/>

**Figure 4.33: Net profit margins, selected airlines, 2019 - 2021**

Source: Steer analysis of airline annual reports

- 4.129 The lowest net profit margin for passenger airlines studied in 2020 is IAG, with a net profit margin of -89%, a decrease of -96 percentage points, reflecting the significant impacts of the pandemic in Spain, Ireland and the United Kingdom. Widerøe posted the highest net profit margin of -3%, with a -5 percentage point decline.
- 4.130 The notable exception to the trend is Cargolux, the only company among those considered to return a profit in 2020 of those considered. The cargo-only airline improved its net profit margin from 1% in 2019 to 24% in 2020, reflecting the significantly higher revenues from air cargo driven by demand exceeding air cargo capacity supply during much of the pandemic. Cargolux increased its cargo tonne kilometres (CTKs) flown by 10.4% from 8.1 billion in 2019 to 8.9 billion in 2020; its capacity also increased by 5.7% from 12.3 billion to 13.0 billion CTKs. Data is currently unavailable for 2021 (unlikely to be available before end of April at the earliest).
- 4.131 Figure 4.34 to Figure 4.39 demonstrate how the changes in revenues and operating costs have affected the profitability of airlines. In 2020 compared to 2019, Lufthansa reduced their operating costs by 38% to €22.6 billion, but their passenger and ancillary revenues fell by 68% and 48% respectively. Overall, this led to an operating loss of €7.1 billion in 2020, representing a -520% decline in profits on 2019. In 2021, Lufthansa reduced their operating costs by 43% versus 2019 levels, but revenues fell further by 58%, leading to another loss of €2.3bn. This shows that, despite a reduction in operating costs, airlines were unable to overcome the significant fall in revenues from both passenger and ancillary sources.
- 4.132 Ryanair also posted a loss in 2020, the closest representative comparison with Lufthansa's 2020 results in terms of the time period it covers. Ryanair was able to reduce its operating costs by 53% to €3.5 billion in 2020, but this was insufficient in comparison to the 71% and 63% declines in passenger and ancillary revenues respectively. Ryanair posted an operating loss in 2020 of €761 million, a decrease in profits of -166% compared to the previous year. In

2021, Ryanair reduced costs versus 2019 levels by 43%, but revenues remained 62% below 2019 levels, leading to a loss of €498m for the calendar year.

Figure 4.34: Lufthansa 2019 results waterfall

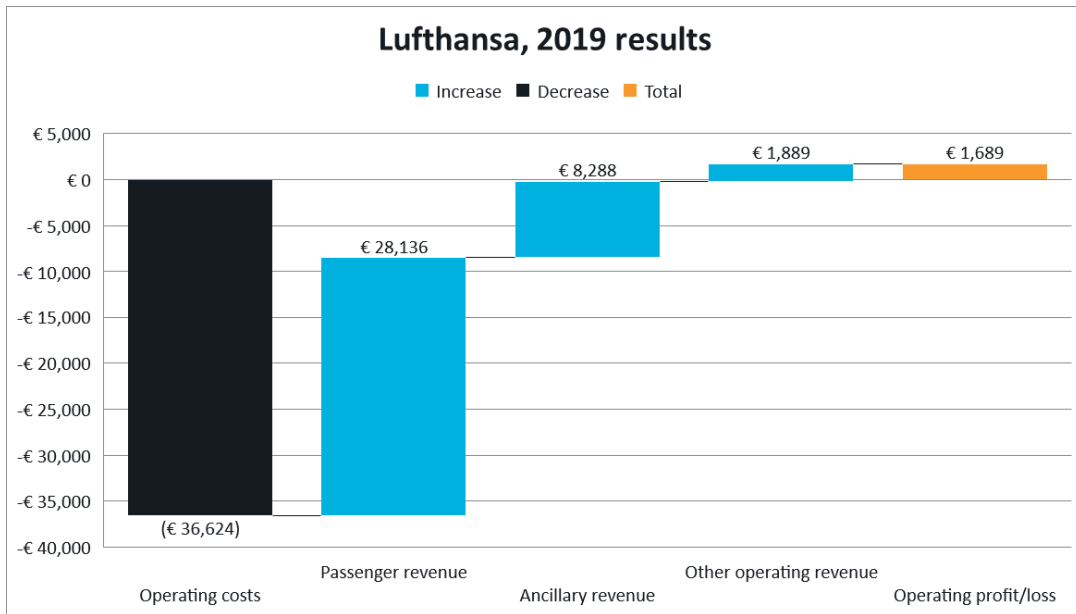


Figure 4.35: Lufthansa 2020 results waterfall

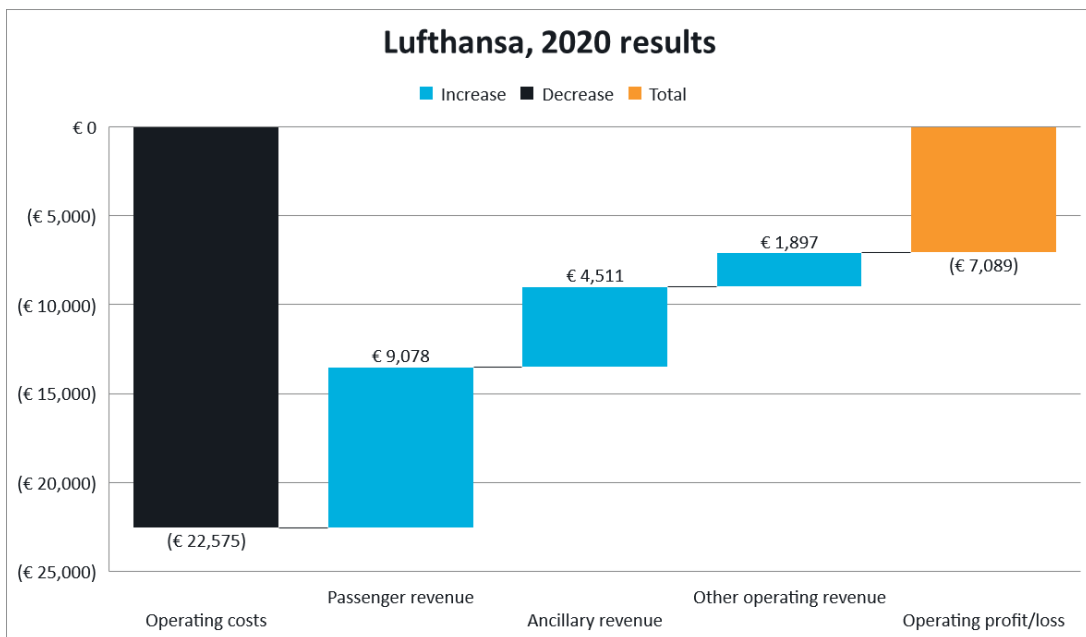




Figure 4.36: Lufthansa 2021 results waterfall

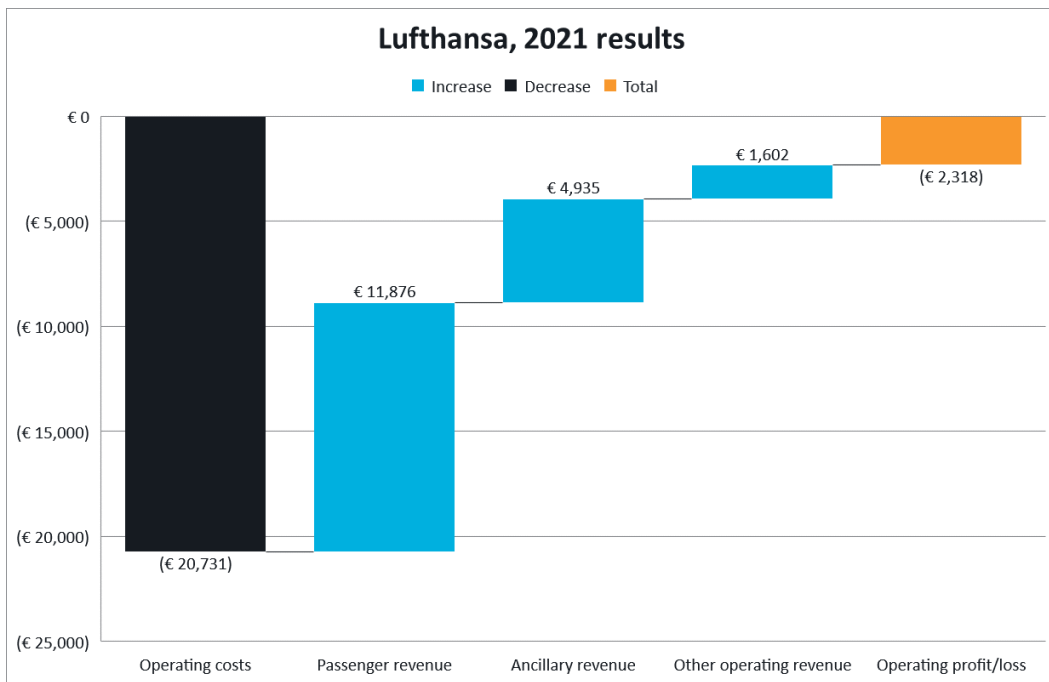


Figure 4.37: Ryanair 2019 results waterfall

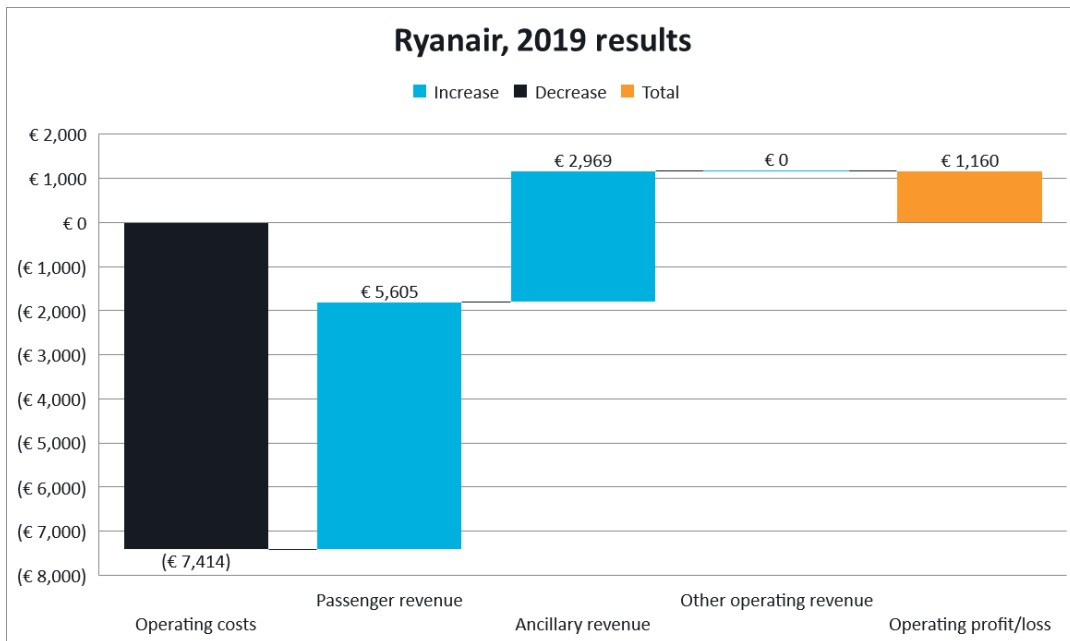


Figure 4.38: Ryanair 2020 results waterfall

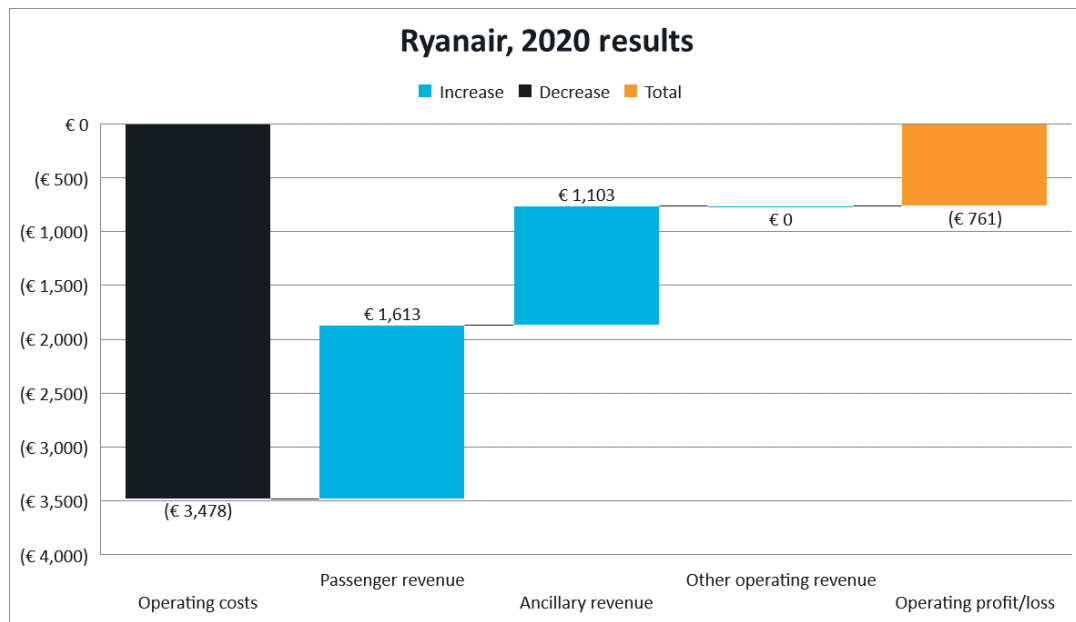
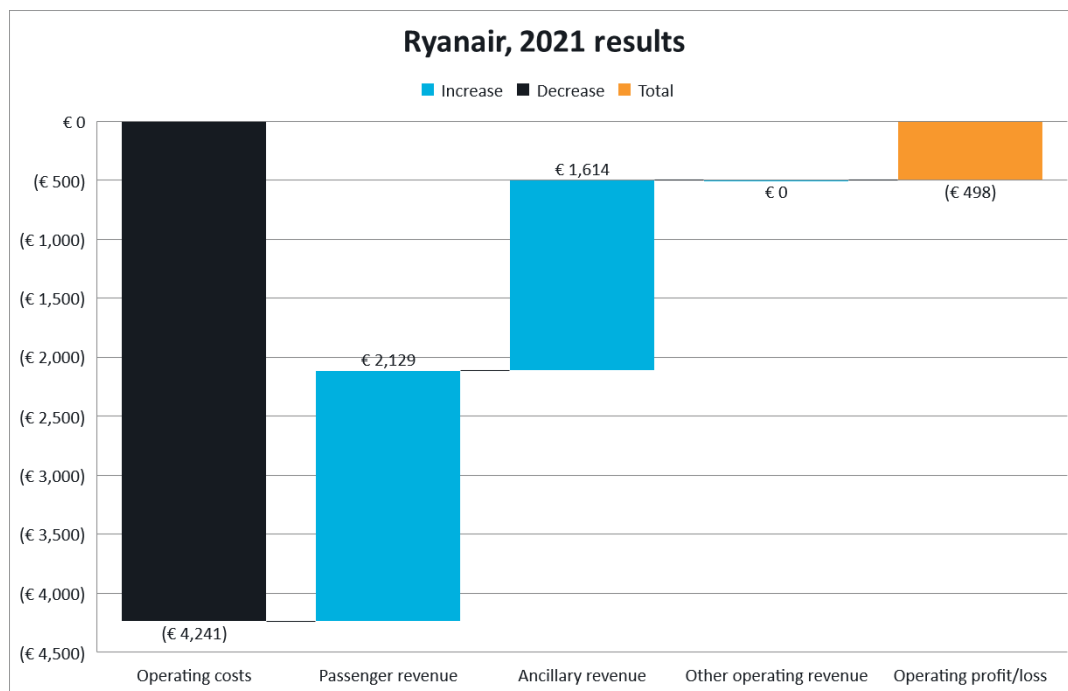


Figure 4.39: Ryanair 2021 results waterfall



Source: Steer analysis of airline annual reports

## Outlook to 2030

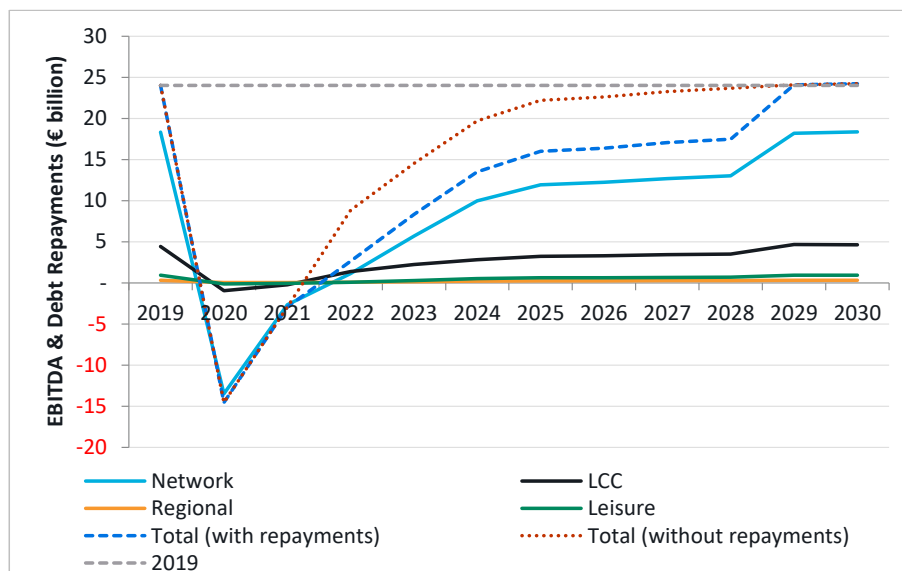
- 4.133 The projection tool, developed to support this study by Steer, allows an outlook of European airline EBITDA to 2030 to be estimated. The results of the projection tool take account of the information presented in the section above and extrapolate this to a European level. A full description of the mechanics and assumption supporting the projection tool can be found in Appendix B. Results have been presented firstly assuming that no changes to core revenues

and costs are incurred (per passenger) and subsequently with sensitivities so that the impact of prospective changes can be quantified.

**Central case**

- 4.134 Figure 4.40 presents projected European Airline debt adjusted EBITDA to 2030 assuming:
- The central demand recovery scenario and passengers returning to 2019 levels in 2024-2025;
  - No changes to fares and no changes to airport charges and other costs (including fuel). Passenger revenues and cost actuals are used for the period 2019-2021 and are assumed to return to 2019 levels in 2025 in response to the traffic returning to 2019 levels and are then held flat to 2030;
  - Airlines start to pay back COVID-19 related debt from 2022 over a seven-year average term (to 2028). Additional debt accrued associated with the COVID-19 pandemic has been overlay so that the impact of repayments can be visualised.
- 4.135 It was estimated that European airlines generated an EBITDA of €24.0 billion in 2019. The COVID-19 pandemic caused carriers to record significant losses in EBITDA terms and it is estimated that total European airline EBITDA reduced to -€14.6 billion in 2020, improving to -€2.9 billion in 2021.
- 4.136 At a total European level carriers are expected to record positive EBITDA levels in 2022, however the impact of loan repayments (if actioned) will reduce to a marginal operational surplus. It is estimated that an operating profit +€8.9 billion could be achieved in 2022, however the impact of debt repayments reduces this to +€2.6 billion surplus.
- 4.137 EBITDA levels are not expected to return to 2019 levels until 2029 with and without the impact of COVID-19 related financing expenditure, however the total additional cost of financing to the airline sector is estimated to have reduced EBITDA by -€43.4 billion over the period 2022-2030.

**Figure 4.40: European airline debt repayment adjusted EBITDA outlook to 2030, € billion, 2019 prices**



Source: Steer analysis

4.138 The scenario presented above does not factor in potential changes in revenues (due to changes in consumer habits) or costs due to increased charges levied by airports or increases in fuel and other costs. If increases in costs were to be encountered, airline EBITDA would either reduce further, or this could be counteracted with increased fares if the market was willing to pay them. The functionality of the model does not permit the impact of increased fares on demand to be quantified.

### Sensitivities

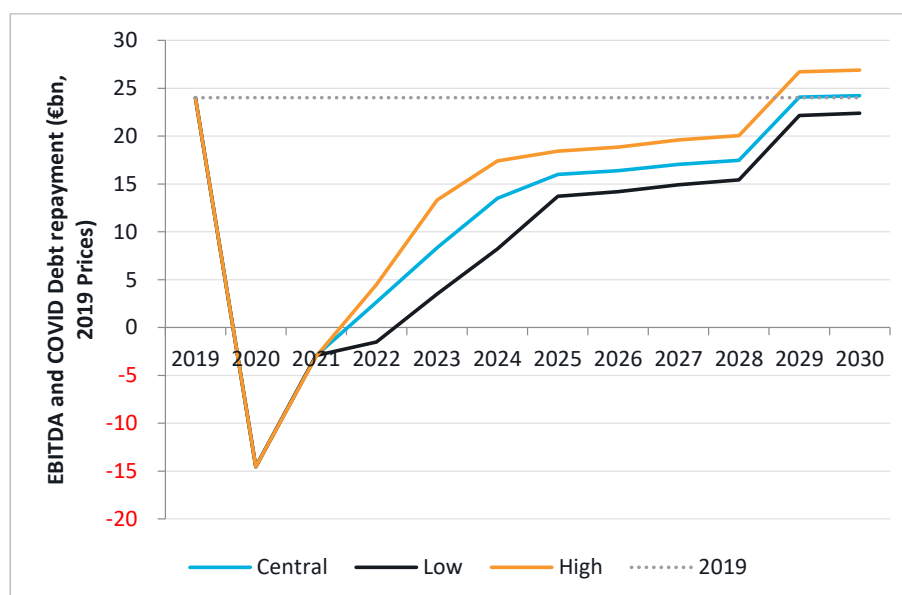
#### *Demand forecast*

4.139 Three demand forecasts were generated in the projection tool, allowing the impact of different recovery scenarios to be estimated. Figure 4.41 and Table 4.16 present the impacts of the different recovery scenarios on airline EBITDA with an overlay for COVID-19 related debt repayments.

4.140 In the low scenario, airlines would continue to register a negative operating margin in 2022 and is estimated that this does not return to 2019 levels until 2030. In 2030 the operating margin is estimated to be -€1.8 billion lower than the central case scenario (-7.5%). Cumulatively (between 2022 and 2030), airlines will make positive operating margin of €113.0 billion, which is -€26.6 billion (-19%) lower than the central case.

4.141 In the high scenario, airlines operating margins are marginally improved in 2022 and a substantial improvement is estimated in 2023 and 2024 due to traffic rebounding. In 2030 the operating margin is estimated to be +€2.6 billion higher than the central case scenario (+10.9%). Cumulatively (between 2022 and 2030), airlines will make positive operating margin of €165.7 billion, which is +26.1 billion (+19%) higher than the central case.

**Figure 4.41: European airline debt repayment adjusted EBITDA outlook to 2030 – Growth scenarios, € billion, 2019 prices**



Source: Steer analysis

**Table 4.16: European airline debt repayment adjusted EBITDA outlook to 2030 – Growth scenarios, € billion, 2019 prices**

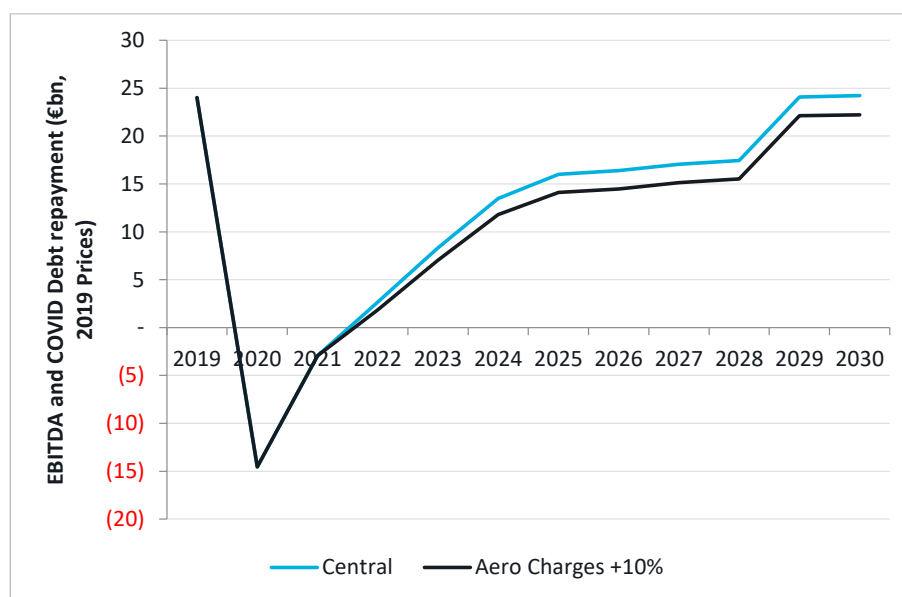
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2022-2030	Delta
Central	2.6	8.3	13.5	16.0	16.4	17.0	17.5	24.1	24.2	139.7	0.0
Low	-1.5	3.5	8.2	13.7	14.2	14.9	15.4	22.1	22.4	113.0	-26.6
High	4.5	13.3	17.4	18.4	18.9	19.6	20.0	26.7	26.9	165.7	26.1

Source: Steer analysis

*Increased airport costs*

- 4.142 The impact of airports increasing aeronautical charges by an average of 10% on airline operating profit has been estimated and presented in Figure 4.42 below. This scenario has been conducted on the central demand projection and assumes no other changes. It is assumed that these additional costs have not been passed onto consumers through higher fares.
- 4.143 The impact of these costs increasing would reduce European airline operating profit to 2030 and in 2030 this would equate to a -€2.0 billion (-8.3%) reduction versus the central case with no changes. Cumulatively (between 2022 and 2030), this change would reduce airline operating profit to €124.3 billion, which is -€15.4 billion (-11%) lower than the central case.

**Figure 4.42: European airline debt repayment adjusted EBITDA outlook to 2030 – Airport charge scenario, € billion, 2019 prices**



Source: Steer analysis

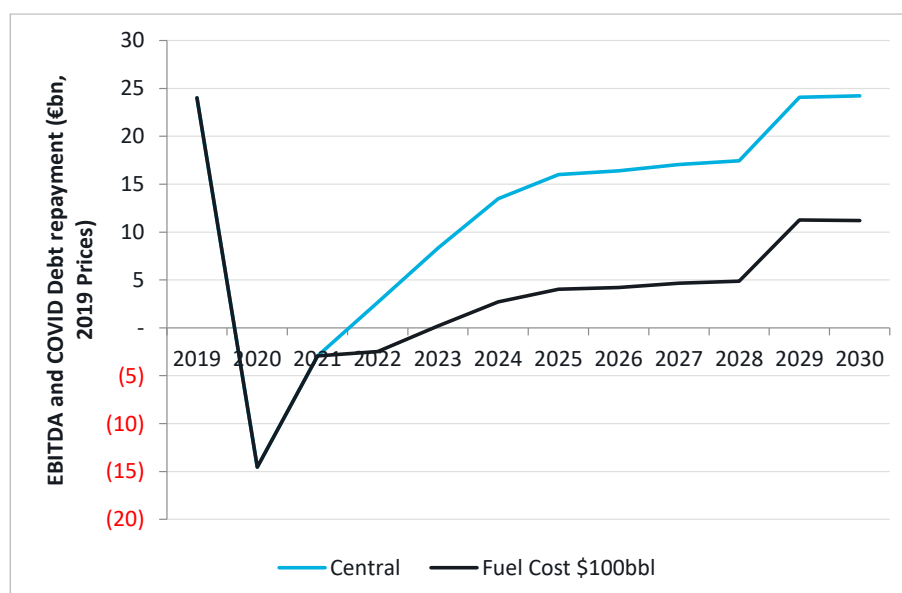
*Increased fuel costs*

- 4.144 The impact of fuel costs increasing to an average of US\$100 (€90) per barrel has also been estimated. Due to the current conflict in Ukraine, Jet A1 prices have reached unprecedented levels of nearly US\$150 per barrel (€135) and the US Energy Information Administration expected that the average price during 2022 will reach between US\$100 and US\$105 (€90 - €94.5). The European Commission launched its Fit for 55 legislation package in 2021 to reduce net greenhouse gas emissions by at least 55% by 2030. Fit For 55 proposes an eventual

aviation taxation rate of €10.75/GJ on fossil fuels after a 10-year transitional period, which equates to taxation of approximately €60 per barrel of Jet A1 fuel. The assumption of fuel cost remaining at US\$100 from 2022 considers that reductions in market oil prices from 2022 are replaced with additional taxation rates. As per the airport cost sensitivity, it has been assumed in this scenario that additional costs resulting from this measure are not passed onto consumers and are instead absorbed by airlines so that the impact can be estimated.

- 4.145 The impact of these fuel costs remaining at US\$100 per barrel would have a significant impact on European airline operating margins when other costs and revenues per passenger return to 2019 levels from 2025 onwards. Under these conditions the airline industry is expected to make material operating loss of -€2.5 billion in 2022, with operating profit in 2030 expected to be -54% lower than the central case. Cumulatively (between 2022 and 2030), this change would reduce airline operating profit to €40.6 billion, which is -€99.0 billion (-71%) lower than the central case.

Figure 4.43: European airline debt repayment adjusted EBITDA outlook to 2030 – Fuel cost scenario, € billion, 2019 prices



Source: Steer analysis

## Summary

- 4.146 Relatively few airlines ceased operations permanently as a result of the pandemic. Airlines which did so typically were already experiencing financial difficulties prior to the crisis, and the pandemic compounded on top of these existing issues. The allocation of State aid and the provisions set out in Regulation 2020/696 surrounding operating licences have both contributed to preventing further airlines from ceasing operations.
- 4.147 Since the pandemic, average load factors on European airlines have dropped from over 80% pre-crisis to around 60-65%, below the estimated break-even load factor for airlines. The requirement for social distancing on board aircraft is likely a factor in preventing many flights from operating at profitable load factors. The lack of profitable passenger operations may have led airlines to consider alternative business models, including the use of passenger aircraft as “freighters” to carry cargo in place of passengers.

- 4.148 Competition in the European aviation market decreased as a result of the pandemic, as measured by the HHI. Competition was highest during the summer months where greater seat capacity was available to passengers, though in the winter period competition dropped along with seat capacity. Seasonal trends in seat capacity have been exacerbated by a reduction in business travel and increased restrictions during winter months, further driving trends in market concentration. Overall, passengers have been faced with less choice than pre-pandemic levels for European air travel.
- 4.149 Airlines responded to lower demand for air travel by reducing their fleet in use, either by retiring old aircraft or temporarily parking aircraft. The in-service fleet across Europe decreased slightly during the pandemic, though airlines are continuing to replace aircraft with newer, more fuel-efficient models. However, some airlines have chosen to delay future deliveries of aircraft to preserve cash flow, meaning that airline fleets may be slightly smaller than pre-crisis whilst demand also remains below pre-crisis levels.
- 4.150 The crisis led to a significant decline in passenger revenues in 2020 and 2021, the latter only marginally better in terms of revenues. In response, airlines sought to cut costs; variable costs associated with flying (e.g., fuel) decreased as a result of lower numbers of flights. Airlines also reduced staff costs through wage subsidies, furlough, short-time work, and reducing headcount. Despite cost-cutting measures, no airline studied could cover the decline in revenues through cost-reductions alone.
- 4.151 Airlines reduced their immediate capital expenditure, choosing to focus only on essential projects and pausing or cancelling other investments. Airlines indicated that investments in greening and digitalisation are expected to continue to 2030, most notably fleet renewal which is a source of lower operating costs (better fuel efficiency) and will assist in meeting environmental targets.
- 4.152 Airlines sought to shore up balance sheets through increasing their cash held, primarily through non-current borrowing and equity. Airlines are now more highly leveraged than pre-crisis as a result of taking on non-current debt at a greater rate than increases in equity. The cost of these debts on airlines may weigh on financial performance in the coming years, and could increase costs for passengers.
- 4.153 In terms of aircraft leasing, there are no clear trends suggesting that leasing will increase or decrease in the coming years. Across the EU27, leasing has remained relatively stable from pre-crisis levels, though at an individual level some airlines have increased leasing and some have decreased leasing. Wet leasing is noted as particularly suffering during the pandemic, due to lower passenger demand and airlines not fully utilising their own fleets.
- 4.154 Profitability for passenger airlines fell significantly in 2020 and recovered slightly in 2021, though airlines are predominantly still unprofitable. The exception to this is cargo airlines, who have benefitted significantly from lower availability of belly capacity from passenger airlines (due to depressed passenger demand) and strong demand for cargo, leading to higher load factors and yields.
- 4.155 The outlook to 2030 is that airlines may return to a positive EBITDA in 2022 in the central case, though loan repayments could affect the ability of airlines to achieve operating surplus in this timeframe. EBITDA is estimated to return to 2019 levels by 2029 in the central case. However, the potential impacts of increases in airport charges and/or fuel prices, which is not included into the central case, could delay the recovery of EBITDA further into the future.

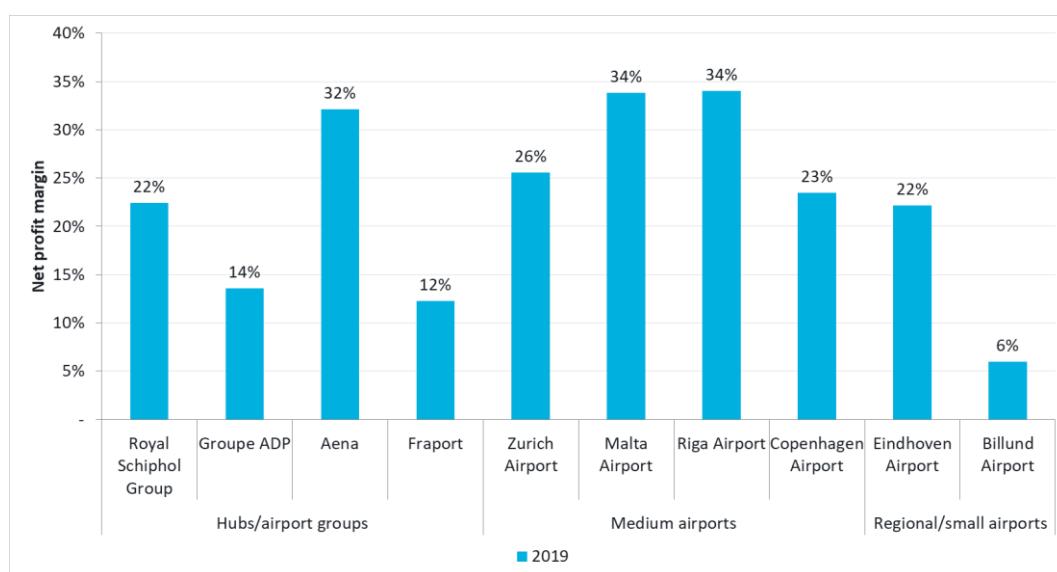


## 5 Airport impacts

### Airport commercial and financial situation prior to the pandemic

- 5.1 In order to represent a cross-section of European airports of varying sizes and geographies, the following analysis considers the financial statements of the following 10 airports/airport operators<sup>76</sup>: Royal Schiphol Group, Groupe ADP, AENA, Fraport, Zurich Airport, Malta Airport, Riga Airport, Copenhagen Airport, Eindhoven Airport and Billund Airport.
- 5.2 Prior to the crisis, the 10 airports studied all reported profits in 2019, with the net profit margin of airports ranging from 6% for Billund Airport to 34% for both Malta Airport and Riga Airport. It is worth noting that, compared to the airline sector, airports typically reported a higher net profit margin pre-crisis. This reflects the capital employed/ assets on the balance sheets of airports whereas, many of the assets (aircraft) of airlines are leased.

Figure 5.1: Airport net profit margins, 2019



Source: Steer analysis of airport annual reports

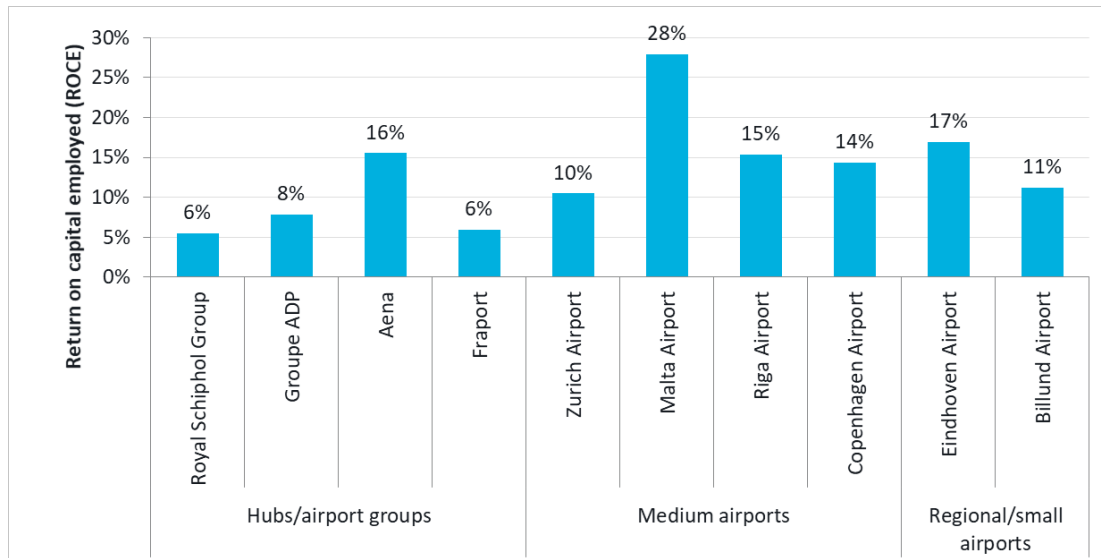
- 5.3 Whilst profit margins are somewhat reflective of the performance of airports, another particularly relevant measure for airports is the return on capital employed (ROCE)<sup>77</sup>. Amongst

<sup>76</sup> The term “airport” herein also refers to airport operators with more than one airport

<sup>77</sup> Return on capital employed (ROCE) is a financial measure of profitability taking into account the amount of capital used by the company. It reflects an airport’s ability to use its assets to generate profits. As airports are capital-intensive by nature, this is a particularly relevant measure to use to analyse the performance of airports.

the airports studied, ROCE ranged from 28% for Malta Airport to 5% for Royal Schiphol Group. As was the case with net profit margins, all airports studied made a positive return in 2019.

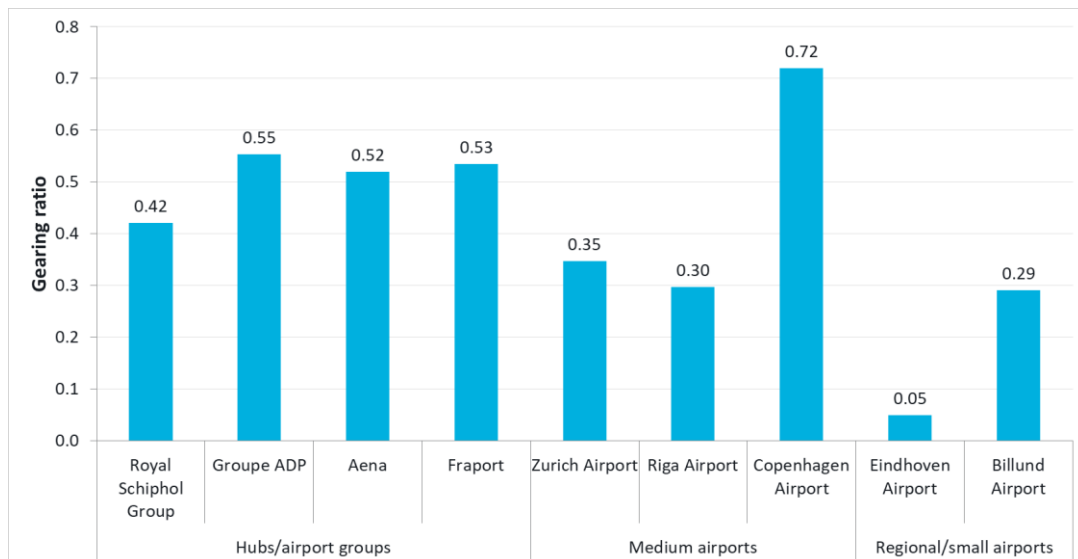
**Figure 5.2: Return on capital employed, airports, 2019**



Source: Steer analysis of airport annual reports

5.4 Of the 10 airports studied, five maintained a gearing ratio below 0.5, four maintained a gearing ratio above 0.5, and the remaining airport (Malta) did not have sufficient data available to determine the gearing ratio. A common rule of thumb is that companies with a gearing ratio over 0.5 are “highly geared”, indicating the majority of its long-term funding derives from external debt rather than its own equity.

**Figure 5.3: Gearing ratio of airports, 2019**



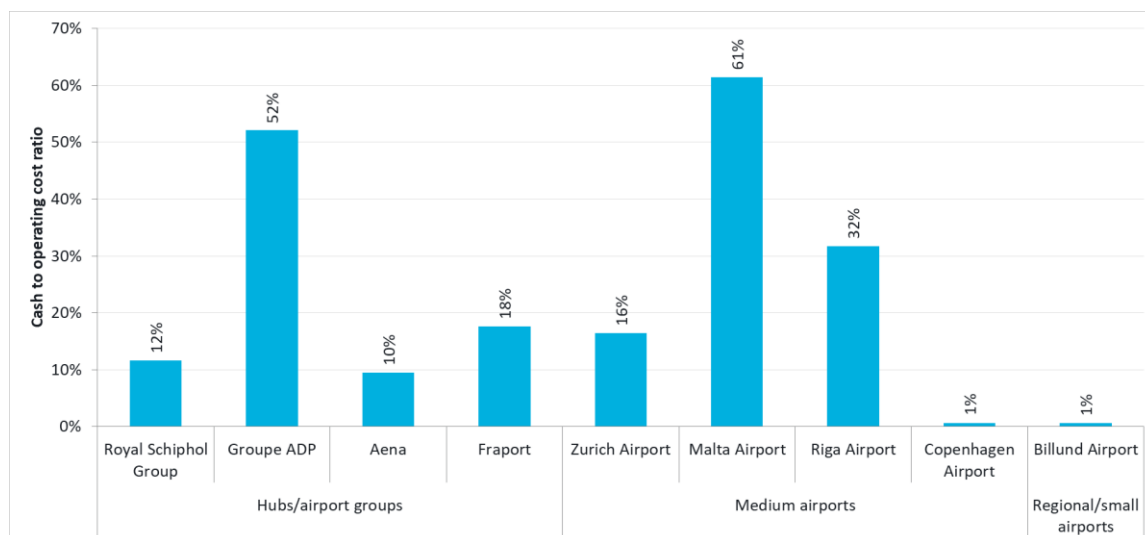
Source: Steer analysis of airport annual reports. Note: Malta Airport excluded from analysis due to lack of data.

5.5 In terms of liquidity, airports studied reported cash to operating cost ratios between 1% for Copenhagen Airport and 61% for Malta Airport. This indicates that at the end of 2019, Malta Airport held sufficient cash on hand to cover 61% of its operating costs in 2019, making it well-positioned for the crisis in 2020 in this respect. On the other hand, Copenhagen Airport held

sufficient cash to cover 1% of its operating costs in 2019, leaving the airport potentially more exposed to liquidity problems in 2020. However, it should be noted that business models and sources of funding can vary between airports, and it cannot be assumed that airports with a low cash to operating cost ratio are particularly vulnerable entering the crisis.

- 5.6 Overall, it was noted by AlixPartners<sup>78</sup> in June 2021 that “liquidity has been strong for airports in the 16 months following the start of the pandemic, as they had substantial cash reserves and have found it relatively easy to raise capital in the immediate aftermath of COVID-19”. We assume that this finding relates to the larger airports rather than the smaller ones.

Figure 5.4: Cash to operating cost ratio, airports, 2019



Source: Steer analysis of airport annual reports. Note: Eindhoven Airport excluded due to lack of data

## Market impacts of the pandemic

What are the main competitive changes in the market structure triggered by COVID-19 (number and size of the undertakings, concentration, new entrants etc.) and which of these changes can be expected to remain present in the future?

### Airports ceasing operations

- 5.7 In October 2020 ACI Europe warned that 193 European airports, predominantly regional airports, were at risk of insolvency in the coming months. The airports, which were not named in the report, were determined as being responsible for 277,000 jobs and €12.4 billion of European GDP<sup>79</sup>. Many airports have operated with significantly fewer airport movements than before the pandemic, particularly where travel restrictions and lockdowns were implemented in spring 2020, but no airport appears to have permanently closed or reported no movements at all since spring 2020.
- 5.8 In Germany, two airports were declared insolvent as consequence of the pandemic: Paderborn Lippstadt in North Rhine-Westphalia and Friedrichshafen in Baden-Württemberg: both had

<sup>78</sup> <https://www.aeroport.fr/uploads/documents/turnaround-time--:airport-financial-recovery-and-restart-following-covid-19.pdf?v12.2>

<sup>79</sup> <https://www.aci-europe.org/media-room/279-almost-200-european-airports-facing-insolvency-in-coming-months.html>

limited traffic in 2019 with 700,000 passengers for Paderborn Lippstadt and 500,000 for Friedrichshafen. Insolvency did not prevent the airports from continuing operating during the crisis. ADV explained that restructuring of both airports to exit insolvency appears to have been successful and will involve the sale of airport land. Moreover, Frankfurt-Hahn airport, a secondary airport used predominantly by low-cost carriers, filed for bankruptcy in October 2021 after the majority owners, HNA Group (82.5% share), announced its bankruptcy earlier in 2021. The airport had struggled financially before the pandemic, indicating that COVID-19 is not the sole cause of the airport's bankruptcy<sup>80</sup>. However, the airport has not ceased operations, and an administrator has been appointed to the airport to find new owners<sup>81</sup>.

- 5.9 A desk study has been conducted to assess whether any airports had ceased operations since March 2020, however none could be found. This conclusion is shared among stakeholders contacted during the stakeholder consultation.

#### *Changes in airport business models*

- 5.10 No significant changes in the business models of airports were raised in the stakeholder consultation process. AENA notes that to some extent, the role of an airport as an infrastructure provider limits their ability to change business models; Munich Airport develops this further, stating that airports may be tailored towards certain market segments (low-cost, hubs, regional) in a manner that is not easy to change. However, smaller and/or temporary changes were identified, including the following:

- Several stakeholders (including ACI EUROPE, Royal Schiphol Group, Timisoara Airport, and the Belgian ISA) noted that airports have focused on cost reductions and streamlining operations, including the temporary closure of terminals;
- Spain stated that Ciudad Real and Castellon airports now offer long stay parking and maintenance as part of their business models;
- ACI EUROPE stated that airports are now more reliant on debt to finance operations; Fraport added that for this reason, a change in business model cannot be ruled out in the medium term;
- Fraport and Dublin Airport stated that there is a greater appreciation for the cargo sector by airports;
- An airport mentioned that some hubs have shifted more towards point-to-point short-haul flights due to a lack of long-haul traffic during the pandemic; and
- The Italian ISA stated that an increase in airport networking may be expected to manage the difficulties during the pandemic.

### **Airport capacity**

- 5.11 In this section we examine the impact of the pandemic on airport capacity, firstly by looking at measures taken by airports to address sanitary measures required by the health situation and secondly by looking at airport investments into capacity plans.

#### **Impact of sanitary measures on airport capacity**

How have sanitary measures affected available airport capacity?

<sup>80</sup> <https://www.dw.com/en/ryanair-hub-frankfurt-hahn-airport-files-for-bankruptcy/a-59550808>

<sup>81</sup> <https://www.aircargonews.net/cargo-airport/frankfurt-hahn-files-for-bankruptcy-with-senator-taking-steps-to-secure-operations/>

- 5.12 Across Europe, a number of sanitary measures were required by national or regional authorities during the pandemic to try to contain the spread of the virus. These measures included additional hand-washing and hand-sanitising requirements, mask wearing, wearing of personal protective equipment, physical distancing (also called social distancing), increased cleaning and sanitation of cars/assets/building/infrastructure. These measures affected all type of users of airport facilities from staff to passengers, meters and greeters, etc.
- 5.13 These containment measures impacted many operational aspects of air transport, such as limits on the number of passengers allowed on a bus, at a gate, in a terminal, through immigration or customs, etc. In particular sanitary requirements became part of checking and border control processes which added significant additional time to airport entry and exit processes.
- 5.14 We report below some of the measures that airports took during pandemic. We see two types of actions:
- Sanitary measures, that is measures linked to social distancing which impacted the available capacity in terms of lower process speeds or increased requirements for space. This led to decrease in processing capacity as observed by ACI-Europe of around -30% in average in passenger capacity within terminal due to distancing and processing times (check in time increased from e.g. circa 1 minute to 10 minutes due to governmental requirements on i.e. additional documentary checks etc.).
  - Cost-efficiency measures that airports took to respond to the low demand and to cut costs which in some cases led airports to close terminals or parts of terminals and regroup operations.
- 5.15 It is interesting to observe that the two types of measures taken may have had different impacts: sanitary measures would have increased costs by requiring more cleaning or more terminal space whereas cost-efficiency measures would have been aimed at reducing costs. Table 5.1 below show both measures taken by airports. Note also that many airports were required (sometimes by law) to remain open/secure operations 24/7 which means that the airports cannot be closed even if there have been periods where this would have been the right decision from a commercial point of view, as traffic and passengers were not using the facilities for long periods. Many of these additional sanitary measures which required changes in process were implemented for a period of time and are now beginning to be relaxed as restrictions and measures are removed.
- 5.16 Despite the sanitary measures introduced during the pandemic, stakeholders did not indicate that this caused capacity constraints. ACI-Europe reported that “during the summer 2020 an airport would reach saturation at 60% to 70% of 2019 levels given the impact of sanitary measures”, but whilst the effective capacity of airports declined, the parallel decline in demand for air travel meant that even the reduced capacity caused by sanitary measures did not lead to capacity saturation. Swedavia noted that as traffic rose, the reduced capacity from sanitary measures manifested itself in longer processing times. Some airports also reported that they added some tents to provide more capacity.

**Table 5.1: Changes to airport capacity during the pandemic**

Airport	Change in capacity
ACI-Europe	Airports took operational decisions such as opening and closing terminals so as to deal with the expected demand and to accommodate extra sanitary measures. Studies showed that in summer 2020 an airport would reach saturation at 60% to 70% of 2019 levels given the

Airport	Change in capacity
	impact of sanitary measures. This would not necessarily affect the official declared capacity but would have a tactical operational impact.
AENA	Aena did not have to reduce the capacity on account of the sanitary measures.
Amsterdam	During the start of the pandemic, Amsterdam has closed parts of the airport due to decreased demand but also for reasons of crowd control to support sanitary arrangements. This was merely a first response, and after a few months, all infrastructure was made available again.
Brussels	Installed a temporarily set-up for pre-check-in outside (in front of) the departure hall.
Copenhagen	The demand has adapted to the current capacity, which has been pressured by all the new health measures.
Cluj	The airport capacity was affected by the application of sanitary measures but in a short period the capacity increased to its normal value by adding exterior passenger processing facilities (in a tent), both for departing and arrival flights.
Koln-Bonn	Cleaning procedures were established in order to ensure a safe status of terminal areas. Border and immigration services had to intensify their hygienic precautions resulting in longer process times especially during passenger peaks.
Milan Bergamo	Health measures have created major critical issues on the management of passenger flows, especially on arrival, due to the need to review the layout of the routes taken by passengers so that additional checks can be undertaken.
Milan Linate	Had to reduce the movements/hour to a maximum of two movements/hour for extra-Schengen flights, due to social distancing separation in the extra-Schengen gates area.
Munich	Terminal capacity was reduced mostly for areas that are primarily driven by space (like hold rooms and baggage reclaim) and due to additional checks at immigration. Sanitary measures had a huge impact including the need for very early arrival of all passengers, extended duration of boarding processes, the need to open terminals (although it did not make any sense in terms of regular capacity) in order to follow the sanitary measures of the government.
Nice	Implemented sanitary measures for passengers and adapted its capacity due to sanitary measures: closing and reopening terminals in line with traffic demand.
Rome	The airport capacity in terms on movements/hours has not been affected by the pandemic, however airport layout in terms of terminals and boarding areas have been adapted accordingly to the traffic demand and new sanitary measures in place (e.g. social distancing).
Swedavia	Reduced the capacity at its airports (but did not detail how), which at first didn't matter since the demand was so low. During the recovery, the reduced capacity started to show in the form of longer process times at the airports.
Warsaw	Warsaw Chopin Airport undertook a capacity assessment in line with Polish requirements for physical distancing; as a result, the coordination parameters for the terminal were changed, with passenger throughput reduced by up to 44% in some areas of the terminal
Avinor	Early in the pandemic, nine smaller regional airports (out of 44 airports in the Avinor group) were closed for traffic. At Oslo airport large parts of the passenger terminal were closed as were one out of the baggage handling systems. One out of two runways was closed.
Isavia	The airport has been excluded from domestic rules around safe distances.

Source: Steer analysis of stakeholder consultation responses

How has the COVID-19 pandemic affected the development of infrastructure projects at airports (e.g. delays, increased investment cost)?

### Effect of COVID-19 on development of infrastructure projects at airports

- 5.17 We observe that the airports' responses on capital/ infrastructure projects varied (for those that took part in consultation). Some airports<sup>82</sup> were able to seize the opportunity and accelerate capital projects where the low traffic levels allowed it to happen without disturbing operations (mainly for runway maintenance at Munich, Stuttgart, Lyon, Nice, Paris). A few capital projects were also too far progressed to justify any delay or postponement, such as the new runway at Dublin airport and capital spend at Frankfurt and Munich airports.
- 5.18 There were no instances of runway capital spend being cancelled for instance noting that securing political approval to build new runways is rare. As terminal capacity usually becomes a constraint before runway capacity, there were more terminal programmes considered/under development at European airports. We see that the vast majority of these have been postponed, rather than cancelled. Based on stakeholder responses, only the T4 project at Paris-CDG was cancelled altogether.
- 5.19 ISAs noticed liquidity difficulties encountered by some airports to finance investment programmes which had been started pre-pandemic, as airports could not have anticipated the significantly reduced cash revenues that they faced in 2020 and 2021. According to CLECAT, some airports expressed difficulties in maintaining planned investments e.g. into new explosive detection equipment; in reaction to that, the European Commission amended the deadlines for implementation of new EDS equipment (Implementing Regulation (EU) 2020/910 & Implementing Regulation (EU) 2021/255)).

Table 5.2: Capex investment impacts

	Brought forward	Continued	Postponed	Cancelled	Overall
<b>Runway investments</b>		<b>DUB:</b> North runway (completed by end 2022)	<b>MUC:</b> construction of a new runway has been approved - but on hold for political reasons <b>CLJ:</b> extension of existing runway postponed		<b>HAM:</b> 2020 and 2021 capex reduced by 60% <b>STR:</b> 2020 capex reduction of ~€60m
<b>Terminal investments</b>		<b>FRA:</b> T3 extension (planned for 2016, €3.75bn) and other investments (€800m) <b>MUC:</b> T1 extension (planned for 2025/26)	<b>AMS:</b> Pier A expansion (and other investments -> reduction of €0.5bn of capex in 3-year period) <b>A.di R.:</b> main projects shifted by 3-5 years (reduction of €500m of capex) <b>ARN:</b> Pier G <b>BER:</b> all major investments postponed	<b>CDG:</b> (T4, €9bn, +40mppa by 2037)	<b>Swedavia:</b> Reduction of post-pandemic investment plan by 30-40% <b>ZRH:</b> capex budget halved until

<sup>82</sup> CDG, MUC, LYS, NCE, STR, Aeroporti di Roma



	Brought forward	Continued	Postponed	Cancelled	Overall
		<b>WAW:</b> no change to plans <b>BUD:</b> T3 to be built in phases starting 2023 up to the end of the 2020's <b>TSR:</b> construction of a new terminal. To be completed by end of 2023 <b>Swedavia:</b> At Arlanda integration between T4 & 5, new for security area and expanded commercial area in T5	<b>BUD:</b> terminal development postponed by 2 years <b>BOD:</b> Low-cost terminal expansion postponed <b>CLJ:</b> Cargo Terminal construction, new terminal construction postponed <b>LIS:</b> New airport, and T1 expansion postponed <b>STR:</b> T3 postponed <b>VIE:</b> T3 extension (reduction of €500m of capex) <b>Swedavia:</b> Pier G on hold		2023 (at least)
<b>Maintenance investments</b>	<b>CDG, MUC, LYS, NCE, STR:</b> runway maintenance <b>A. di R.:</b> extraordinary maintenance	<b>FRA:</b> taxiways maintenance <b>WAW:</b> no change to plans	<b>Hermes:</b> -80% in 2020/21/22 <b>Swedavia:</b> maintenance investments severely revised		

Source: Steer analysis of stakeholder consultation responses

### Digitalisation and greening

- 5.20 As discussed above, the pandemic caused a majority of airports to limit their capital expenditure to essential projects only, such as ensuring continuing operation or security. Consequently, we anticipate that investments in greening, which are not safety-critical nor essential for the immediate continued operation of airports, will have been delayed and/or cancelled in the immediate aftermath of the outbreak of the crisis.
- 5.21 Despite this, the importance of greening and digitalisation remains high for airports going forwards to 2030, indicating that postponed investments will likely still take place, albeit later than initially planned. Airports in the consultation noted the importance of these investments in order to reduce their emissions and to ensure compliance with environmental regulations and targets supporting European policy such as Fit for 55. Investments at airports are likely to include the renewal of ground fleets with electric alternatives, electric ground power, renewable energy generation and/or using renewable energy, provisions for electric and hydrogen aircraft, and other areas e.g. noise management and biodiversity protection. ACI-

Europe quantified the size of the investments to bring the airport terminals at the top 50 European airports to net zero as being around €26 billion.

- 5.22 We observe from the table below summarising stakeholder responses that nearly 100% of the airports who responded have established greening plans. Two (Avinor and Timisoara) nuanced their response and said that digitalisation investments depended on the availability of funding and financing support. Only Berlin Brandenburg airport stated that due to the pandemic as well as the consequence of the delayed opening of the airport, it was re-evaluating its investment programs, including on greening and digitalisation.
- 5.23 Overall, we note that investments in greening and digitalisation slowed during the pandemic in order to preserve cash flow, but the importance of these investments going forwards have not materially changed as a result of the pandemic. Therefore, we expect that airports will continue with their delayed investment plans, though where projects have been cancelled, investments will inevitably be reduced. Ultimately, the need to meet environmental targets is unchanged by the pandemic, and so investments necessary to achieve this will be made where airports have the means to do so.

**Table 5.3: Airport responses to investments in greening to 2030**

Airport	How do you expect your airport's investments for greening to look like up to 2030?
Vienna Airport (AT)	Actual investment in PV 24 MW Peak (10 Mio. EUR); PV investments expected to be extended (appr. EUR 6m.); extension of electric vehicle fleet currently evaluated
Aéroports Cote d'Azur (FR)	<ul style="list-style-type: none"> <li>- Investment in order to improve waste recovery and to develop circular economy.</li> <li>- Importance of the inclusion of the airport in its local territorial ecosystem in order to enhance sustainable mobility and to develop a common sustainable energy frame and infrastructures.</li> </ul>
Copenhagen Airport (DK)	<p>To achieve our 2030-target, the necessary investment level is estimated to be between 10 and 50 million DKK per year or between 1,343 and 6,719 million € per year. The main investment categories are renewal of ground vehicle fleets, ground support equipment, provision of electric charging infrastructure, upgrades to the electric network of the airport, on-site generation of electricity from renewable sources, procurement of electricity from renewable sources.</p> <p>In terms of establishing the necessary funding, we are more restricted than before the Covid-19 crisis. That has led to looking for funding in new ways and collaborations and partnerships, which has actually led to new, innovative solutions and partnerships - such as being lighthouse airport and lead of Horizon2020 funded aviation project.</p>
Fraport (DE)	Investments in energy efficiency programs are expected like the refurbishment of air conditioning systems, replacement of lighting. Moreover, investments in the installation of solar panels on site and for a supply infrastructure for emission-free vehicles will be expected.
Hamburg Airport (DE)	The airport management want to realize a lot of "green" Investments like electric and hydrogen vehicles, wind power generation, hydrogen production and a hydrogen fuelling station. The total investment will be round about €50m for the period till 2030.
Cologne Bonn Airport (DE)	The pandemic has not changed airport greening investment plans.
Munich Airport (DE)	Munich Airport has a budget for green investments in the three-digit million range. It enables green development through energy efficiency measures, biogas in the CHP (Combined Heating Plant), photovoltaics, expansion of PCA (Pre-Conditioned-Air) and 400 Hz systems and other innovations.
Stuttgart Airport (DE)	Stuttgart Airport will increase its investments in greening in the upcoming years with the goal to become climate-neutral, at the latest in the year 2040.

Airport	How do you expect your airport's investments for greening to look like up to 2030?
Budapest Airport (HU)	Major efforts will be needed in projects such as electric mobility, solar energy generation, geothermal heating, building refurbishments and insulation, etc
Dublin Airport (IE)	Substantial new package of sustainability investment currently being developed for consultation with airlines and regulator, to be invested from 2023-2026. Significant projects are required to be delivered in order to meet EU and national climate targets.
Aeroporti di Roma (IT)	<p>ADR is committed to putting in place a plan to "green" its activities, setting the challenging objective of reaching the "zero Carbon" emissions by 2030, anticipating by 20 years the target of airport sector.</p> <p>To achieve this objective ADR plan includes approximately €120 million of investments from 2022 to 2030, such as new two large multi-megawatt solar farms (expected to be complete by 2025 and 2027), energy storage and a network of electric plug-in devices for car and airport equipment, which will become increasingly "green" over time.</p>
Milan Bergamo Airport (IT)	<p>Has already implemented and is going to implement in the next years a large number of projects to introduce green/high performance energy across its infrastructures, in accordance with its Masterplan, in particular related to:</p> <p>Flight structures, systems and runway investments include electric Power GSE Purchasing; apron-wide 400Hz Aircraft power supply system; adoption of Airport Collaborative Decision Making (A-CDM) System; ongoing GSE electrification;</p> <p>Terminal and building: (in place: realisation of new buildings with High efficiency transmittance standards for building envelope and cooling/heating high efficiency systems; Heat Plant Refurbishing; solar power plant design; trigenerative power plant design).</p> <p>Access: "green belt" and "cycling ring" around airport area, intermodality access rail/road/airport interventions</p> <p>The overall investments in environment, green energy production and accessibility in Masterplan2030 are estimated to be over €100 million</p>
SEA Group (IT)	<p>Many projects to meet the airport group's net zero target are underway, such as:</p> <ul style="list-style-type: none"> <li>- Renewal of ground vehicle fleets towards electric one,</li> <li>- Use of electric/alternative fuelled ground support equipment,</li> <li>- Provision of electric charging infrastructure and refuelling stations for alternative energy (e.g. hydrogen) for ground vehicles and support equipment, as well as landside transport,</li> <li>- On-site generation of electricity from renewable and/or alternative sources (e.g. hydrogen),</li> <li>- Procurement of electricity from renewable sources.</li> </ul>
Torino Airport (IT)	<p>The airport expects to invest about €20m in order to enhance environmental sustainability and reach its decarbonization targets. The main investments are planned in the following areas: on-site generation of electricity from renewable sources, potentially involving green hydrogen as energy source; procurement of electricity from renewable sources - renewal of ground vehicle fleets towards more electric or hybrid alternatives; electric/alternative fuelled ground support equipment; provision of electric charging infrastructure and refuelling stations for alternative energy (e.g. hydrogen) for ground vehicles and support equipment, as well as landside transport; - upgrade the electric network of the airport;</p> <ul style="list-style-type: none"> <li>- infrastructures for a better regulation of waste water, the prevention of flooding and the recovery of rainwater;</li> <li>- measures to enhance biodiversity protection.</li> </ul>
Riga Airport (LV)	Significant investments will be made in the coming years to ensure climate neutrality, as well as investments to digitize the company to ensure its efficiency.
Malta Airport (MT)	In order to achieve this commitment, Malta Airport has formalised a high-level long-term action plan with a more defined plan to be finalised by the end of 2022. The focus is on meeting the EU Fit for 55 aviation objectives and aggressive exploitation of available areas for PV arrays. In addition, further action plans include phased replacement of vehicles from Diesel drive to Electric/Hybrid vehicles and the continuation of phased replacement of lighting to LEDs.

Airport	How do you expect your airport's investments for greening to look like up to 2030?
Eindhoven Airport (NL)	SAF will be highly supported.
Avinor (NO)	Avinor is running a pilot project to test production of renewable energy supply to Stavanger airport (NOK 40m). Investments to support increased use of SAF, electrical aircrafts and fossil fuel operations will be prioritised. Avinor will replace vehicles with electrical vehicles in the period up to 2030. Avinor may replace the energy supply to its airport at Svalbard to shift from coal to gas, the project will run in 2023 and require up to NOK 25m). The investment depends on whether Avinor will get funding support (ENOVA).
Cluj Airport (RO)	The airport will implement green measures at next investments such as cargo Terminal Construction, New Terminal Construction, existing Runaway 07-25 expansion.
Timisoara Airport (RO)	When there are financing programs that will promote the development of green investments, Timisoara Airport will certainly apply to help reduce the effects of climate change.
AENA (ES)	<p>The company will invest around €550 million between 2021 and 2030 to reach carbon neutrality by 2026 and net zero emissions in 2040. Some of the more relevant initiatives are: photovoltaic plan (project already underway is scheduled for 2026 and will mean 100% self-consumption from renewable energies through our own facilities at our airports), geothermal systems in the main airports of the network, actions to increase energy efficiency in lighting and air conditioning (presence detectors, LED replacement, renovation of air conditioning installations, automatic lighting regulation, etc.), recharging points plan and electric stations at airports; replacement or adaptation of equipment and vehicles, implementation of new measures and collaborative improvements that improve the efficiency of airport operations, as well as congestion in European airspace, reducing waiting times and flight time.</p> <p>Incorporation of requirements for the replacement of handling equipment by other less polluting ones: electrical, hydrogen and other renewable sources, distribution of SAF in the airport network, installation of hydrogen refuelling stations in the five main airports.</p>
Swedavia (SE)	At all of Swedavia's 10 airports it will need to invest in more electric solution like charging points for aircraft and cars, batteries, infrastructure for the supply of hydrogen, etc. It also needs to invest in different techniques to produce green electricity, for example solar panels, or wind power. At some airports it also needs to invest in additional taxiways to become more efficient for electric aircrafts (as they can't wait for take-off).
Zurich Airport (CH)	Green initiatives have gained importance and are expected to remain a priority in the near future.
Isavia (IS)	<p>The following main investment categories can be pointed out:</p> <ul style="list-style-type: none"> <li>- Renewal of ground vehicle fleets towards more efficient, ideally electric alternatives – the latter are however not yet available for all types of airport specialist vehicles, so alternative fuels will also have to be used for some of them. Estimated investment EUR 17 million</li> <li>- Electric charging infrastructure and refuelling stations for alternative energy (e.g. hydrogen) for backup power and ground vehicles and support equipment. Estimated investment not available.</li> <li>- In the longer term, anticipating the entry into service of electrified and hydrogen powered aircraft, airports will also have to ensure the availability of the necessary infrastructure in time.</li> </ul>

Source: Steer analysis of stakeholder consultation responses

- 5.24 Similarly, investments in digitalisation by airports are expected to continue at similar or even higher levels in the coming years. Fraport notes that these investments are likely to initially focus on cost or efficiency savings but will shift towards digital solutions as a result of rising consumer demand. Additionally, some airports noted that the pandemic highlighted a greater need for digitalisation investments, such as Milan Bergamo airport and Zurich Airport.

**Table 5.4: Airport responses to planned investments in digitalisation to 2030**

Airport	How do you expect your airport's investments for digitalisation to look like up to 2030?
ADV (DE)	Investments for digitalization are expected to rise in the coming years.
Vienna Airport (AT)	Investment will increase up to 2030 (e.g. RPA, CRM, etc.), especially automation of business and customer processes, wherever economically feasible.
Aéroports Cote d'Azur (FR)	Airports will have to adapt and respond to the future of digital behaviour and needs of their customers. This will be via digital infrastructure but also via a multichannel agreed for all non-aeronautical opportunities via one seamless digital passenger pathway. For Nice airport, this is done for the non-aeronautical opportunities by the digital lab who has the lead on all these subjects (ecommerce, CRM, Digital platforms, data, loyalty programs...).
Fraport (DE)	Digitalisation will continue to gain importance in the coming years. In the wake of the Corona pandemic, the focus of digitalisation will initially be on efficiency and cost savings but will also increasingly trend towards digital solutions for the whole travel chain as a result of rising customer needs. Above all, the cross-location utilisation of developments will become more relevant. We expect to invest a lower double-digit amount per year in innovative developments across the Fraport group as part of our digitalisation activities by 2030.
Hamburg Airport (DE)	The airport wants to complete a lot of digitalisation Investments like baggage drop-off, a new ERP System (SAP4Hana), AI systems, aviation resource management systems, passenger information systems, etc. The total spend will be approximately €40 m up to 2030.
Cologne Bonn Airport (DE)	The pandemic has not changed airport digitalisation evolution.
Munich Airport (DE)	Munich Airport are expecting to invest between 75% and 100% more on digital products than it did before the crisis with a prioritisation of increasing efficiency in workforce as well as infrastructure use in order to decrease costs of staff, premature infrastructure expansion or altering the passenger throughput rate, paired with the reaction of new customer expectations. The key focus areas will be the digitalization of manual processes; connect stakeholders & information and use them (enhanced with use of AI) to make more efficient use of infrastructure; to empower the customer (passenger and airline) to enhance satisfaction and to shift process ownership into the hands of customers (and decrease need of resources within the airport); replacement of technology with smarter & greener solutions; smart maintenance. Spend on IT development & infrastructure (corporation-wide) before the crises was estimated at around €40m to €50 m p.a. where the minority of this amount was used to invest in new technologies rather than on maintenance of legacy products, licences & actual infrastructure.
Stuttgart	Stuttgart Airport is investing in digitalisation constantly.
Budapest Airport (HU)	Further investments will be carried out in digitisation.
Dublin Airport (IE)	Focus on self-service, automation, e-commerce and touchless technology (biometrics)

Airport	How do you expect your airport's investments for digitalisation to look like up to 2030?
Aeroporti di Roma (IT)	Digitalisation is a pillar of ADR strategy, with the aim of improving passenger experience and operation performances. For this reason, the 2022-2030 investment plan includes several initiatives to make all airport processes "seamless" and simpler, thanks to the use of biometric technology (e.g. to facilitate all security procedures), the installation of latest generation equipment (e.g. Rx machines for faster luggage control), the use of "machine learning", A.I., IoT and other analytics tools in order to increase effectiveness and efficiency of operational and commercial processes
Milan Bergamo Airport (IT)	There is no doubt that the pandemic has accelerated many processes of technological evolution. Today, technology offers possibilities that go beyond the legislative framework in place, so it will be necessary for the legislator to take additional steps to utilise what the technology potentially offers.
Torino Airport (IT)	Digital investments of €400 thousand are planned in the period 2022-2030. Investments include the improvement of the digital passenger experience (for example self bag drop, biometric technology, indoor tracking) and the development of air urban mobility. Furthermore, the technologies of artificial intelligence, computer vision and machine learning will be used to improve the operation and infrastructure automation. Artificial intelligence algorithms will also be applied for the dynamic pricing of services offered, such as parking. Last but not least, the dematerialization projects of business processes will be carried out.
Riga Airport (LV)	<p>It is expected that till the market stabilizes and the volumes of air transportation will recover, the necessary investments will be provided to ensure the increase of capacity in accordance with future forecasts.</p> <p>Significant investments will also be made in the coming years to ensure climate neutrality, as well as investments to digitize the company to ensure its efficiency.</p>
Malta Airport (MT)	The airport has an extensive digital transformation program built on its goal to become a full digital airport.
Avinor (NO)	Remote Tower operations will continue to be rolled out (NOK 500m). Investments in technology and digitalisation to increase efficiency in operations will likely be allocated NOK 150 -250 million per year.
Cluj Airport (RO)	Cluj airport started the digitalisation process after the pandemic crisis.
Timisoara Airport (RO)	By 2030, Timisoara Airport will also make investments in the digitization of some services / activities
AENA (ES)	It is expected to continue consolidating and innovating in technologies that allow the continuous improvement of the user experience, sustainability, efficiency, safety and security: data management, automation, IoT, 5G, biometrics, mobility, etc.
Zurich Airport (CH)	The pandemic has clearly shown the need for a higher level of digitalisation. Resources (funding and skilled staff) are the bottleneck.
Isavia (IS)	We are starting our digital journey here at Isavia where our goal is to create seamless digital experience both for our customers and employees. For the next years we are expecting to invest a good amount of time in defining our business opportunities, how to

Airport	How do you expect your airport's investments for digitalisation to look like up to 2030?
	optimise our internal processes, and how we can create an excellent and seamless experience for our customers that will improve our airport society with the support of digital solutions.

Source: Steer analysis of stakeholder consultation responses

## Impact on airport charges

What has been the impact of COVID-19 on the actual levels of airport charges? Have they decreased/increased? Are there any noticeable trends when it comes to different components of the charge (e.g. parking charges)?

What has been the impact on the pricing policies of different actors (airlines, airports and ground-handlers) in the aviation value chain?

### Airport pricing policies during the pandemic

- 5.25 Conventional economic theory dictates that, in order to recover previous losses, companies free to set their own pricing policy could increase prices if demand is price-inelastic (at the risk of turning demand to competitors), or conversely, they may also wish to freeze or reduce their prices to encourage a demand-side recovery in revenues if demand is price-elastic.
- 5.26 Airports in Europe have experienced losses as a result of the pandemic, but they do not set their pricing policies without oversight as the largest ones (in each Member State and those above 5 million passengers per annum) are regulated through the Airport Charges Directive framework. This framework imposes a number of requirements on transparency, consultation, and non-discrimination but it does not specify a common charging mechanism. It is left to each Member State to set its specific forms of economic regulation (if any), including the application of single or dual/ hybrid till, pricing mechanisms (price-cap, rate of return, etc.). Non-regulated airports are free to set their charges but do so with the market in mind. On incentives and discounts there are some common rules to ensure that these are publicly available.
- 5.27 Analysis of how airports pricing policies have changed since March 2020 have been conducted based on:
1. Analysis of aeronautical yield per passenger based using information contained in financial reports;
  2. Comparison of average airport charge per passenger; and
  3. Review of published airport charge tariffs.
- 5.28 At some European airports, airports and airlines have agreed discounts on the published tariffs, where airlines:
- Maintain a sizeable operation at the airport and a discount related to the volume of passengers passing through the airport can be achieved. This can take the form of a discounted tariff for all passengers, or can vary dependent on a passenger threshold to be achieved or based on load factors;



- Establish new routes, discounts can be available to incentivise and support route development, especially during the first few years of operation.

5.29 The average aeronautical revenue yield per passenger for a selection of airports was calculated and is presented in Table 5.5<sup>83</sup>. At these airports, the aeronautical revenue yield per passenger in 2020 increased compared to 2019. Where there was data available for 2021 for these airports considered in the sample, they further increased their yields. Note that Eurostat data on passengers is currently incomplete for 2021, and therefore may overestimate the 2021 aeronautical revenue yields per passenger.

5.30 The increase in yields is expected from airports, given that the charges levied on airport users are typically formed of not only a per passenger component (which would increase or decrease in tandem with the number of passengers) but also on a movement component, which is levied based on an aircraft movement regardless of the number of passengers on board. Therefore, with lower load factors on board aircraft during the crisis, an increase in the revenue per passenger earned by airports from these charges is an expected consequence.

**Table 5.5: Average aeronautical revenue yield per passenger at selected airports, 2019 – 2021 (nominal)**

Airport/airport operator	2019	2020	2021*
Schiphol Group	€13.18	€14.68	€15.59
Groupe ADP	€17.86	€26.04	€24.53
AENA	€10.73	€13.24	€12.65
Fraport	€9.68	€15.28	€17.66
Zurich	€18.90	€24.94	€21.85
Malta	€9.67	€10.21	N/A
Riga	€5.25	€7.52	N/A
Copenhagen	€10.74	€12.45	€12.72
Eindhoven	€5.13	€5.88	N/A
Billund	€16.82	€28.68	N/A

Source: Steer analysis of airport annual reports, Eurostat data. (\*) Note: data for 2021 on passengers currently incomplete at date of analysis (December 2021) and may overestimate aeronautical revenue yield per passenger for 2021.

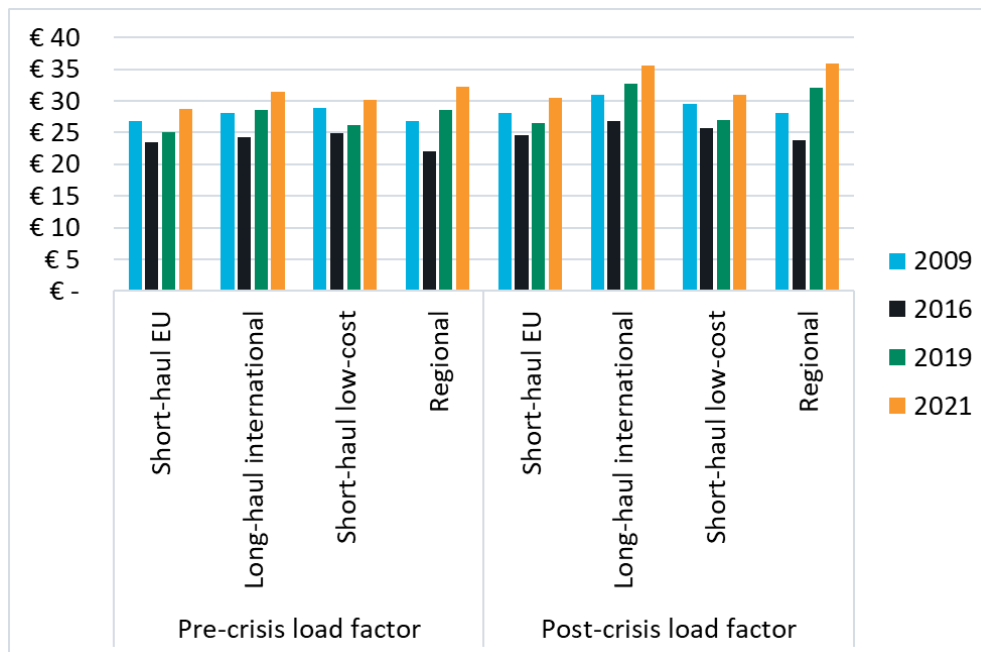
5.31 However, as these numbers are provided at total level, it is not possible to distinguish the extent to which the following factors are driving these changes in yields:

- Changes in passenger types, Origin-Destination passenger charges are generally higher than connecting passenger charges;
- Lower load factors will result in higher average yield per passenger; and
- Increases in cargo only flights with no passengers would also impact these figures.

<sup>83</sup> Aeronautical revenues include charges related to both aircraft movements (landing and parking charges – charged per movement and sometimes with variability based on aircraft MTOW and noise) as well as passenger charges (charge per passenger, sometimes with variability depending on passenger type (OD/connecting) and destination).

- 5.32 We have considered differences pre and post pandemic in an average airport charge per passenger. Current and past airport charges for four different operational scenarios<sup>84</sup> were calculated, enabling a comparison between pre-crisis and post-crisis published airport charges (note that the scenarios are the same as those used in the support study to the ex-post evaluation of the Airport Charges for consistency). Additionally, the same four scenarios were replicated but with lower load factors to reflect the operational environment experienced during the crisis. What has not been modelled here is the choice made by some airlines to fly smaller aircraft on a given route during the pandemic. We examined two airports with different characteristics: Amsterdam and Bucharest.
- 5.33 We see that Amsterdam-Schiphol increased its charges during the crisis for all four scenarios. This is shown in Figure 5.5 below. Keeping load factors constant at pre-crisis levels, between 2019 and 2021 airport charges rose by 15%, 10%, 15%, and 13% respectively for the four scenarios.

Figure 5.5: Airport charges per passenger, Amsterdam airport, 2009-2021 (nominal)



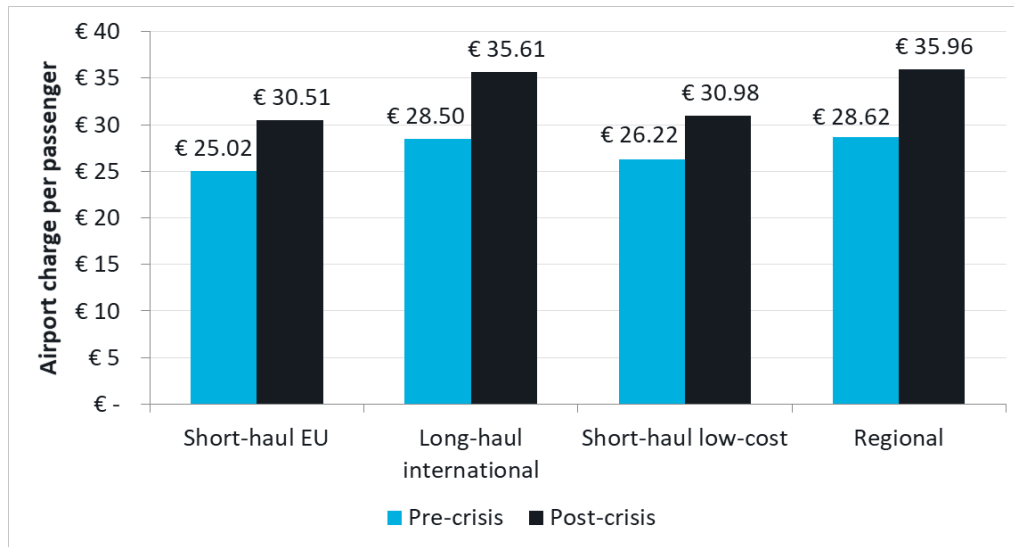
Source: Steer analysis of IATA Charges manual

- 5.34 The pre-crisis charges and load factors and post-crisis charges and load factors are shown in Figure 5.6, indicating the increase in cost per passenger taking into account both different charges and lower load factors. The analysis of charges shows that charges per passenger post-crisis have risen by 22%, 25%, 19%, and 26% respectively for the four scenarios compared to 2019. It is expected that should load factors increase, the cost per passenger will decrease,

<sup>84</sup> Scenario 1: Short-haul intra-EU flight, Airbus A320-200, MTOW 74 tonnes, landing 07:30, parking 45 minutes, connected handling, 92% load factor. Scenario 2: long-haul international flight, Boeing 777-200, MTOW 247 tonnes, landing 05:00, parking 225 minutes, connected handling, 93% load factor. Scenario 3: short-haul intra-EU flight, Boeing 737-800, MTOW 79.01 tonnes, landing 10:00, parking 25 minutes, disconnected handling, 90% load factor. Scenario 4: regional/domestic flight, De Havilland DHC-8, MTOW 27.33 tonnes, landing 07:30, parking 35 minutes, connected handling, 73% load factor. All post-crisis load factors assumed 60%.

as charges based on factors other than passenger numbers (i.e. landing charges based on MTOW) will be spread over a greater number of passengers.

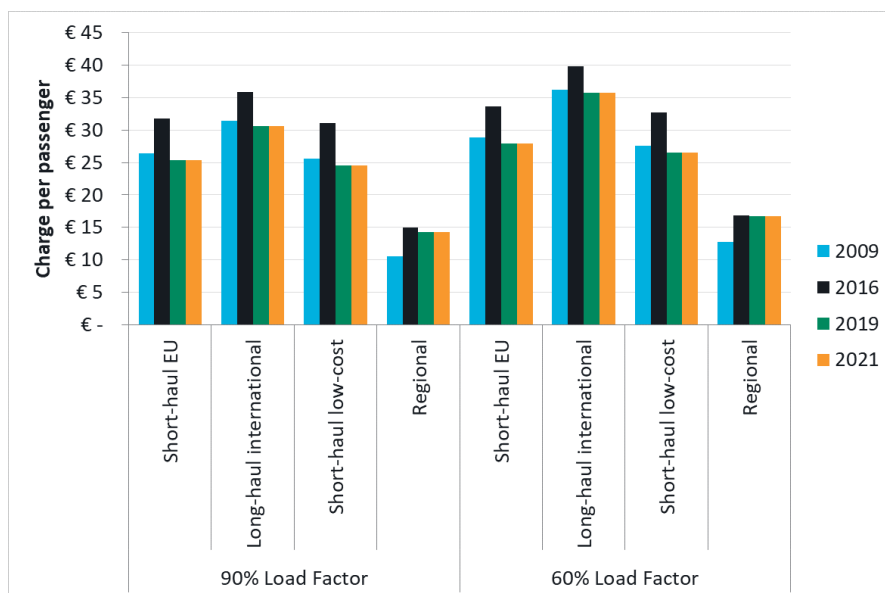
**Figure 5.6: Amsterdam airport charges per passenger, pre/post-crisis (nominal)**



Source: Steer analysis of IATA Charges manual

5.35 Analysis of Bucharest airport (OTP) reveals a different response to the crisis. Figure 5.7 below outlines how the airport has changed its charges over time, including pre-crisis in 2019 and post-crisis in 2021. We observe that Bucharest airport maintained its published charges from 2019 into the crisis and has not appeared to deviate based on analysis of IATA data and the airport website. This reflects a strategy different to that of Amsterdam airport; rather than aiming to recover lost revenues during the crisis through higher charges, Bucharest airport has opted to keep its charges constant to avoid potentially setting prices that would be uncompetitive with rival airports and lose market share.

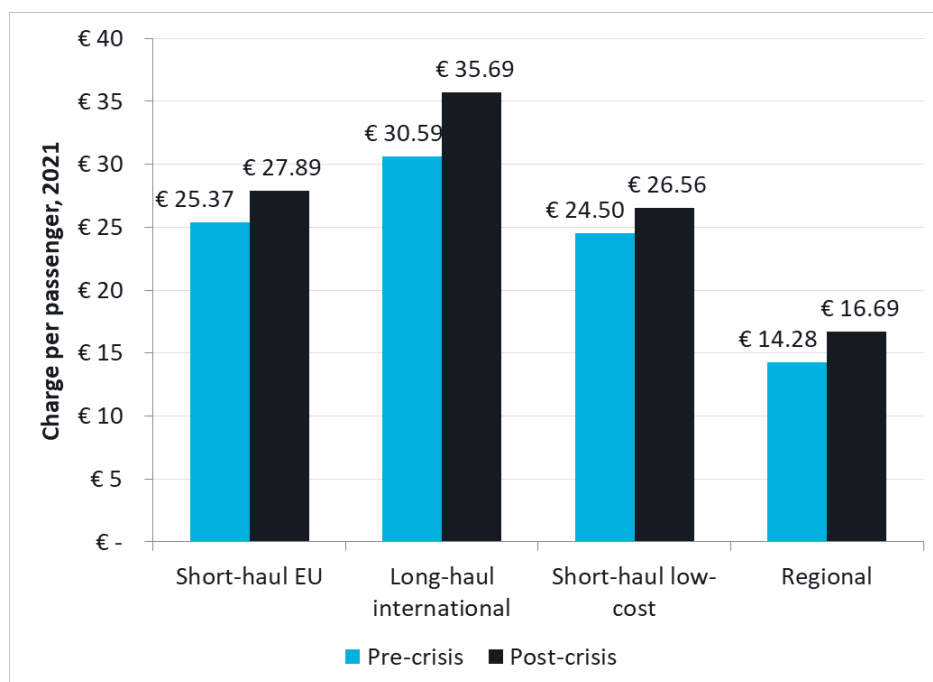
**Figure 5.7: Bucharest airport charges per passenger, 2009-2021 (nominal)**



Source: Steer analysis of IATA Charges manual

5.36 Whilst published charges have remained the same, the effect of lower passenger load factors post-crisis means that the effective charge per passenger increased at the airport, mainly because charges levied per aircraft movement are spread over fewer paying passengers. Figure 5.8 shows how charges per passenger have changed due to these lower load factors pre-crisis and post-crisis. The pre-crisis bars show what the effective charge per passenger in 2021 would be if passenger load factors remained at pre-crisis levels, whilst the post-crisis bars show what the effective charge per passenger in 2021 would be for an assumed 60% load factor.

**Figure 5.8: Bucharest airport charge per passenger, assuming pre/post-crisis load factors (nominal)**



Source: Steer analysis of IATA Charges manual. Note: pre-crisis load factors set out in footnote 84, post-crisis load factors assumed to be 60%.

5.37 Based on this analysis, the effective charge has increased by 10%, 17%, 8% and 17% respectively for each of the four scenarios, which is entirely driven by lower load factors, and indicates that even by maintaining constant published airport charges, the effective charge per passenger for airlines will have increased as a result of lower load factors.

5.38 Analysis of changes to airport charges for selected airports from the beginning of the pandemic in March 2020 to the time of writing (December 2021) indicates a mixed approach by airports. Changes are summarised by airport category below<sup>85</sup>:

- Hub airports we looked at (Frankfurt-Main, Paris-CDG, Madrid-Barajas, Amsterdam-Schiphol) have responded differently:
  - Frankfurt-Main has reduced its passenger service charges by between 25% and 32% for departures. It has increased its passengers with reduced mobility (PRM) charges

<sup>85</sup> Source: Steer analysis (in nominal) of IATA Aviation Charges Intelligence Center. NB: percentage changes rounded to nearest percent.

- by 28% (but this charge is regulated through a different European regulatory mechanism<sup>86</sup> which explicitly requires PRM charges to be cost-related);
- Paris-CDG has increased six charge categories - no increase exceeds 3%, with the exception of the PRM charge of 18%;
- Amsterdam-Schiphol increased charges in security (+1%), passenger service (+8%), parking (+4% in July 2020, further +2% in April 2021), and noise (increase differs by category, with the maximum increase at 26.1%);
- Madrid-Barajas decreased charges for the air bridge (-8%), security (-3%), and passenger service (-3%); though transfer passenger charges increased by (+53%), with increased charges in the use of hangars (+3%), parking (+5%), landing (+3%) and PRM (+6%).
- Low-cost airports (Brussels-Charleroi, Warsaw-Modlin):
  - Brussels-Charleroi increased its parking charges by 1% for based aircraft, but kept other published charges the same; and
  - Warsaw-Modlin did not publish any changes to its airport charges.
- For regional airports examined (Funchal-Madeira Airport, Billund Airport) which are out of scope of the ACD:
  - Madeira airport did not publish changes to its charges during the pandemic; and
  - Billund airport increased its passenger service charges by +27%.
- Other airports examined include Lisbon, Warsaw-Chopin, Stockholm-Arlanda, Riga, and Bucharest-Henri Coanda:
  - Lisbon Airport initially increased passenger service charges for origin and destination passengers by +3% in March 2020, but subsequently reduced these charges by -1% in May 2020. Landing charges, hangar use and parking charges increased by +2%, whilst PRM charges increased by +10%. Note in the case of Lisbon airport the charge increases are driven by the terms of the concession agreement in place between the Government of Portugal and the concessionaire.
  - Warsaw-Chopin increased its PRM charges by 27%; and
  - Stockholm-Arlanda, Riga, and Bucharest did not publish changes to their airport charges during the pandemic.

5.39 Both ACI-Europe and the airline representatives have confirmed that many airports (around 2/3 of all airports according to ACI-Europe) offered new incentives or “re-start” support that lowered effective charges, and offered free or rebated long-term parking fees. Some airports revoked their incentive programs (such as Fraport) presumably because they did not incentivise anymore the type of traffic, they wanted pre-pandemic (such as traffic off-peak or to new destinations). At Frankfurt, Ryanair closed its base in March 2022 due to increasing charge levels. They would have previously been able to benefit from Frankfurt’s incentive scheme for new carriers, which became unavailable. Budapest also observed that the pandemic had further increased competition between airports for airline clients and based on that and airline demands, it re-introduced an incentive recovery scheme.

5.40 It was also reported by stakeholders that non-regulated charges (such as centralised infrastructure) were increasing at a faster rate than regulated ones (but this was not analysed by Steer). This was the case for the PRM charge which is under National Enforcement Body

---

<sup>86</sup> Regulation (EC) 1107/2006, <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32006R1107>

oversight as per Regulation (EU) 1107/2006 under a direct cost-recovery mechanism usually based on passenger levels.

- 5.41 In summary, we see that in 2020-21 many European airports have either frozen charges, postponed increases or offered incentives such as rebates. However, with lower load factors on board aircraft, any charges levied per aircraft movement increased the de facto charge per passenger as charges were spread over fewer paying passengers, even when published charges did not change. We did not observe any major airport charges increases in Europe in the immediate aftermath of the crisis, but some airports have already published future plans for large increases as detailed below.

### **Airport pricing policies from 2022**

- 5.42 Going forward, some airports have already outlined plans for changes to airport charges in the coming years. What is presented below utilises the results of desk research and stakeholder responses. Note that as explained above, airports' pricing of charges needs to fulfil the requirements of the Airport Charges Directive which depending on the Member State imposes various forms of economic regulation as well as the principle of cost-relatedness of charges.

- Amsterdam Schiphol would like to raise its charges by a cumulative 37% by 2024, with increases of 9%, 12% and 12% in 2022, 2023 and 2024 respectively. A key element to the changes includes incentives to use sustainable aviation fuel (SAF): airlines would receive €500 for every ton of biofuel and €1,000 for every ton of synthetic fuel used during refuelling at the airport. Additional charge increases include a levy of €4 per kilogram of nitrogen emitted during take-off and landing, charges for noisy and polluting flights, and a higher charge for night-time movements<sup>87</sup>. The Dutch ISA is expecting push-back from the airlines on charge increases proposals.
- However, not all major European airports have changed or plan to change airport prices: the Spanish government approved an investment plan for airports between 2022-2026, including a freeze on the tariffs charged by AENA, the airport's operator. The government stated that such plans will keep AENA's tariffs competitive and attract new companies to the industry<sup>88</sup>.
- In Vienna, the long-term index formula was suspended as of 1 January 2022 until latest end of 2026. This means that in the interval, charges will be adopted by CPI before returning to formula, so a stable level is guaranteed.
- Other airports may wish to offer lower fees to drive passenger growth in the coming years. In 2022, Sofia Airport is offering large reductions in charges, including discounts of 99% for new intercontinental routes, 80% for new European routes, 60% for new seasonal routes, and progressive discounts of 5%, 10% and 15% for movement levels above 70%, 80% and 90% of 2019 movement levels respectively<sup>89</sup>.
- Downward pressure on secondary airport charges from LCCs is already being applied by airlines including Ryanair, easyJet and Wizz Air, all of which have indicated through media comments the importance of airport charges in their business model<sup>90</sup>. The nature of LCCs

<sup>87</sup> <https://www.airport-technology.com/news/schiphol-airport-charges/>

<sup>88</sup> <https://www.reuters.com/article/spain-airports-infrastructure-idUSL1N2QU1DK>

<sup>89</sup> [https://www.sofia-airport.bg/sites/default/files/sofia-airport-charges\\_2022\\_en.pdf](https://www.sofia-airport.bg/sites/default/files/sofia-airport-charges_2022_en.pdf)

<sup>90</sup> <https://www.ft.com/content/a1374141-97c6-4162-88d4-a5240f49c8a0>

business model means that airport charges are a larger proportion of total costs compared to full-service carriers, hence it may be of greater focus for LCCs to seek to negotiate cheaper airport charges. Ryanair cited the competitive airport charges as one main reason to agreeing to launch new bases at Riga and Madeira airports and expanding its route network to Venice.

- Sweden has taken a different approach to other countries, with plans to impose airport charges based on the greenhouse gas emissions from aircraft. Newer, more efficient aircraft and the use of biofuels will result in lower charges; older and more polluting aircraft will incur higher airport charges. The Swedish government plans to allow airports and airlines to agree on the system themselves but is prepared to regulate if necessary<sup>91</sup>.

5.43 Going forward, those airports that seek to incentivise a return in traffic and encourage airlines to use them may wish to freeze or lower charges, including by offering discounts. This would be more likely to be the case of smaller airports which have not yet benefitted from the return of traffic.

5.44 Other airports, particularly larger ones with substantial investment needs may consider raising their charges. However, in doing so, there will be different approaches considered by airports, as their national regulatory provisions are quite distinct albeit all under the Airport Charges Directive:

5.45 Some airports are located in Member States where only “moderate” charge increases can be considered (France) or where loss recovery is not allowed (Germany);

- Some airports operate under a legal or contractual arrangement on charges (such as in Vienna); and
- Some airports charges are also regulated by concession contract terms, such as in Cyprus (where charges should increase by CPI), Portugal or at Budapest.

## Impact on quality of service

### How has the COVID-19 affected the quality standards offered by airports to airlines?

5.46 As there is no adequate and comprehensive source of information regarding quality of service publicly available, we rely on responses from stakeholder consultation. Note that responses related to capacity declarations in relations to slots are covered in the Slot section (Chapter 8).

5.47 Some ISAs (Italy and Ireland) suspended service quality recording during the pandemic as airports faced significant changes to their operations (terminal closures, health/sanitary checks). They also explained that many of the metrics used to assess quality of service were no longer measurable due to social distancing requirements. There were also measurement problems related to sample size for the survey measures. In terms of the level of quality delivered the Irish ISA noted that:

- The airports performance in relation to waiting times for passengers requiring additional assistance was below the targets during 2020.
- However, for security queueing times, the airport has not been adapting well to the recovery of traffic since July, with there being a large increase in the number of incidents of queue times exceeding the targets.

<sup>91</sup> <https://www.reuters.com/article/us-sweden-environment-airlines-idUSKBN2BE2CE>



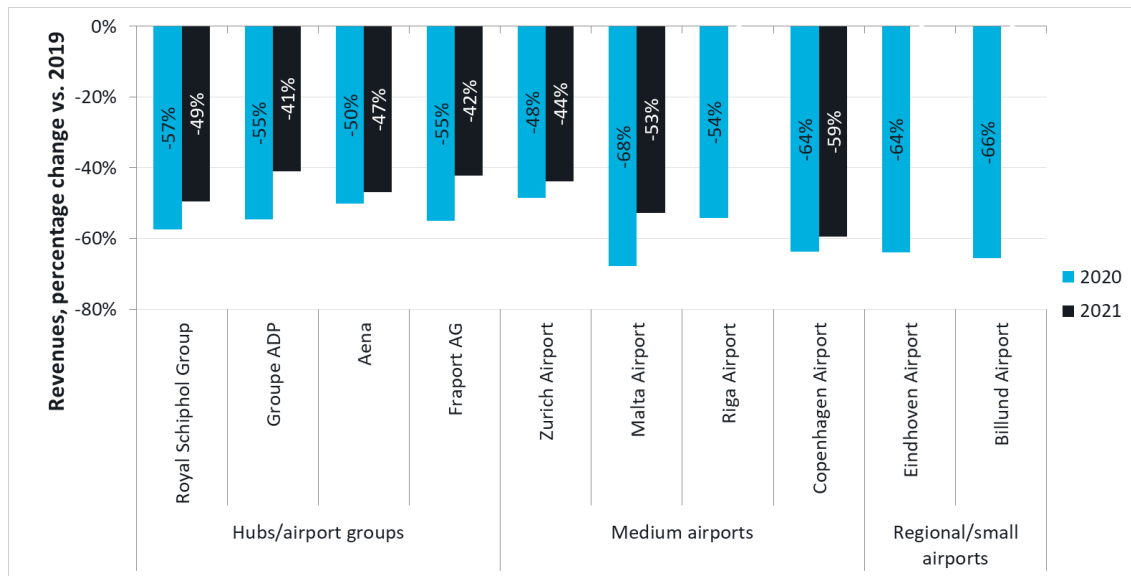
- 5.48 However, the Dutch and the Belgian ISA did not notice changes in quality of service and reported that it was as pre-pandemic. The Portuguese ISA agreed that overall quality was as before but explained that there were occasional situations of deterioration in the quality of service in some airport subsystems, mainly due to lack of personnel.
- 5.49 Airports and airlines views on quality of service delivered diverged, with airports generally reported no significant impact in service quality that they delivered directly (that is excluding processes delivered by others such as immigration or check-in) whereas airlines reported on the whole passenger and airline experience, regardless of the party in charge. Overall both stakeholder groups agreed that there were some delays caused by additional and complex health and sanitary checks and/or that in peak times such as over the summer of 2021, check-in increased up to 3 times (up to +90 minutes). In Berlin, at the worst time, passengers were advised to be at the airport up to 6 hours ahead of the scheduled departure time.
- 5.50 Airports also reported that there had been a significant negative impact on the service quality concerning non-aeronautical services that have been provided before the pandemic arising from commercial closures, reduced service times, prohibition of in-restaurant eating, availability of staff due to short-term work/staff reduction etc. This has been especially problematic in the first few months of the pandemic.
- 5.51 Airports reported that there was an increased perception of service quality by traveling passengers as there were fewer passengers in terminals, despite social distancing measures. They also noted that direct passenger volume-related service levels like waiting times or cleanliness are back to pre-pandemic levels, but that passenger structures have changed and does not always allow a pre/post pandemic comparison.
- 5.52 In some cases, changes in quality have an impact on airport charges. This is for instance the case at Dublin airport which got an exemption for service quality requirements from its ISA in 2020-21 that would have otherwise resulted in decreases to the price cap if applied.

## Financial impacts of the pandemic

### Airport revenues

5.53 The airport sector suffered a significant decline in revenues at the outset of the pandemic. Figure 5.9 shows how revenues for airports have evolved in 2020 and 2021 relative to 2019 levels.

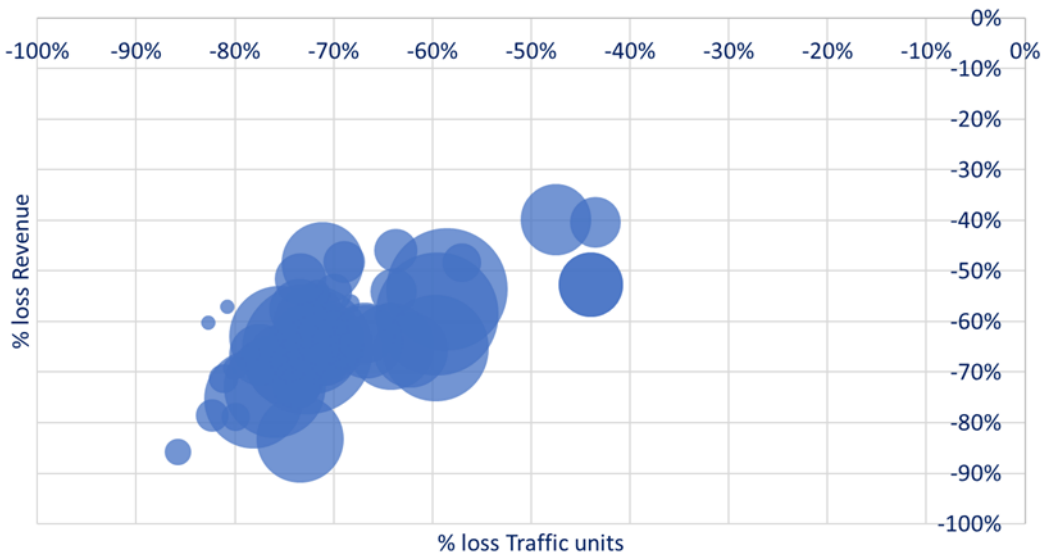
Figure 5.9: Airport revenues, percentage of 2019 levels



Source: Steer analysis of airport annual reports

5.54 All of the airports studied suffered a significant decline in revenues in 2020, ranging from a -48% decline at Zurich Airport to a -66% decline at Billund Airport. Of the airports with data for 2021, revenues have recovered slightly on 2019 levels, ranging between -41% for Groupe ADP to -59% at Copenhagen Airport. Whilst the revenues of airports improved in 2021, there is still a significant shortfall to the revenues earned in 2019. No identifiable trends between different airport types (intercontinental hub, hub, regional) can be established, as all airports appear to have followed a similar profile in terms of revenue reductions. This was discussed with ACI-Europe which explained that there is no correlation between airport size and revenue loss, but rather that the main factor determining the revenue loss was the stringency of national travel restrictions.

Figure 5.10: Top 50 European airports, loss revenue versus loss in traffic, 2020 vs. 2019



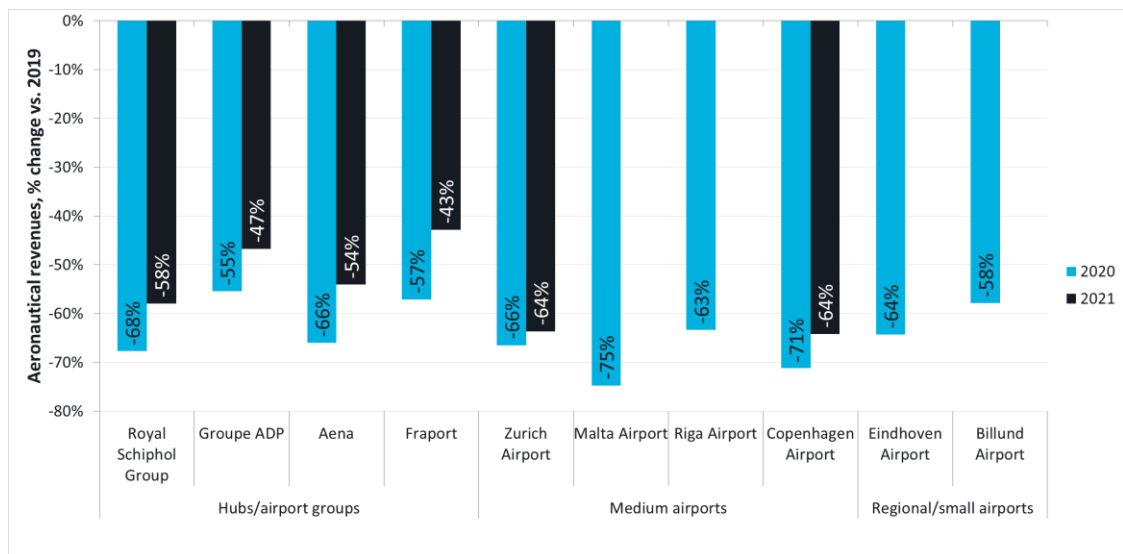
Source: ACI-Europe analysis. Note that the airports considered in the analysis had more than 2 million passengers in 2019

What is the impact of the pandemic on the aeronautical and non-aeronautical sources of revenue for airports? What are the future trends? Which types of revenue will recover faster?

*Impact on revenue streams*

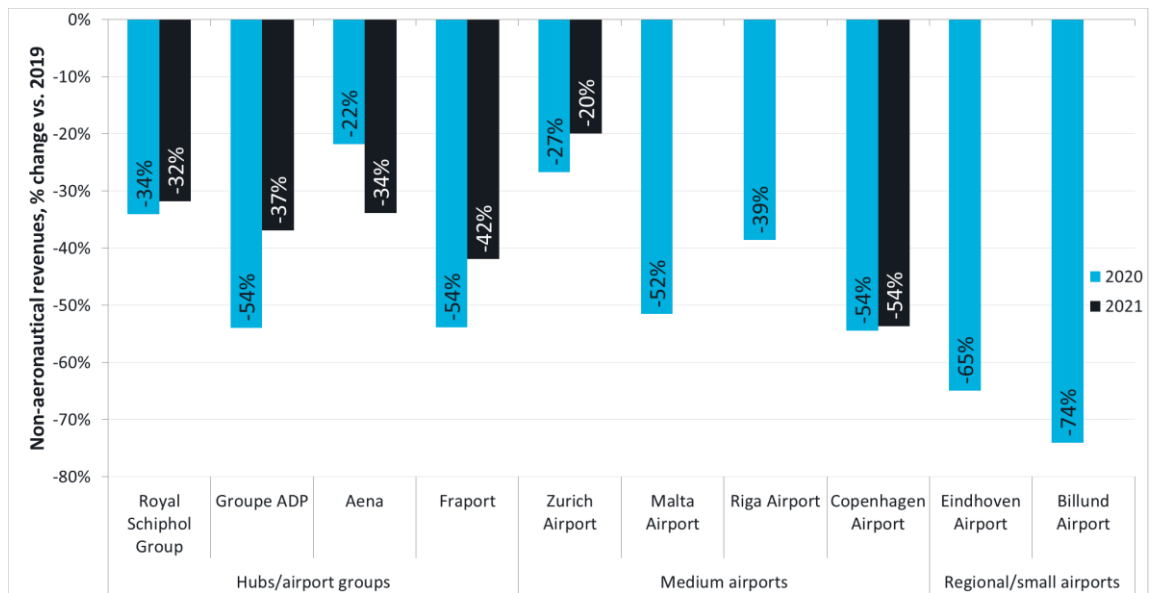
5.55 Steer analysis of selected airports indicates that aeronautical revenues have declined relative to non-aeronautical revenue streams. This is particularly the case for airports where aeronautical revenues were a large proportion of total revenues prior to the pandemic. Figure 5.11 and Figure 5.12 show that whilst both revenue streams were significantly impacted by the pandemic, aeronautical revenues have been proportionally more impacted than non-aeronautical revenues.

Figure 5.11: Aeronautical revenues of selected airports, percentage change vs. 2019



Source: Steer analysis of airport annual reports

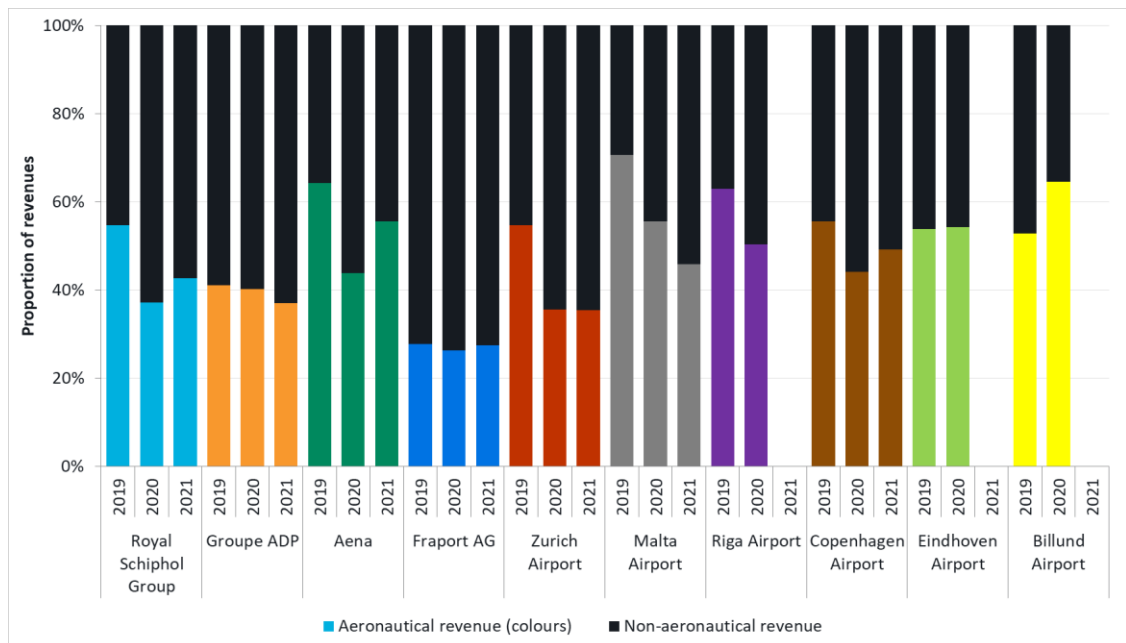
Figure 5.12: Non-aeronautical revenues, percentage change vs. 2019



Source: Steer analysis of airport annual reports

5.56 Figure 5.13 demonstrates the decrease in aeronautical revenues compared to non-aeronautical revenue: we see that both AENA and Malta Airport have seen a significant decline in the proportion of revenues derived from aeronautical sources, whilst Fraport and Groupe ADP have seen much smaller changes in the proportion of revenues derived from each source, partially because traffic remained stronger at key hub airports than at smaller airports such as Malta, and partially for other reasons described further below.

Figure 5.13: Aeronautical/non-aeronautical revenue split



Source: Steer analysis of airport annual reports

5.57 In order to explain what Figure 5.13 shows, it is important to consider that aeronautical revenues are traffic dependent (based on passengers, cargo or flights): if there is no traffic,

there are no revenues to be collected. On the other hand, non-aeronautical revenues come from a variety of sources, depending on the airport business model. Most of these revenue streams are also passenger traffic dependent such as food and beverage, retail or car parking. If the airport manages these activities itself (as is often the case for car parking), no passenger traffic means no revenue. However, where the airport has used concessions for these activities (as is commonly the case for food and beverage), then it is likely that concession contracts would include rent payments or minimal annual guarantees tied to historic passenger numbers, which potentially will derive some revenues irrespective of traffic levels (however we understand many airports waived such rights during times of no or limited traffic activity).

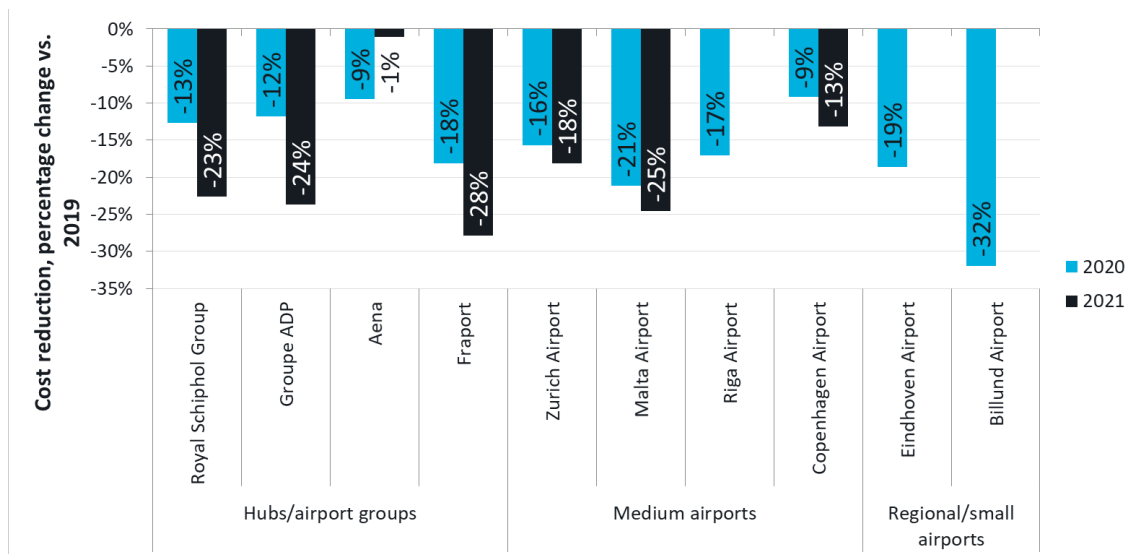
5.58 In addition, other non-aeronautical sources of revenues are less traffic dependent: for instance, many airports have developed real estate streams with offices, hotels or businesses located on airport land. Whilst these businesses have also sometimes been significantly affected by the pandemic, there may have been limited opportunities for them to defer contractual payments to airports. Advertising revenues are linked to passenger footfall but rely on contracts that may have been negotiated pre-pandemic, based on historic traffic numbers. This explains why aeronautical revenues have been more affected in the short-term by the decrease in traffic than non-aeronautical revenues.

5.59 In addition, it should also be considered that while airports have tried to lower their costs as much as possible by reducing the cost of major contracts (car park management, maintenance or cleaning), most of their suppliers also tried to obtain better terms (such as extending concession length) or holiday payment/deferral of MAG payments from airports.

**Airport operating expenses**

5.60 Figure 5.14 shows how airports reduced their operating costs on 2019 levels in response to the crisis. From the data, the cost reductions in 2020 were limited for airports studied, ranging from a change on 2019 levels of -9% for AENA to -32% for Billund Airport. However, by 2021, many of the airports with available data indicate that further cost savings were made relative to 2019 levels. Of the airports with data available, 6 of 7 reduced operating costs to a greater extent in 2021 compared to 2020, whilst AENA increased its costs to 1% lower than 2019 levels.

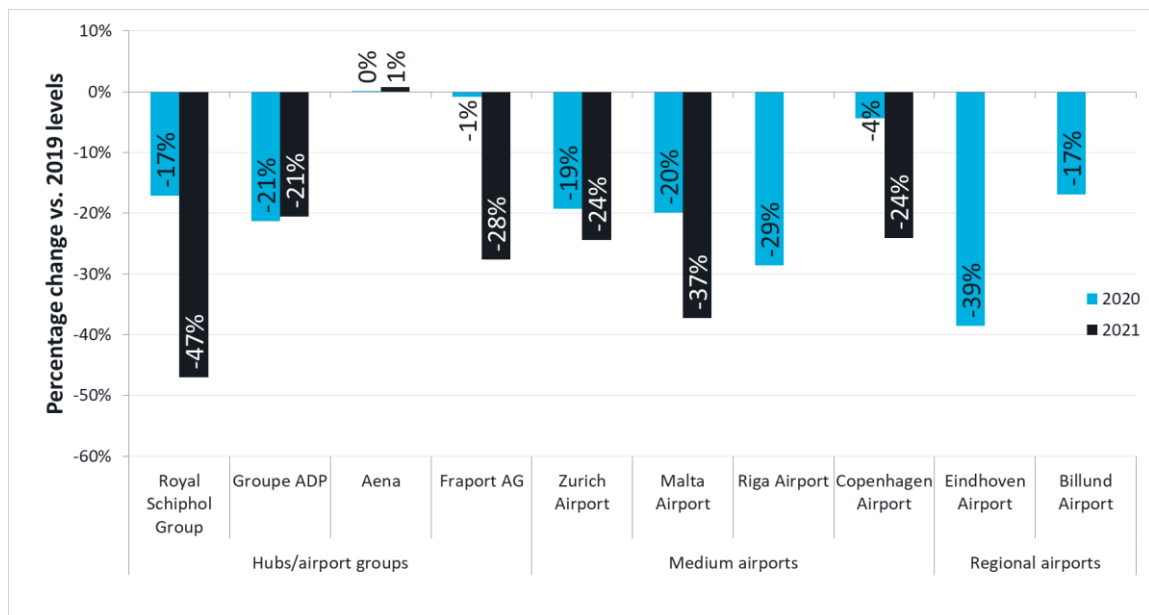
**Figure 5.14: Airport cost reductions, percentage change vs. 2019**



Source: Steer analysis of airport annual reports

5.61 Figure 5.15 outlines how staff costs have changed during the crisis compared to pre-crisis levels. We see that the majority of airports studied reduced their staff costs in 2020 and 2021, typically achieved through the use of wage subsidies, furlough, short-time work, and job losses (discussed further in Chapter 7). The notable exception is AENA, whose staff costs have remained relatively stable throughout the crisis; AENA did not use wage subsidies and did not use furlough schemes specifically due to the crisis. This offers some explanation why AENA’s opex declined by a smaller percentage compared to other operators in 2020 and 2021. Royal Schiphol Group recorded a large decline in staff costs in 2021 due to restructuring, which led to a large payment of termination and unemployment benefits in 2020 which reduced in 2021.

Figure 5.15: Change in staff costs for airports, percentage change vs. 2019 levels



Source: Steer analysis of airport annual reports

5.62 Table 5.6 presents a comparison of airport revenue and operating cost reductions between 2019 and 2020/2021, together with the proportion of lost revenues recovered through operating cost reductions. These ratios are lower than those for airlines as airports have a far smaller variable cost component (24% average for airports studied). This means that in a crisis, airports have fewer levers in the short-term to reduce their costs than airlines. In the medium-term, airports may be able to address staff costs, which tends to be its largest operational cost component. However changes in staff numbers will impact capability and how airports can cope with the recovery period from COVID-19.

**Table 5.6: Comparison of airport revenue and operating cost changes (2019 vs 2020/2021)**

Airport	2020			2021		
	Revenues	Total opex	Percentage of lost revenue recovered through opex reductions <sup>92</sup>	Revenues	Total opex	Percentage of lost revenue recovered through opex reductions <sup>93</sup>
Schiphol	-57%	-13%	18%	-49%	-23%	38%
ADP	-55%	-12%	17%	-41%	-24%	47%
AENA	-50%	-9%	11%	-47%	-1%	1%
Fraport	-55%	-18%	27%	-42%	-28%	55%
Zurich	-48%	-16%	22%	-44%	-18%	28%
Malta	-68%	-21%	14%	-53%	-25%	21%
Riga	-54%	-17%	31%	N/A	N/A	N/A
Copenhagen	-64%	-9%	10%	-59%	-13%	15%
Eindhoven	-64%	-19%	20%	N/A	N/A	N/A
Billund	-66%	-32%	43%	N/A	N/A	N/A

Source: Steer analysis of airport annual reports

5.63 In terms of what operating costs airports were able to reduce, the French Audit Office published a report<sup>94</sup> in 2022 which shows what a sample of 10 French airports (including AdP, Nice, Lyon, Marseille, Toulouse, Bordeaux, Strasbourg Montpellier and 2 airports in the French Caribbean) acted on in 2020. The auditors reported that these combined actions made it possible to reduce operating expenses excluding depreciation by 27.5% in average, and that comparatively, the additional costs associated with health protection measures were marginal. The actions of airports focussed on:

- Decrease in costs linked to the decrease in traffic (30% of the cost-savings);
- Negotiation with suppliers (22% of the cost-savings);
- Closure of infrastructure (20% of the cost-savings);
- Reduced employment costs, *chômage partiel* (18% of cost savings); and
- Various savings (10%);

#### Liquidity

5.64 As traffic declined in early 2020, airports were faced with significantly reduced revenues in a very short period of time. As a result, and with the potential for liquidity constraints arising with challenges in reducing operating expenses, many airports undertook liquidity

<sup>92</sup> This is calculated by comparing the cost reductions achieved to the reductions in revenues experienced by airlines and airports. A figure of 100% would indicate that the airline has managed to reduce its operating costs in proportion to its loss in revenues in the same period.

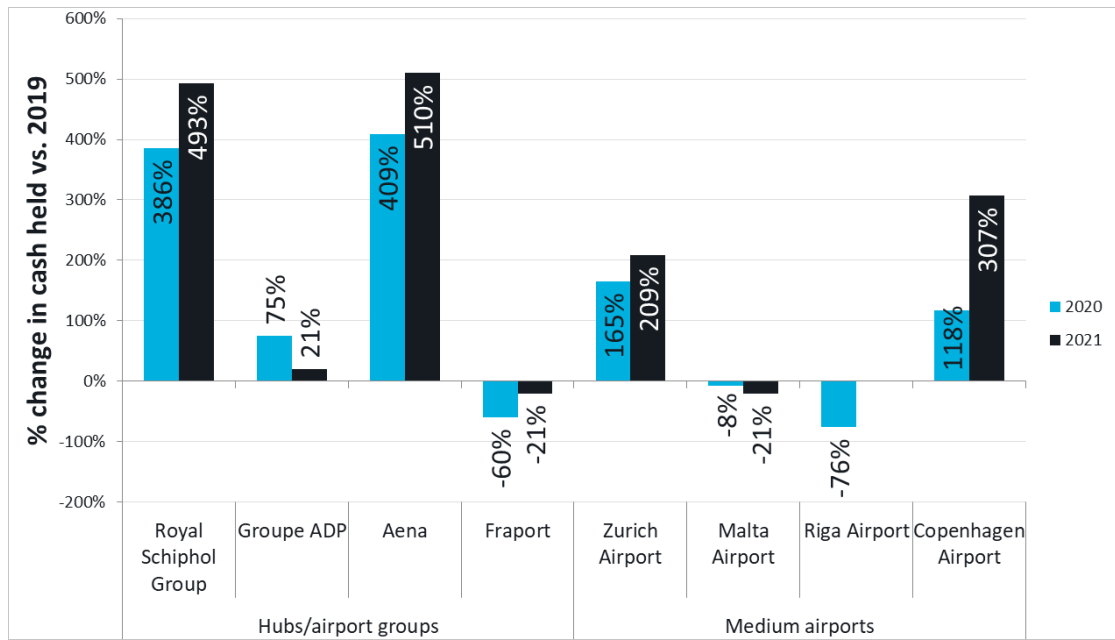
<sup>93</sup> This is calculated by comparing the cost reductions achieved to the reductions in revenues experienced by airlines and airports. A figure of 100% would indicate that the airline has managed to reduce its operating costs in proportion to its loss in revenues in the same period.

<sup>94</sup> <https://www.ccomptes.fr/sites/default/files/2022-02/20220216-RPA-12-grands-aeroports-fran--ais.pdf>



preservation measures to respond to the impact of the pandemic. Figure 5.16 demonstrates this for selected airports, with five of the eight airports included in the figure increasing their cash held significantly. It is worth noting that large percentage changes can arise when the initial levels of cash held were small in absolute terms; for this reason, Billund Airport is not presented in the chart below, as the airport increased its cash held by 3,458% from €4m in 2019 to €153m in 2020, primarily driven by new loans and reduced capital expenditure. Eindhoven Airport is excluded from the liquidity analysis as no data on cash flow is available.

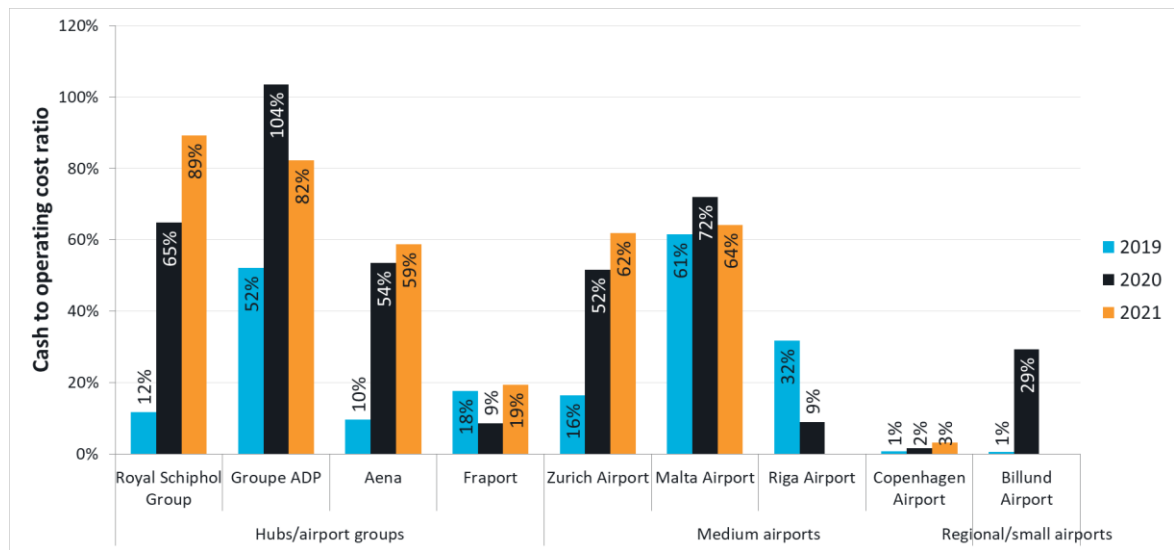
**Figure 5.16: Cash held by airports, percentage change vs. 2019**



Source: Steer analysis of airport annual reports

5.65 A more representative measure of liquidity is the impact on the cash to operating cost ratio, outlining the proportion of operating costs that can be covered by the cash held by the airport. In 2020, seven of the nine airports considered increased their cash to operating cost ratio relative to 2019; for 2021, all seven of the airports with data available have increased their cash to operating cost ratio relative to 2019. This measure combines the analysis on reduced operating costs and cash held to demonstrate that airports have in general responded to the reduced revenues experienced in 2020 and 2021 by increasing the proportion of cash held to operating expenses.

Figure 5.17: Airport cash to operating cost ratio, 2019 - 2021

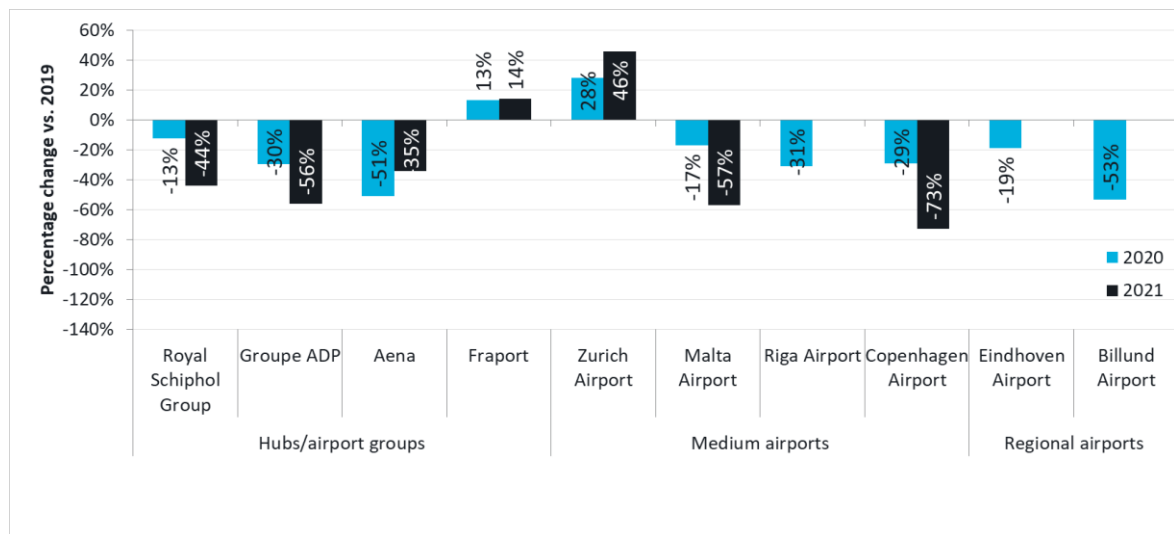


Source: Steer analysis of airport annual reports

### Capital expenditure

- 5.66 The uncertainty caused by the pandemic led most airports to postpone their planned capital expenditure programmes, where works were not too advanced (as was the case at Frankfurt, Munich and Zurich airports).

Figure 5.18: Airports' capital expenditure, percentage change vs. 2019



Source: Steer analysis of airport annual reports

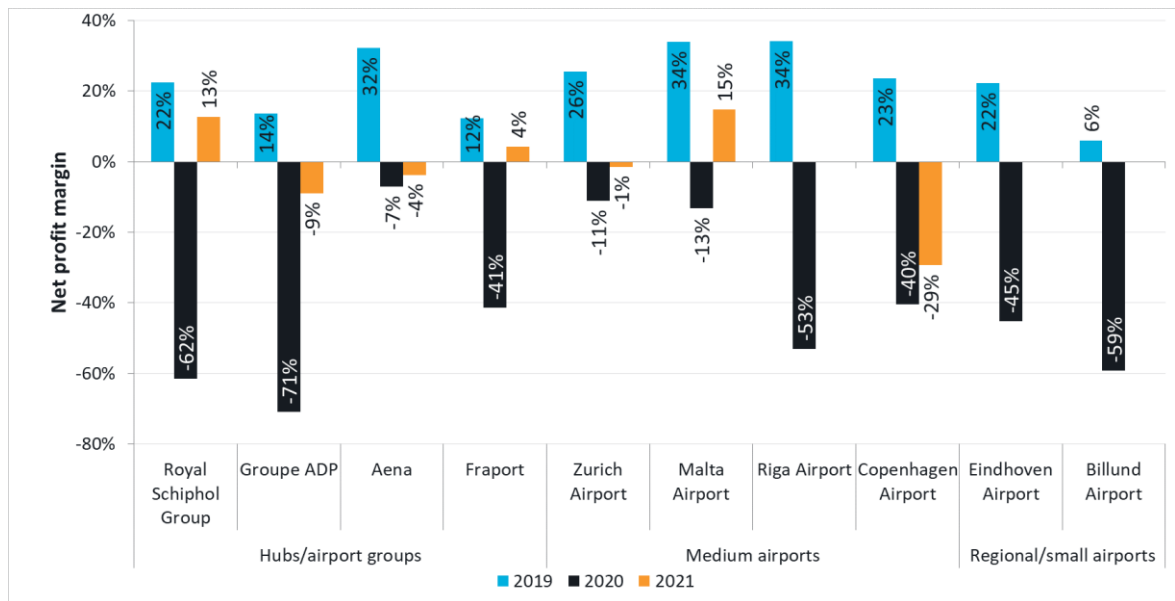
- 5.67 The Spanish National Commission of Markets and Competition (CNMC) commented for AENA that it is not aware that AENA has liquidity problems and that they did not foresee problems to finance planned investments.
- 5.68 There will be pressure for postponed capital expenditure programmes to go ahead in the coming years when traffic returns beyond 2019 levels to growth. However, airports capacity to fund capital expenditure through cash flows will be influenced by the level of borrowing capacity remaining and operating surplus created. Many airports may be liquidity constrained,

if they are highly geared and the operating cash surplus needs to be focused on repayment of existing debt rather than on funding additional capital expenditure.

**Profitability**

5.69 Airports reported significant losses in 2020, with net profit margins ranging between -7% for AENA to -62% for Royal Schiphol Group. By 2021, results indicate that airports have rebounded somewhat, but the response has been mixed between airports. Of the seven airports with data available for 2021, three have already returned to profitability (Schiphol, Fraport and Malta airport), whilst the remaining four posted a loss for 2021, albeit to a lesser extent than 2020. The recovery from the crisis is, therefore, mixed in 2021 to date (but maybe further affected by the rise of the Omicron variant).

**Figure 5.19: Airport net profit margins, 2019-2021**



Source: Steer analysis of airport annual reports

5.70 The French Audit Office report stated that the cost reductions implemented by the French airports “made it possible to maintain surpluses in 2020: the gross operating margin (before depreciation) of these airports has certainly fallen by 29 percentage points in one year but it has remained positive, at 14%”. It also explained that intermediate-sized airports (between 8 and 14 million passengers) are those who resisted the best (loss limited to 21 percentage points). They were better able to close airport infrastructure with domino effects on all of the associated costs, which the smaller airports have not been able to do.

5.71 On the airports overall financial situation, stakeholders responded that:

- ART, the French ISA, explained that “different airports may be in different situations but no proven unsustainable situation to date”.

What is the impact of the pandemic on cross-subsidisation between airports belonging to the same airport network or operating under common ownership?

5.72 During the crisis, we observe that airport groups with diversified activities (including real estate or international activities) have benefitted from their diversification strategy. Table 5.7 below indicates how the financial performance of the aviation segment within airport group

financial reports have lagged behind the overall group performance. This demonstrates two facts: firstly, the diversification strategy of airport groups helps to reduce the negative impact on airports of the crisis; and secondly, that airport operations remain impacted by the crisis more than the overall group figures would suggest.

**Table 5.7: Financial performance of airports groups and the aviation segment of groups, percentage change vs. 2019**

Category	Year	Royal Schiphol Group		Groupe ADP		Fraport	
		Aviation	Group	Aviation	Group	Aviation	Group
Revenues	2020	-67%	-57%	-55%	-55%	-57%	-55%
	2021	-58%	-49%	-47%	-41%	-43%	-42%
EBITDA	2020	-257%	-130%	-120%	-91%	-203%	-121%
	2021	-174%	-78%	-95%	-58%	-41%	-36%
Operating profit margin (p.p. change)	2020	-162%	-102%	-75%	-76%	N/A	N/A
	2021	-85%	-42%	-48%	-24%	N/A	N/A

Source: Steer analysis of airport annual reports

- 5.73 Cross-subsidisation of airports within the same network or group is not a new concept in aviation since the pandemic: for example, Avinor stated in its 2019 annual report that “airport operations are run as a single unit, in which the financially profitable airports finance the financially unprofitable airports”<sup>95</sup>. There are no regulations which prevent airport operators from cross-subsidising airports under their control, for example to set higher charges at large hub airports to subsidise smaller airports. IATA disagrees with cross-subsidisation of airports, stating in 2019 that “airlines and their passengers are paying for facilities and services they do not need, do not use, and from which they do not benefit”<sup>96</sup>.
- 5.74 We expect that cross-subsidisation has continued throughout the pandemic; for example, Avinor reasserted its financial strategy of cross-subsidisation in its 2020 annual report<sup>97</sup>. There is no indication from the stakeholder consultation, or from the annual reports of other airport operators, that cross-subsidisation has changed during the pandemic. However, it should be noted that this is a) unlikely to be a topic that airports would be willing to publicly disclose, given its commercial sensitivity; and b) unlikely to be a topic that airlines would recognise and disclose during the stakeholder consultation process due to the asymmetric information described above.

## Sources of financing

What are the main sources of financing in the sector and what will be their expected availability in the coming years?

How sustainable is the level of debt of the sector?

How will debt service burden impact financial performance?

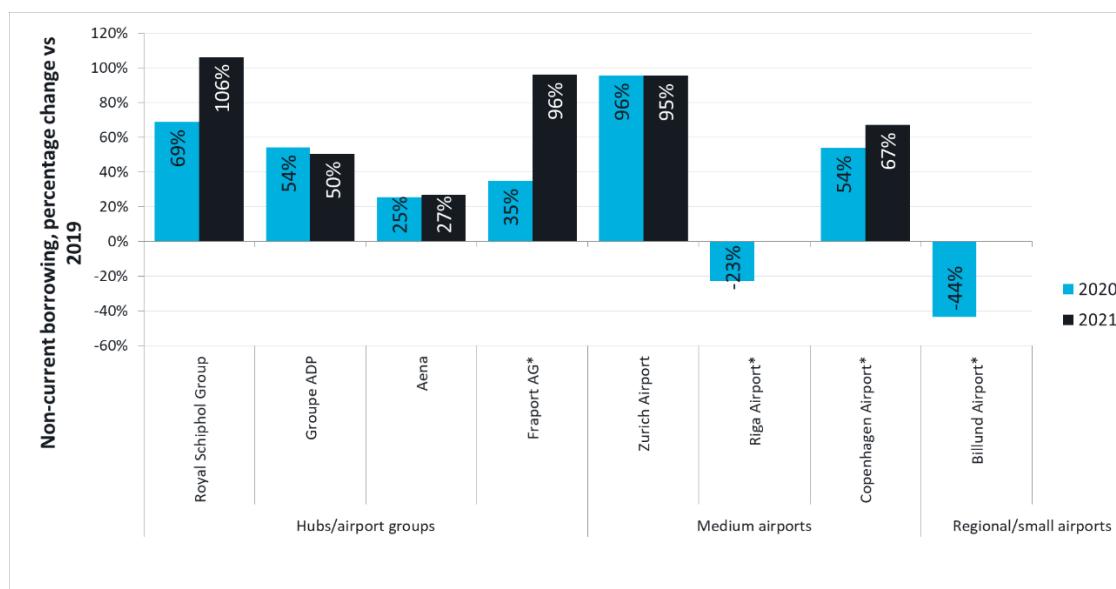
<sup>95</sup> Avinor 2019 annual report, p.6. Available from: [https://avinor.no/globalassets/\\_konsern/om-oss/rapporter/en/avinor-og-norsk-luftfart-2019-en.pdf](https://avinor.no/globalassets/_konsern/om-oss/rapporter/en/avinor-og-norsk-luftfart-2019-en.pdf)

<sup>96</sup> <https://www.iata.org/contentassets/4eae6e82b7b948b58370eb6413bd8d88/cross-subsidization.pdf>

<sup>97</sup> Avinor 2020 annual report, p.55. Available from: [https://avinor.no/globalassets/\\_konsern/om-oss/rapporter/en/avinors-annual-and-sustainability-report-2020.pdf](https://avinor.no/globalassets/_konsern/om-oss/rapporter/en/avinors-annual-and-sustainability-report-2020.pdf)

- 5.75 Seven of nine airports studied, increased their non-current borrowing on 2019 levels in 2020; of the six airports with data available for 2021, all have increased their non-current borrowing on 2019 levels. Billund Airport and Riga Airport have reduced borrowings in 2020 relative to 2019. Eindhoven Airport increased non-current borrowings from zero to €19 million, and so a change from 2019 is not included in Figure 5.20.

Figure 5.20: Non-current borrowing of airports, percentage change vs. 2019



Source: Steer analysis of airport annual reports. (\*) Received State aid

- 5.76 There is insufficient evidence to suggest that borrowing patterns differed between airport sizes. For example, of airport operators who manage large European airports, AENA increased its non-current borrowing by 25% in 2020 relative to 2019 levels, whilst Royal Schiphol Group, ADP and Fraport all increased their borrowings by 69%, 54% and 35% respectively. Instead, the need to borrow was quite often inked to capex programmes being realised and not stopped during the pandemic as was the case at these airports.
- 5.77 On the sustainability of the level of debt, no stakeholders who took part highlighted a concern on the sustainability of their level of debt. Whilst clearly airport debt increased significantly (+23% in 2020 vs 2019 according to ACI-Europe, and for the first half of 2021 compared to first half of 2020, total net debt increased by 99%), responses were cautiously optimistic. However it was noted that increased debt would lead to higher interest payments.
- An airport stated that the amount of debt is reasonable; the debt service cost impact is low in their financial performance and the COVID-19 debt has been raised at very low interest rates;
  - ADR also reported that debt level remains sustainable;
  - Hermes reported that its debt levels are manageable;
  - Swedavia reported that it now has slightly increased prices of interest;
  - Luton airport reported that its debt level is considered stable and sustainable for the foreseeable future;
  - Vienna airport also explained that its current debt level is very low, but that it would increase with investment requirements; and

- Torino airport explained that its level of debt is sustainable and that a minority part of free cash flow will be used to pay debt service costs as interests and fees over the next eight years.

5.78 One reason why airports may believe that debt levels are sustainable is due to maintaining strong credit ratings, indicating that the cost of debt for airports is, in general, lower compared to airlines who have lower credit ratings. Table 5.8 indicates the current credit ratings of selected European airports rated by S&P in September 2021. Of the six airports considered, all but one are classified as “upper medium” albeit with a negative outlook. For AENA, CNMC explained that the downgrade seemed to be a consequence of the expected reduction of the commercial revenues due to changes in the applicable law (see Chapter 6).

**Table 5.8: Credit ratings of selected airports pre/post-crisis**

MS	Company	Pre-crisis rating	Pre-crisis outlook	Post-crisis rating	Post-crisis outlook	Notches downgraded
FR	Aéroports de Paris	A+	Negative	A	Negative	1
IE	DAA	A	Stable	A-	Negative	1
IT	Aeroporti di Roma	BB+	Negative	BBB-	Positive	1
NL	Royal Schiphol Group	A+	Negative	A	Negative	1
NO	Avinor	A+	Negative	A	Negative	1
ES	AENA	A	Stable	A-	Negative	1
CH	Flughafen Zurich	AA-	Negative	A+	Negative	1

Source: Steer analysis of S&P data, CNMC

5.79 We see that whilst airport ratings (for those large airports or airports part of a group displayed in the table above) have been impacted by the pandemic, they have generally been less downgraded than airlines. This allowed the largest airports to obtain finance at some low rates: Fraport issued a bond<sup>98</sup> worth €1.15 billion at an annual yield below 2%, Schiphol issued a €750 million green bond with a 2% yield<sup>99</sup>.

## Outlook to 2030

### Central case

5.80 The projection tool, developed by Steer for this study, allows an outlook of European airport debt adjusted EBITDA to 2030 to be estimated and this has been presented in Figure 5.21.

5.81 The chart below assumes:

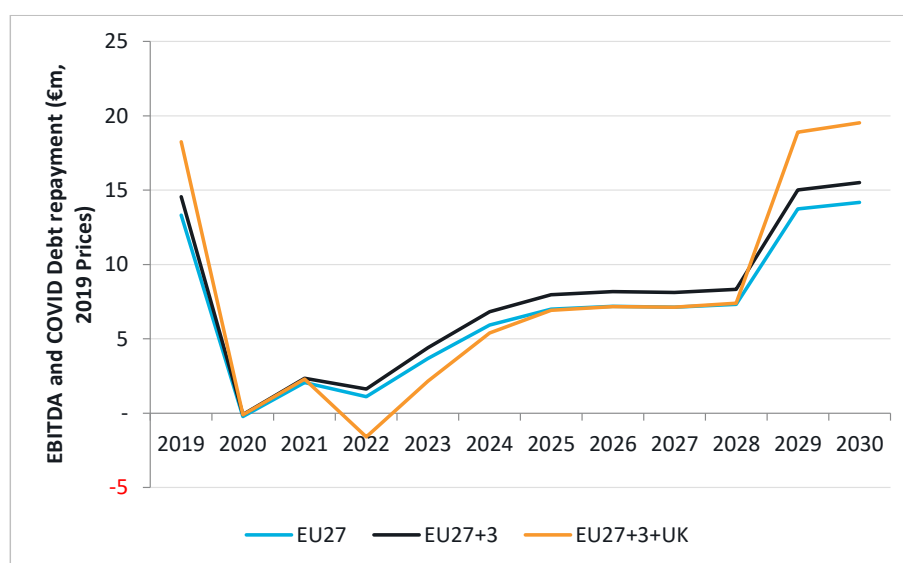
- The central demand recovery scenario and passengers returning to 2019 levels in 2024-2025;
- No changes to average airport charge revenue structures and cost levels;
- Airports start to pay back COVID-19 related debt from 2022 over a seven-year term (to 2028). Additional debt accrued associated with the COVID-19 pandemic has been overlay so that the impact of repayments can be visualised.

<sup>98</sup> <https://www.fraport.com/en/newsroom/press-releases/2021/q1-2021/fraport-successfully-places-bond-issue.html>

<sup>99</sup> <https://news.schiphol.com/schiphol-issues-eur-750-million-of-green-bonds-with-a-tenor-of-9-years/>

- 5.82 It was estimated that European airports (EU27+3) generated an EBITDA of €14.6 billion in 2019 with this figure falling to -€86 million in 2020 and improving slightly to +€2.3 billion in 2021.
- 5.83 In a similar manner to the airline industry, European airports are expected to record positive EBITDA levels in 2022, however the impact of loan repayments (if actioned) will reduce this to an operational surplus (+€1.63/€2.72 per passenger). Due to higher levels of debt accrued at airports in the United Kingdom, debt repayments result in an operational loss in 2022 and a slower recovery of debt adjusted EBITDA.
- 5.84 EBITDA levels are expected to return 2019 levels in 2029 (2026 without the impact of COVID-19 related financing expenditure) with the additional cost of financing to the airport sector estimated to reduce operating surplus by -€45.3 billion over the period 2022-2030.

**Figure 5.21: European airport debt repayment adjusted EBITDA outlook to 2030, € billion, 2019 prices**

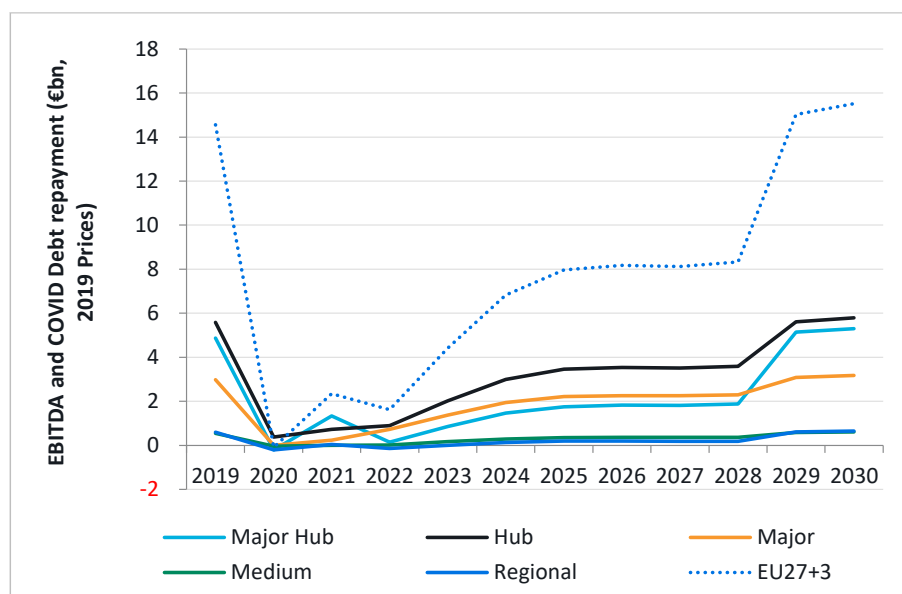


Source: Steer analysis

- 5.85 Figure 5.22 and Table 5.9 below presents differences in airport debt repayment adjusted EBITDA recovery by size category. In totality, regional airports report a small operating loss until 2024, whilst medium sized are expected to operate at a loss until 2023. Major hub revenues have rebounded strongly in 2021, however only represent 33% of 2019 revenues. Major hub EBITDA is impacted significantly by higher levels of borrowing, reducing EBITDA per passenger to levels lower than hub airports until 2029.



Figure 5.22: European airport debt repayment adjusted EBITDA outlook to 2030 (by size), € billion, 2019 prices



Source: Steer analysis

Table 5.9: European airport debt repayment adjusted EBITDA per passenger outlook to 2030 (by size), €, 2019 prices

Airport type	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Major Hub	23.1	-3.8	18.7	0.9	4.7	7.2	8.2	8.4	8.3	8.5	22.7	23.1
Hub	20.4	5.1	8.3	4.7	9.0	11.9	13.1	13.2	12.9	13.0	20.0	20.4
Major	14.6	-0.0	3.2	4.9	7.9	10.1	11.0	11.1	10.9	10.9	14.4	14.7
Medium	13.2	-3.1	-0.3	0.6	4.6	7.3	8.4	8.4	8.2	8.3	12.9	13.2
Regional <sup>100</sup>	6.7	-7.4	1.4	-2.3	-0.0	1.5	2.1	2.2	2.0	2.0	6.4	6.7
EU27+3	17.8	-0.4	8.3	2.8	6.4	8.8	9.8	9.9	9.7	9.8	17.5	17.8

Source: Steer projection tool

5.86 The impact of reduced passenger demand and lower levels of operating surplus per passenger (especially when considering additional debt repayments) will mean that cashflow will remain significantly reduced until 2029 unless measures are taken to increase revenues to offset this. Lower levels of cashflow will impact airports in the following ways.

- Cashflow is required to pay for previous and current capex programmes which have been committed to and this will strain the ability to do so without taking on further long-term debt;
- Airports will not have sufficient financial capacity to undertake required investments in the short/medium term, included green investments; and
- Current levels of debt will impact gearing levels going forward and could increase interest rates on future borrowing required to fund investments.

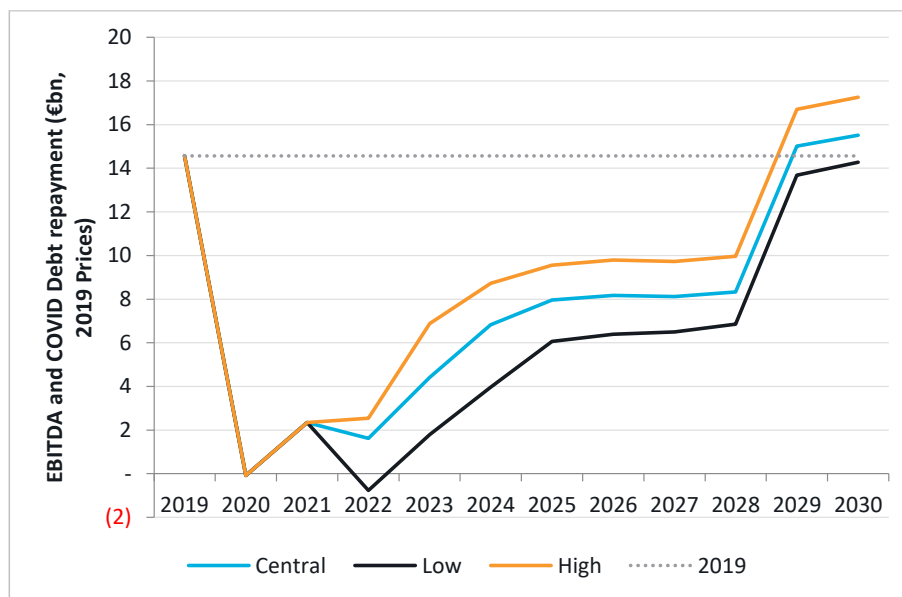
<sup>100</sup> Includes impact of subsidies

## Sensitivities

### Demand forecast

- 5.87 Figure 5.23 and Table 5.10 present the impacts of the different recovery scenarios on airport debt repayment adjusted EBITDA<sup>101</sup>. In the low scenario, airports would register a negative operating margin in 2022 due to the commencement of debt repayments. It is estimated that operating profit does not return to 2019 levels until 2030-2031. In 2030 the operating profit is estimated to be -€1.2 billion lower than the central case scenario (-8%). Cumulatively (between 2022 and 2030), airports will make positive operating profit of €58.8 billion, however this is -€17.2 billion (-23%) lower than the central case.
- 5.88 In the high scenario, airport operating margins are marginally improved in 2022 and a substantial improvement is estimated in 2023 and 2024 due to traffic rebounding. In 2030 the operating margin is estimated to be +€1.7 billion higher than the central case scenario (+11%). Cumulatively (between 2022 and 2030), airports will make positive operating margin of €91.1 billion, which is +€15.0 billion (+20%) higher than the central case.

**Figure 5.23: European airport debt repayment adjusted EBITDA outlook to 2030 – Growth scenarios, € billion, 2019 prices**



Source: Steer analysis

<sup>101</sup> Presented as EBITBA with an overlay for COVID-19 related debt repayments

**Table 5.10: European airport EBITDA outlook to 2030 – Growth scenarios, € billion, 2019 prices**

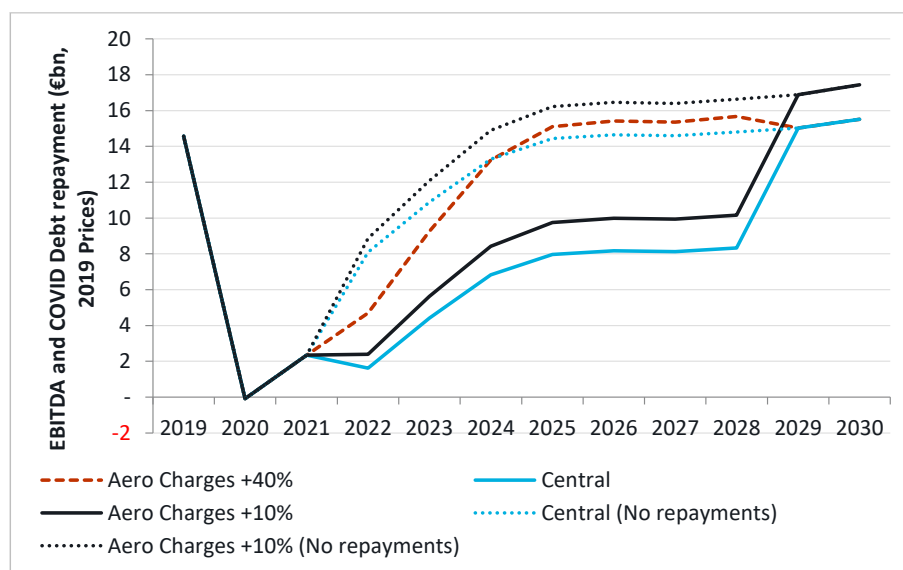
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2022-2030	Delta
Central	1.6	4.4	6.8	8.0	8.2	8.1	8.3	15.0	15.5	76.0	0.0
Low	-0.8	1.8	4.0	6.1	6.4	6.5	6.9	13.7	14.3	58.8	-17.2
High	2.5	6.9	8.7	9.6	9.8	9.7	10.0	16.7	17.2	91.1	15.2

Source: Steer analysis

*Increased airport costs*

- 5.89 The impact of airports increasing aeronautical charges by an average of 10% on airport operating profit has been estimated and presented in Figure 5.24 and Table 5.11 below. This scenario has been conducted with respect to the central demand projection and assumes no other changes.
- 5.90 The impact of this revenue increase would improve European airport operating profit to 2030; Cumulatively (between 2022 and 2030), this change would increase airport operating profit to €90.6 billion, which is +€14.6 billion (+19%) higher than the central case. Even with a 10% increase in aeronautical charges, the additional costs incurred from the additional borrowing required due to COVID-19 are only partially covered and an increase in aeronautical charges of approximately +40% (2022-2028) would be required to bridge this gap fully over the period .

**Figure 5.24: European airport debt repayment adjusted EBITDA outlook to 2030 – Airport charge scenario, € billion, 2019 prices**



Source: Steer projection tool

**Table 5.11: European airport debt repayment adjusted EBITDA outlook to 2030 – Growth scenarios, € billion, 2019 prices**

Case	2022	2023	2024	2025	2026	2027	2028	2029	2030	2022-2030	Delta
Central	1.6	4.4	6.8	8.0	8.2	8.1	8.3	15.0	15.5	76.0	0.0
Aero charges +10%	2.4	5.6	8.4	9.8	10.0	9.9	10.2	16.9	17.4	90.6	+14.6
Aero charges +40% (2022-2028)	4.7	9.3	13.2	15.1	15.4	15.4	15.7	15.0	15.5	136.1	+60.1

Source: Steer analysis

## Summary

- 5.91 Airports have been impacted by the pandemic in various ways, depending on their markets, their seasonality, their mix of carriers, their geography, their regulatory framework, their size, etc. They reacted quickly and engaged in operating costs reduction programmes, such as negotiation with suppliers, closure of infrastructure, reduced employment costs, as well as decreases in costs linked to lower traffic levels. Some large airports were only able to cover around 20% of lost revenue through reductions in operating costs, with others, usually smaller, able to make cost savings of nearly a third. As infrastructure providers, airports have a smaller variable cost component which explains why they are less able than some other businesses to cover revenue losses through operating cost reductions.
- 5.92 Airports also tried to preserve as much passenger and cargo demand as possible and launched programmes of reducing or maintaining airport charges as they competed for traffic: the large majority of European airports in 2020 froze airport charges for 2020 and 2021. Around 2/3 of all airports offered new incentives or 're-start' support that lowered effective charges and offered free or rebated long-term aircraft parking fees.
- 5.93 They nonetheless faced significantly reduced revenues and undertook liquidity preservation measures to respond to the impact of the pandemic. By 2021, all the airports studied had increased their cash to operating cost ratio relative to 2019. Airports also focussed on capital expenditure: in this area, airports' decisions very much depended on their individual circumstances with some able to accelerate projects and make the most of reduced traffic, whilst the vast majority postponed investments (in capacity and greening). Few cancellations were observed.
- 5.94 Overall, airports reported significant losses in 2020. By 2021, interim results indicate that airports have rebounded somewhat, but the response has been mixed, with some of the largest returning back to profitability (albeit sometimes at group level only). Airport debt increased significantly during the crisis (+23% in 2020 vs 2019, and for the first half of 2021 compared to first half of 2020, total net debt increased by 99%), but no stakeholders who took part in the consultation highlighted a concern on the sustainability of their level of debt, maybe due to being able to maintaining strong credit ratings. However, these loans will still need to be repaid over time.
- 5.95 Overall, we note that investments in greening and digitalisation slowed during the pandemic in order to preserve cash flow, but the importance of these investments going forwards has not materially changed as a result of the pandemic. Therefore, we expect that airports will continue with their delayed investment plans, although where projects have been cancelled,

investments will inevitably be reduced. Ultimately, the need to meet environmental targets is unchanged by the pandemic, and so investments necessary to achieve this will be made where airports have the means to do so. Smaller airports may find it more difficult than larger ones to have the funding capacity to both recover from the pandemic as well as embarking on significant capital programmes supporting capacity, greening and digital requirements.

## 6 Impacts for other businesses and air transport customers

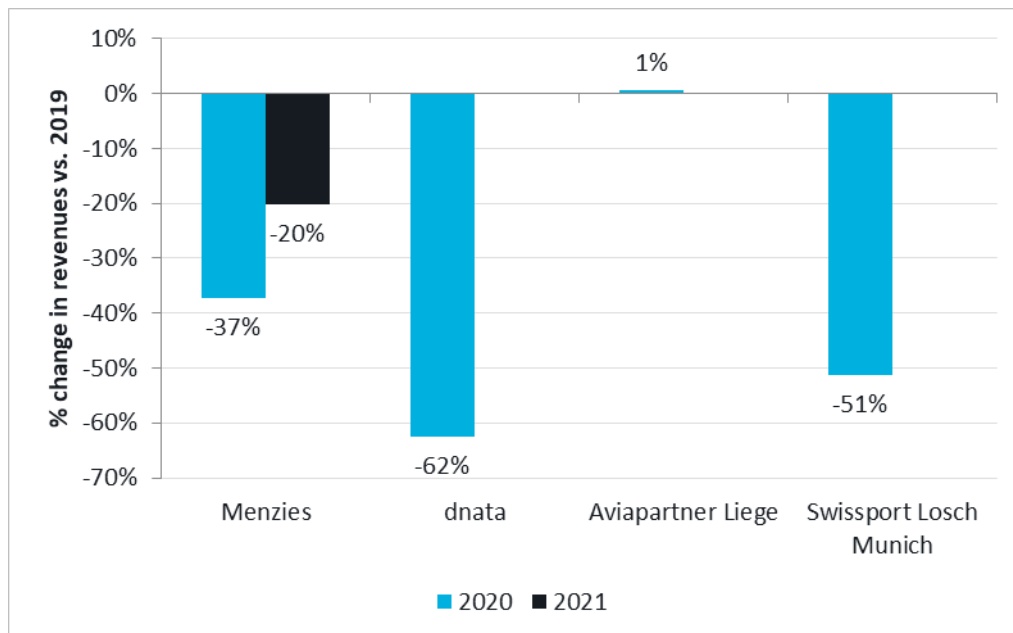
### Groundhandling

What has been the impact on the pricing policies of different actors (airlines, airports and ground-handlers) in the aviation value chain?

#### Financial position of groundhandling companies

- 6.1 The activity of groundhandling companies in Europe is heavily correlated with traffic levels (the number of commercial passenger and cargo flights) to generate revenues. Figure 6.1 below outlines for selected groundhandling companies how revenues changed in 2020 and 2021 relative to 2019 levels. Of the groundhandling companies studied here (John Menzies plc and dnata are two large international companies, whilst Aviapartner Liege, Swissport Losch Munich are subsidiaries of larger groundhandling companies based in Europe). In 2020, three observed marked reductions between -37% and -62%; however, Aviapartner Liege reported a 1% increase in revenues compared to 2019, likely due to the fact that Liege is an airport focused on cargo operations, which fared much better than passenger traffic during the crisis. The only company reporting in 2021 saw Menzies -20% compared to 2019.

Figure 6.1: Revenue changes for groundhandling companies, 2020/2021 vs. 2019 levels

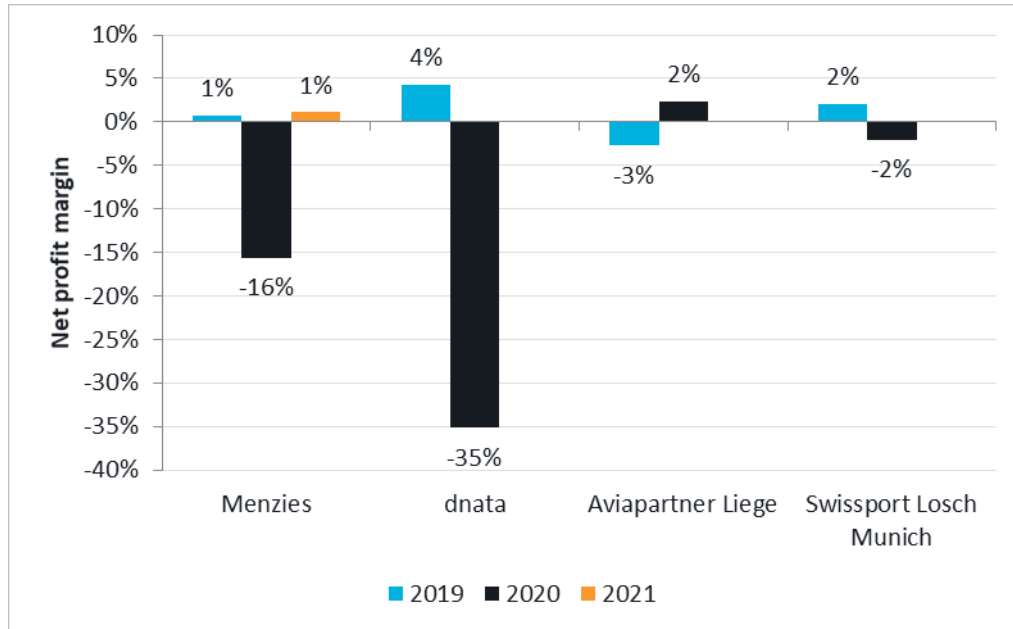


Source: Steer analysis of groundhandling company annual reports

- 6.2 Some groundhandling companies highlighted liquidity concerns as they are typically paid on a 90 day basis by airlines.

6.3 Groundhandling companies typically operate on very low profit margins in ordinary periods, and as such the crisis caused three of the four companies studied to post losses in 2020; Aviapartner Liege managed to return a profit, having made a loss in 2019. Net profit margins were less significantly affected compared to airlines in 2020. The only company with data for 2021, Menzies, returned to profitability despite revenues being 20% lower than 2019 levels. This reflects significant cost reductions that were key to recovering profitability in 2021.

Figure 6.2: Net profit margin of groundhandling companies, 2019-2021

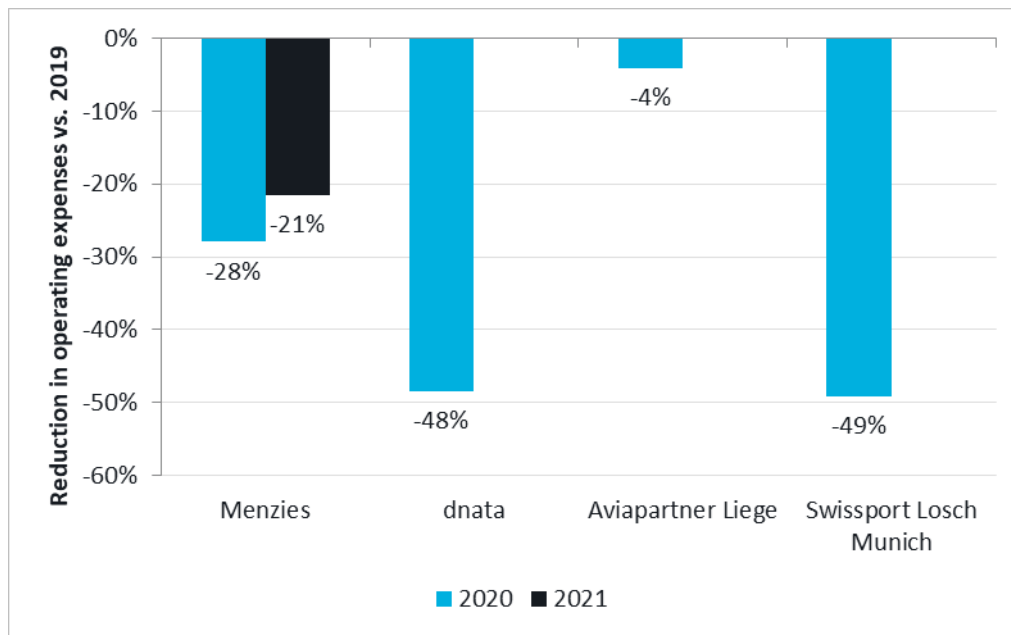


Source: Steer analysis of groundhandling company annual reports

6.4 Cost reductions were made by all four groundhandling companies studied, though to differing extents. Whilst dnata and Swissport Losch Munich made cost savings of around 50%, Menzies did not make savings beyond 30% in both 2020 and 2021, whilst Aviapartner only reduced their operating costs by 4% (though this is likely due to more stable demand for groundhandling at Liege Airport).



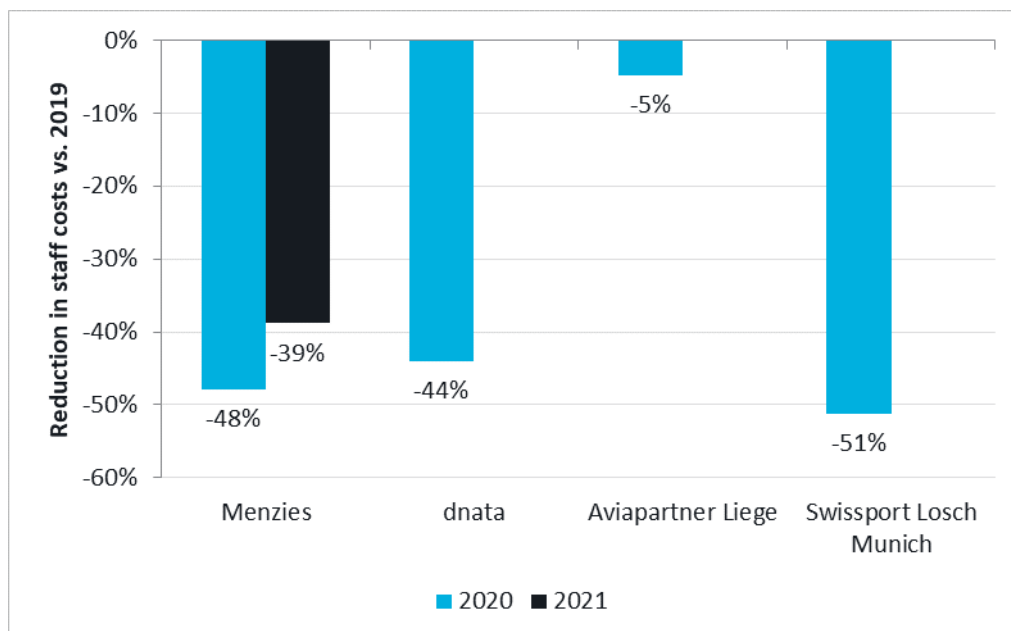
Figure 6.3: Groundhandling company cost reductions, 2020/2021 vs. 2019



Source: Steer analysis of groundhandling company annual reports

6.5 Since groundhandling is heavily labour intensive, reduction of staff costs was a lever that the groundhandling companies studied used to drive significant cost reductions. Figure 6.4 demonstrates this, indicating that among airports with lower demand in 2020, staff costs were cut by around 50%. In stakeholder consultation, groundhandling companies estimated that up to 60% to 70% of the workforce were furloughed on average.

Figure 6.4: Staff cost reductions for groundhandling companies, 2020/2021 vs. 2019



Source: Steer analysis of groundhandling company annual reports

6.6 In terms of public aid provided to groundhandling companies, as detailed in Appendix B, only €90 million of public aid was provided to groundhandling companies, with €65 million

provided to Italian groundhandling operators to compensate them for economic damages suffered due to the crisis. Additionally, €25 million was granted to Aviapartner by the Belgian government to recapitalise the company, and €0.5 million was granted to Swissport Finland by the Finnish government to improve liquidity and avoid bankruptcy.

### Market changes

What was the impact of the COVID-19 pandemic on the airports in light of the number of groundhandling companies active at the airport (airports where the minimal number of companies is limited to two vs airports with more than two companies)?

How has it impacted the division of groundhandling activities between third party groundhandling, self-handling and groundhandling by the airport?

6.7 Information provided by stakeholders indicates that there are very few groundhandling companies who have been declared bankrupt and/or ceased operations during the crisis (apart from the case at Brussels airport discussed below):

- In France at a regional airport;
- Ireland: Menzies and Boeing;
- Hungary: State owned groundhandling company at Budapest airport went bankrupt;
- Poland: the Member State explained that one groundhandling company exited the market, but did not specify where, nor its name; and
- [UK]: Worldwide Flight Services.

6.8 Swissport Belgium declared bankruptcy in June 2020; prior to its bankruptcy, it was responsible for 60% of groundhandling at Brussels Airport, with Aviapartner conducting the remaining 40% of groundhandling at the airport<sup>102</sup>. As stated above, Aviapartner received recapitalisation from the Belgian government, whilst Swissport did not receive government support. Alyzia was awarded a temporary licence after the bankruptcy and later won the second licence for baggage and ramp handling until 2025<sup>103</sup>.

6.9 It was also noted by ASA that in some Member States such as Italy or France there is a lot of fragmentation with groundhandling companies only operating in one station with a typical 30/40% market share. ASA believes that these companies have been significantly impacted by the COVID-19 crisis although the extent is hard to determine as they may not always be part of a trade association. Smaller niche groundhandling companies, such as those operating cabin services only, were also noted as being more likely to suffer during the crisis.

**Table 6.1: Stakeholder responses on groundhandling companies ceasing operations/declaring bankruptcy**

Type	Name	Response
Member State	Germany	Groundhandling companies mostly significantly reduced their capacities.
Member State	Italy	Because of the pandemic some handlers have ceased their operations.
Member State	Poland	Poland has no data available to suggest that a pandemic was a direct consequence of the cessation of any of these entities, however one groundhandling company has ceased operations, which might be slightly related to the pandemic.

<sup>102</sup> <https://www.brusselstimes.com/115939/swissport-officially-declared-bankrupt>

<sup>103</sup> <https://www.brusselsairport.be/en/pressroom/news/alyzia-sas-is-awarded-the-second-licence>

Type	Name	Response
Member State	Spain	There has been an agreement between some of these companies and Aena to reduce the charges they have to pay until the air transport industry recovers. This, and other governmental measures such as Temporary employment regulation files (ERTE) have helped most of these companies to survive in the pandemic.
Groundhandling company	Groundhandling company Portway (PT)	SPDH (Groundforce Portugal) is in the process of a recovery plan (bankruptcy) and owned by TAP.
Groundhandling company Representative	VDF (DE)	The ground handlers which offered the classical activities in passenger and ramp handling survived. Problems arose for those which operated in niches as the demand declined, for example in cabin services.
Airline Representative	AIRE	Whilst there have not been many examples of groundhandling companies becoming insolvent, many groundhandling organizations have severely reduced their staff due to the pandemic so that their ability to recover flights has been compromised.
Airline Representative	IATA	IATA are not aware about any groundhandling company (apart from Swissport in BRU) that have ceased operations due to COVID-19. 80% of the big airports consulted have answered to IATAs that no closure of groundhandling agents happened in their airports and no intention for newcomers to join as with current volumes, today it is not an attractive business.

Source: Steer analysis of stakeholder consultation responses

- 6.10 On possible changes to the groundhandling markets across European airports, we have not found evidence or have been reported many changes in the number of handlers operating at airports across Europe: where the markets were totally open, they have remained. Where the markets were restricted, they have remained as well with the same number of operators.
- 6.11 Some stakeholders remarked that whilst there had only been limited changes in the structure of the groundhandling markets some airlines had decided to use more self-handling, where they could and where the size of their operations would allow them to do so more economically/with a better service quality than through a third-party. This was the case by airBaltic at Tallinn airport (although ramp handling was not internalised, but instead transferred from a third-party provider to the airport subsidiary). BDF stated that a new self-handler entry occurred in Spain, leaving a reduced market for the licences which will bring cost and price increases.
- 6.12 At a more general level, Air France KLM noted the reluctance of new groundhandling agents to commence new services at airports due to the uncertainty of flight schedules, AIRE stated that 3<sup>rd</sup> party handling has been more severely affected than self-handling by the crisis, and another airline noted that external, third-party groundhandling companies have moved away from niche services including cabin services and de-icing.
- 6.13 ASA suggested that independent groundhandling is gaining ground compared to self-handling or handling by the airport, as airlines and airports are removing non-core activities in difficult times. Swissport add that if services could be completed in-house, these would be removed from 3<sup>rd</sup> party providers. However, VDF stated that the pandemic has not impacted self-handling as there have been no tenders, and activities were performed based on existing agreements. For this reason, before concluding that at the vast majority of European airports,

the groundhandling market structure has remained stable compared to the pre-pandemic situation, we should be careful to consider that further changes may not be ruled out in the next renewal of licences that will take place across Europe in the following years.

6.14 Airlines and freight forwarders assess that whilst the GH Directive has introduced the gradual opening to competition, competition at airports remains limited especially where there are only a maximum of two groundhandling operators, creating an oligopoly, which may hamper free competition.

6.15 We refer readers to Chapter 8 for information on the impact of the Regulation 2020/696 on the groundhandling market.

*Price and quality of service*

6.16 The Groundhandling Directive does not provide any requirements with regards to service levels. The definition of quality remains based on the contractual arrangements between GHAs and airlines (defined as Service Level Agreement - SLA). As a consequence, Ground handlers should comply with minimum performance standards set forth in a standard SLA. Thereby, the quality of service provided by GHAs varies significantly and is quite unique to each SLA.

6.17 In general, the quality of service offered by groundhandling companies declined during the pandemic according to airports and airlines. Groundhandling companies consulted usually remained silent on the topic although they explained that groundhandling companies had to made significant reductions in costs during the pandemic which have in turn reduced their capacity to match the (lower) demand during the crisis.

6.18 A common finding among stakeholders consulted is that a lack of staff led to longer wait times for turnarounds. Particular challenges identified that groundhandling companies faced was short peaks in demand leading to constraints on resources, changing airport layouts, and the staff turnover rate. ACI-Europe also highlighted that handlers had focussed on on-time performance (check in and arrival luggage) at the detriment of other services. Table 6.2 and Table 6.3 outline the views of airlines and airports on the quality of service provided to them by groundhandling companies during the crisis.

6.19 CLECAT reported that regarding the level of quality of services, it had observed that the focus of groundhandling companies is largely on the airside of the cargo terminal, whereas the important work on the landside is either not known, overlooked, and/or considered less important. This leads to long waiting times for trucks for loading and unloading, which disrupts the planning of freight forwarders. The trade association also noted that freight forwarders have no possibility to set standards or required best practices relating to quality, as they have no contractual relationship with groundhandling operators but with the airlines. Therefore, they are not in a position to select their preferred groundhandling service.

6.20 As groundhandling companies reacted to the crisis, reductions in staff numbers either due to furlough or due to job losses meant that in some cases quality of service was negatively impacted. CLECAT noted that the service quality was worsened by the strain on capacity within the air cargo segment as well as staff absences due to illnesses, bans on office working, and group working rules where only certain individuals may work with each other to limit the spread of COVID-19.

6.21 ETF also expressed concern that difficulties in attracting skilled workers to the industry due to low pay and difficult working conditions have led to less-skilled workers entering the market,

impacting the service quality that groundhandling companies can offer. Other stakeholders noted that following the end of restrictions, handlers struggled to restore headcount as customer service and ramp staff left the industry in large numbers. They observed that groundhandling staff highly transferable skills combined with shortages of road haulage staff and staff having the opportunity to try other industries during furlough led directly to staff leaving the industry in significant numbers. They also noted that handlers have struggled to match manpower to flight schedule changes, recruitment and training lead times are 8 to 12 weeks creating costs for the handler before labour is required which may only be for a short time.

**Table 6.2: Airline responses on the quality of service of groundhandling companies**

Airline	Response
Lufthansa Group (DE/AT/BE/CH)	DE: increasing problems of staff availability (various reasons, such as short time work, layoffs, change of staff to “easier” jobs in other branches often outside aviation, image of logistics, lack of skilled workers etc.). As a result, there were severe quality issues at DUS, FRA, BER, France, BRU, AMS (but also outside EU in the US, Canada)
airBaltic (LV)	Ground handling service providers were forced to adapt rapidly to keep the required performance levels. Unfortunately, the pandemic has led to labour shortage which, in turn, has been the main reason for a lot of flight delays, thus having dramatic effect on costs. It has been noticed that some market players have left the industry or transformed/restructured their operations. Therefore, in certain situations the choice of service providers might be quite limited. During highest peak of pandemic, the quality of the services was lagging due to the high staff turnover – some left the industry, the new ones joined but were not fully aware with quality service provision and standards.
IAG (ES/IE/UK)	The impact of the pandemic has caused groundhandling providers issues with providing resources. Passenger and ramp suppliers may have had a bigger impact, due to border closure and slow recovery of touristic and business traffic. In some cases, ground handlers have departed from the station due to significant reduction in volumes and handlers being unable to keep the station profitable. The choice of handlers has been reduced due to lack of willingness from suppliers to take on new business due to TUPE affecting a higher number of employees than required.
Luxair (LU)	Groundhandling companies have been severely impacted by the loss of traffic and, despite cost cutting, have been loss-making. Therefore, we have observed pressure on the delivered quality.
A4E	Airlines increasingly face challenges related to a lack of staff – both at airports and for overall logistics (cargo segment).
AIRE	Severe problems due to lack of staff when required.
BDF	The main impact has been related to the lack of staff (manpower) due to furlough after the reduction of operations at most of the stations, lack of equipment and the rate increase to cover the additional services such as: managing the passenger locator forms and purchase of additional PPE. At certain airports this meant an increase of 30% with respect to the previous basic handling rates. There has also been a lack of well-trained the staff.
IATA	The main impact has been related to the lack of staff (manpower) due to furlough after the reduction of operations at most of the stations, lack of equipment and the rate increase to cover the additional services such as: managing the passenger locator forms and purchase of additional PPE. At certain airports this meant an increase of 25% with respect to the previous basic handling rates. There has also been a lack of well-trained staff. At some stations due to the limited resources there was an impact on obtaining the needed schedule or delays in the provision of certain services due to the lack of sufficient resources. Following the Spanish case, ground handlers denied issuing economical offers during the pandemic due to the TUPE Spanish law. They also refused to bring new staff from other handling operator as they were looking for cost reduction (when you get a new client, you are

Airline	Response
	supposed to hire the staff from the previous employer). Therefore, the current supplier increased prices unilaterally, lowered the quality and abused commercially of the situation.

Source: Steer analysis of stakeholder consultation responses

**Table 6.3: Airport responses to quality of service of groundhandling companies**

Airport	Response
ACI EUROPE	<p>Groundhandling suppliers have scaled down and put staff on furlough, which has increased the staff turnover (already high pre-pandemic). Capacity was a bottleneck when traffic suddenly returned in Summer 2021, with a lack of staff and new staff without proper training and experience leading to severe quality issues at airports.</p> <p>The availability of groundhandling services is unstable due to staff shortages and quality issues. A lack of staff and training affects the quality of groundhandling services. The quality was impacted by (1) delayed response when traffic picked up (2) not enough staff available when needed (3) focus on on-time performance (check in and arrival luggage) at detriment of other services.</p>
ADV (DE)	<p>The short-time changes in flight services made the planning and operating of groundhandling services more complex, resulting in congestions at times when overall passenger numbers were very low.</p> <p>The quality of the ground handling services has decreased, especially in peak traffic due to short-term working and a general lack of staff.</p>
Vienna Airport (AT)	<p>At VIE there was a dramatic impact with a significant decrease of the whole ground handling business. Only for cargo flights this decrease wasn't quite as extreme, as since the beginning of the pandemic there are several additional cargo flights with cargo as cabin load. At VIE all ground handling services were all the time up and running - no matter if ramp, fuel, passenger or cargo. Of course - at a very low level!</p>
Hermes Airports (CY)	<p>Despite the relief scheme applied by the Government and the fact that a number of groundhandling staff was not constantly present at the workplace, the provision of groundhandling services at Larnaka and Pafos International Airports has performed at acceptable levels.</p> <p>All required groundhandling services were available throughout the pandemic. Despite a few rare occasions whereby certain areas operated with less staff than expected, this has not affected the overall service levels which remained within the agreed standards.</p>
Berlin Brandenburg Airport (DE)	<p>The pandemic has further escalated an already difficult staffing situation. Handlers had to put large parts of their workforce on short-time work which prompted many employees to look for work in other sectors. On top of that, sickness rates went up and remain high, even though short-time work has been gradually scaled down. To the best of our knowledge, ramp and passenger handlers have been more affected than fuel, cargo or catering handlers.</p> <p>Availability and quality of service have worsened during the pandemic. Due to continuous and sustained staff shortages the on-time performance and quality of service have drastically decreased. The ramp handlers face the biggest problems, especially in terms of unloading arriving aircraft and on-time delivery of arrival baggage. The airport has supported passenger handling services in the check-in area to minimize effect on passengers.</p>
Fraport (DE)	<p>In Frankfurt groundhandling service levels were kept in all areas during the crisis. Short term work was only necessary in passenger related business. Cargo related business was not affected at all or even benefited.</p>
Hamburg Airport (DE)	<p>It was difficult to ensure a robust operation, especially in peak traffic due to short-term working and a general lack of staff.</p>

Airport	Response
Munich Airport (DE)	With the onset of the pandemic, the entire ground handling business came to a standstill and all services were only in demand to a limited extent. During the course of the pandemic, the business shifted. Due to the closure of infrastructure (terminals / baggage distribution etc.), the ground handling product in passenger transport had to be massively expanded (the utilization per bus was also reduced to 50%), ground equipment e.g., ground power unit or stairs were also in much higher demand on remote. The transport routes and operating times have also increased significantly as a result of the infrastructure closures. AeroGround München GmbH has pursued a strategy of avoiding direct layoffs and merely adjusting the workforce to medium-term requirements (70%). As a result, there were and are consistently no service restrictions for airline customers. The quality was consistently better than in 2019 before the pandemic.
Budapest Airport (HU)	Operating hours were not affected in general. Airport remained open 24 hours. Groundhandling companies made arrangements to help out each other in need. Airlines were informed not to expect the same service level during the pandemic. Fuel service also open 24 hours with limited capacity.
Dublin Airport (IE)	One of Dublin airport's 3rd party Ground Handling providers closed operations at Dublin during the pandemic. Others have struggled with resources and their ability to service flights. These primarily related to Passenger & Ramp operations however Catering has also been impacted.
Aeroporti di Roma (IT)	Limited increase for check in and baggage reclaim time due to staff reduction related to traffic drop.
Milan Bergamo Airport (IT)	Even before the pandemic the sector was having difficulties. However, there are no changes at the moment in terms of quality of service or availability.
Tornio Airport (IT)	No impact in terms of competition between groundhandling providers for now.
Malta Airport (MT)	Notwithstanding challenges posed by quarantine affecting staffing issues during the pandemic period, the Groundhandling Services at the airport remained relatively stable with no turnaround delays being registered due to GH availability limitations.
Eindhoven Airport (NL)	Eindhoven airport noticed that its groundhandling company is lacking staff, and this has influenced its on-time performance.
Royal Schiphol Group (NL)	Ground handlers had great difficulty switching up with staffing when COVID-19 restrictions were relaxed during S21. These were seen throughout the whole ground handling sector - activities at Schiphol Airport. Airlines were not always able to provide solid schedules to which ground handlers could arrange sufficient (skilled) staffing. The impact has shown a high workload for groundhandling staff (overtime, additional rostering). Delayed flights due to the additional COVID-19 checks at check-in which had a knock-on effect on the remaining processes in the turnaround of flights.
Avinor (NO)	All groundhandling providers have been available for operators during the pandemic. We have experienced more occasions with lack of personnel than before the pandemic and especially during the ramp up lately. Some providers report difficulties in recruiting enough personnel. This might be due to the business market situation. The also report that there are less foreign applicants than earlier.
Cluj Airport (RO)	The impact over groundhandling services was quite low - the services available at the airport were and are still the same. The biggest impact was on the quality of service, especially the late luggage delivery. Due to a major drop on aircraft movements which automatically lead to a drop on passenger traffic, the groundhandling service providers put a lot of staff on technical unemployment. In this case, a large part of these employees resigned and when the activity recovered, the handling service provider did not have the necessary staff to provide the contracted ground services.
Constanta Airport (RO)	Ground handling services were not affected. There were no differences in ramp / fuel / passenger / cargo services. Handling operators belong to the airport.



Airport	Response
AENA (ES)	<p>The impact of the pandemic on the provision of ground handling services has mainly been a reduction in the number of operations, as well as the implementation of new protocols. The decreased traffic had an impact on handlers mainly in economic terms, but also in terms of changes in their operational procedures. Handlers have restructured their resources to adapt to the new traffic scenario in terms of the availability of material and human resources (especially in seasons of strict generalised confinement), which did not require the high numbers of the past.</p> <p>In order to adapt to the new protocols established both by the guidelines set by regulatory institutions and from within the organisation itself, AENA published a guide containing a series of rules for the operational recovery of the sector.</p> <p>The differences depending on the type or category of service provided lie in the greater or lesser direct relationship with the passenger depending on the nature of the service itself. Depending on the passenger's interaction with the airport environment, there were a greater or lesser number of new protocols to be taken into account, which made it difficult to maintain the same levels of service.</p>
Swedavia (SE)	<p>So far Swedavia still has groundhandling services at its airports. At the smaller airports Swedavia run the operations and at the larger airports we have ground handling companies. This has not changed.</p> <p>Ground handling services are also struggling and have had to downsize. It effects both process times and punctuality.</p>

Source: Steer analysis of stakeholder consultation responses

#### *Pricing policy of groundhandling companies*

- 6.22 According to CLECAT, in Germany, Italy and France, a surcharge was sometimes imposed by groundhandling companies for their services during the crisis. The surcharge was intended to offset the increased costs the pandemic imposed on groundhandling companies, such as the need for social distancing impacting on the ability to process cargo and personnel issues. However, CLECAT also noted that once these charges were raised with the national competition authorities (where they had been imposed by all groundhandling companies at a station), they were promptly dropped. In France this was confirmed by French Member State during consultation.
- 6.23 There is a general consensus among airlines that prices for ground services have increased during the pandemic. These have taken various forms. As mentioned by AIRE, the small amount of State aid for groundhandling companies may be reflected in the increased prices of those not receiving support to some extent. IATA estimates that the average increase in groundhandling charges was in the region of 25%.
- 6.24 Handlers however did not report price increases. Most airports reported no increase in prices either, but their visibility of prices is less good than that of groundhandling companies or airlines as they are not a party in the bilateral commercial contracts agreed between handlers and airlines.

**Table 6.4: Airline responses on the pricing policy of groundhandling companies**

Airline	Response
Air France KLM (FR/NL)	AF-KLM have been confronted with so-called COVID surcharges by several groundhandling companies to compensate for the sudden drop in traffic and the impact on the coverage of fixed costs. We have direct and indirect COVID surcharges from the groundhandling companies, but also from the governments, e.g. China and India.

Airline	Response
Lufthansa Group (DE/AT/BE/CH)	Partly price increases (i.e. MUC, DUS and from particular providers as Aviapartner). Range of increases in the EU up to 30% to 40% and US up to 50% being requested by providers. Longer time for e.g. CKI process due to COVID-19 requirements leads to more staff being needed, therefore higher prices. Duration depends on duration of COVID-19 measure and maybe reduced in future by new technologies (e.g. biometric CKI etc.).
airBaltic (LV)	Almost all segments of ground handling services are experiencing price increases. The reason for this is to be found mainly in today's volatile and unpredictable environment in aviation industry globally.
IAG (ES/IE/UK)	The pricing policy has differed across groundhandling companies. However, some handlers have requested substantial price increases based on reduced volumes across various stations.
A4E	Some suppliers have increased prices.
AIRE	A number of ground handling companies forecast significant increases in costs to repair the COVID damage. As very few GH companies have benefited from state-aid, these increases will be much more significant.
IATA	Despite working with less personnel, most ground handlers increased their rates to provide such services. On average it was around a 25% increase because GH companies applied penalties due to the volume drop.
EEA	Due to loss of efficiencies prices were impacted. As handlers did not service as many passenger flights, loss of synergies between different business areas and reduced the number of flights, many ground handlers have been raising charges extraordinarily even within fixed agreed contracts. They have been pressuring customers to either pay more or risk the closure of the station. This did put cargo operators under more pressure than passenger carriers.

Source: Steer analysis of stakeholder consultation responses

**Table 6.5: Groundhandling company response to pricing policy of groundhandling companies**

Groundhandling company	Response
ASA	GSPs generally receive their payment on a post-service basis, sometimes up to 3-4 months after. So they bear the brunt of the transaction risks. Payment may take several months and, as has been verified throughout the pandemic, may arrive in tranches, sometimes only paid in part, and in a few, but not isolated cases, airline invoking force majeure and other exceptional circumstances to pay even less and even later (if at all). And with the scarcity of flights in 2020 and 2021 (whilst GSP supply remained somewhat unchanged), airlines continued to have the upper hand in terms of price setting.
Groundhandling company Portway (PT)	Cleaning prices were affected.
Romanian groundhandling company	Prices were the same.
VDF (DE)	As the groundhandling companies in Germany were acting on the basis of existing licences the pandemic had no influence.

Source: Steer analysis of stakeholder consultation responses

**Table 6.6: Airport responses to pricing policy of groundhandling companies**

Airport	Response
ACI EUROPE	Airports do not have insight in commercial relations between airlines and their handlers. It is important to note that airlines and handlers usually conclude contracts for two to three years, so only via renewals or tenders can prices be renewed. GH suppliers were operating on thin margins pre-pandemic, with little capacity to absorb shocks. GH suppliers did not receive state aid compensation, therefore financial impact is long term. Airlines will continue to put pressure on suppliers to lower prices, while their market power has increased. In the particular case at one airport where a GH supplier went bankrupt, the only remaining supplier raised prices until new competition arrived. It is important to note that airlines clearly will continue to have the upper-hand as competition remains fierce ("race to the bottom").
Vienna Airport (AT)	Currently there are no changes with the pricing policy - also the possibility for reimbursements is currently no topic here at VIE (for all services).
Hermes Airports (CY)	The airport operator has not noticed any pricing policy changes or differences in service offerings.
Fraport (DE)	As groundhandling is bound to contracts that do not provide for a pandemic, the contract prices were not changed. If services were reduced (e.g. less agents due to reduced pax quantities), the prices were adjusted to reflect lower business volume (goodwill on the part of the Airports GH division).
Hamburg Airport (DE)	The negative economies of scale are another argument for rate increases but it was not possible and not reasonable to pass on the effect in full to the airlines.
Cologne Bonn Airport (DE)	The pandemic has not changed the pricing policy of groundhandling companies.
Munich Airport (DE)	Groundhandling companies urgently need to adjust the existing prices upwards and not to endanger the economic performance of the company. However, due to the significantly lower order volume competition will not reduce.
Budapest Airport (HU)	No changes, as contract runs in general 3-5 years.
Dublin Airport (IE)	We are aware premiums were added for some activities.
Aeroporti di Roma (IT)	No significant change neither in increase nor decrease.
Torino Airport (IT)	Tariffs in general have increased due to different factors including the rise of costs for raw materials, increase of costs for utilities, increase of costs due to sanitisation of all areas and GSE.
Constanta Airport (RO)	The pandemic did not affect pricing policy of groundhandling.
AENA (ES)	Both the decrease in market volume and the need to implement new protocols have led to an increase in service costs. As an example, with regard to ramp services, we can name the need to increase the number of buses to transport passengers between the aircraft and the terminal. This was due to the need to maintain a greater distance between passengers and resulted in a decrease in passenger capacity. Handlers were forced to adapt their staff and material resources to the new scenario. AENA, as airport manager, helped handlers through flexibility measures such as: <ul style="list-style-type: none"> <li>- Delaying the renewal of some equipment. An extension was granted for their renewal with periods longer than those stipulated in the contractual terms.</li> <li>- Reviewing the number of staff required outside operating hours with flight scheduling. There were several cases, especially with regard to fuel supply.</li> <li>- Granting of an extension to delay the contractually committed investment deployment by the handling agent. The fuel suppliers' case is also significant in this respect.</li> </ul>

Source: Steer analysis of stakeholder consultation responses

## Outlook to 2030

- 6.25 In the context of a challenging financial situation for airlines, we expect airlines to continue increasing pressure on their groundhandling suppliers to minimise turnaround costs. There was a marginal move during the pandemic for airlines to self-handle, but we note that this is not likely to continue as there are few places where airlines can do so and as there will be a further drive to more externalisation of groundhandling activities by airlines to save costs. However this does not mean that self-handling or airport handling will disappear either. Both activities are expected to remain.
- 6.26 No overall change is expected in industry structure and/or market opening but staff retention/recruitment may contribute to a decrease in service quality, a move towards more automation and an experience gap in years to come. Overall, in spite of price pressure of airlines, groundhandling prices are expected to increase over the years as a result of inflation and increases in energy prices. It remains unclear if staff will benefit from a pass-through of these prices increases in terms of increased wages.
- 6.27 As price pressure continue and as finances of groundhandling companies have been considerably stretched during the pandemic (noting that they operated on thin margins pre-pandemic and that they barely received state-aid), it is likely that the consolidation of groundhandling companies will accelerate to the benefit of the largest and more resilient ones.
- 6.28 Concerns exist on the ability of groundhandling companies to invest in decarbonisation technologies and assets because of cost of green technologies, structurally small profit margins, limited length of tenders (seven years maximum), profitability and debt levels concerns post-pandemic, as well as need of adequate alignment of airport green ground investments and groundhandling companies' investments.

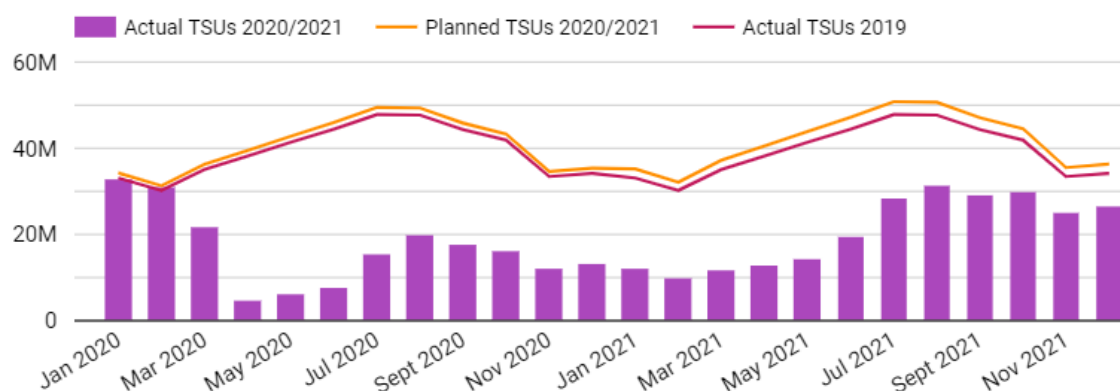
## ANSPs

What has been the impact on the pricing policies of different actors (airlines, airports and ground-handlers) in the aviation value chain?

- 6.29 The dramatic drop in traffic demand as a result of the COVID-19 crisis had a major impact on the revenue generated by air navigation service providers (ANSPs) for flights in the SES airspace, as illustrated below in terms of en route service units. European ANSPs are primarily<sup>104</sup> funded through specific en-route and terminal ANS charges (some 74% and 16% respectively of the gate-to-gate ANS revenues collected) paid by the airlines of flights in controlled airspace. Overall, service units fell by -58% in 2020 and 2021.

---

<sup>104</sup> Other ANS revenues include income from airport operators (around 4%). The remaining 6% of gate-to-gate ANS revenues comprise financial income and other revenues (mostly from national governments). Even when ANSPs earn revenues from other activities, these will mainly relate to revenues from Oceanic ANS, airport management and commercial activities which will also be largely impacted by the drop in traffic.

**Figure 6.5: En route (total) service units (TSUs) in the SES**

Source: PRU analysis

- 6.30 The cost bases of ANSPs operating in States subject to Single European Sky legislation are set out by a national regulator in a multiannual performance plan<sup>105</sup>, which is subject to assessment by the Commission. This plan includes binding performance targets and is supported by financial incentives for the purpose of supporting the achievement of those targets.
- 6.31 In SES Member States, ANSPs operate under the “determined costs” method, which comprises a traffic risk sharing mechanism specifying how surpluses and losses due to deviations of actual traffic from the traffic forecast established in the performance plan, are shared between ANSPs and airspace users. Where traffic falls, the traffic risk exposure of ANSPs is capped to a maximum of 4.4% of their annual cost base.
- 6.32 The extraordinary circumstances caused by the COVID-19 pandemic had a significant impact on the processes and measures for the implementation of the performance and charging scheme in the third reference period 2020-2024 (RP3), including the setting of performance targets and unit rates as well as the application of incentive schemes and risk sharing mechanisms. This created an exceptional situation which needed to be addressed with specific temporary measures.
- 6.33 To this end, Commission Implementing Regulation (EU) 2020/1627 of 3 November 2020 set out time-limited exceptional measures for RP3. Consequently, both Union-wide and local performance targets have been revised taking account of the changed circumstances, including in respect of revised traffic forecasts for the remainder of RP3. 2020 and 2021 have been considered as a single period for the purpose of performance target setting. In addition, since the 2020- and 2021-unit rates used for charging purposes were based on the draft performance plans established in 2019, retroactive adjustments will be applied after adoption of the final RP3 performance plans. This will allow ANSPs to recover financial losses resulting from the COVID-19 pandemic. However, in order to avoid a disproportionate effect on the unit rates paid by airspace users, and to avoid excessive volatility of those unit rates, these

<sup>105</sup> The performance targets contained in each performance plan have to be consistent with the EU-wide targets set out by the Commission. The plans cover a 5-year period called reference period. The current (3rd) reference period covers the years 2020 to 2024.

adjustments will be spread over an extended time period of five to seven years, starting not earlier than 2023.

- 6.34 ANSPs in the eight Member States which are not bound by SES regulations, but which are part of the EUROCONTROL Multilateral Route Charges System apply the “full cost-recovery method”. In this case, all gains/losses compared to planned revenues are returned/invoiced to airspace users.
- 6.35 As highlighted in the PRB Annual Monitoring Report 2020 report<sup>106</sup>, in most Member States, the cost of ANSPs in 2020 remained at almost 2019 levels (-4% cost reduction compared to 2019 actual costs with 58% traffic decrease in service units). Many ANSPs substantially decreased their costs in 2020 actual versus what they had *planned* for 2020 (by -13%): for instance, 13 Member States achieved notable decreases ranging between -10% to -32% (e.g. Slovakia -32%, Austria -20%, Portugal -20%). However, it should be noted that the most of the draft performance plans submitted in 2019 before the COVID-19 pandemic were found by the Commission to be inconsistent with the pre-COVID-19 Union-wide cost-efficiency targets. Therefore, measuring cost reductions against those plans does not necessarily provide a meaningful comparison.
- 6.36 Where costs-savings were made, they primarily focussed on staff costs (e.g. reduction in overtime and training expenses), other operating costs (e.g. reduction of maintenance, travel and insurance expenses) and capital-related costs (e.g. postponement of capital expenditure). At the same time, the PRB analysis also showed that several ANSPs actually increased their costs substantially in 2020 and planned to remain on this track during the following years.
- 6.37 The actual data for 2020 shows a 4% decrease in staff costs with respect to 2019 (-170 M€<sub>2017</sub>). The PRB notes that the decrease is relatively small compared to the traffic controlled, especially when one considers that the 2019 staff costs included a large portion of over-time to alleviate the capacity problems in the core areas of Europe. At the local level the PRB observes that 14 Member States decreased staff costs by at least -10%, with one Member State reducing staff costs by -41%. The main measures put in place to decrease staff costs are the reduction of overtime, full time equivalents and salary/variable compensations, although ATCEUC and IFATSEA also reported some redundancies (voluntary or not). Some ANSPs also obtained public funding of short-time work (such as Austrocontrol).
- 6.38 Most European ANSPs also reported cancelling or deferring non-essential investments, which primarily mitigates cash constraints but will also reduce capital-related costs in the longer term. The 2020 actual costs related to investments amounted to 970M€<sub>2017</sub>. Member States spent 178M€<sub>2017</sub> (-16%) less than planned in their draft 2019 performance plans (1,148M€<sub>2017</sub>). The differences can be explained mostly by delays in the planned investment due to pandemic-related lockdown measures and to preserve financial stability (i.e. cost cutting measures). A key concern is that cost cutting measures do not impact the investment plans unless investments are considered non-operational (e.g. new buildings). This is because there is a clear need for investments in new technology to accommodate the traffic recovery and especially to provide the necessary capacity.
- 6.39 ANSPs also benefited from credit facilities from EUROCONTROL in order to support their financial position after EUROCONTROL announced in April 2020 that its 41 Member States had

---

<sup>106</sup> [https://transport.ec.europa.eu/news/aviation-new-annual-monitoring-report-2020-assessing-performance-air-navigation-service-providers-2021-10-27\\_en](https://transport.ec.europa.eu/news/aviation-new-annual-monitoring-report-2020-assessing-performance-air-navigation-service-providers-2021-10-27_en)

agreed to allow airlines to defer payments of route charges bills in the EUROCONTROL Multilateral Route Charges System due in April, May, June and July 2020, with payments beginning in November 2020. Overall, faced with a significant drop in cash flows from route charges (see Figure 6.5 above), including due to deferred invoice payments by airlines, ANSPs managed to maintain adequate financial liquidity through a variety of methods including using either their own resources, loans (See Appendix B) or injection of equity by their owners (which usually are the Member States).

- 6.40 ANSPs who received equity injection include EANS in Estonia (€10 million), Fintraffic in Finland, DFS in Germany (€300 million but as liquidity support only), LGS in Latvia (€6.6 million), Slovakia (€6.6 million but as liquidity support only) and Skyguide in Switzerland (CHF150 million).
- 6.41 Due to traffic losses in 2020 and 2021, the net amount billed by SES ANSPs for en-route charges in 2020 was €3.2 billion versus (-59% decrease compared to €7.9 billion in 2019). The revenue gap ANSPs incurred during 2020/2021 amounts to 5.6B€<sub>2017</sub>, which will be spread as an increase in the unit rates. Member States with an approved performance plan will start to recover respective amounts with an adjustment to the unit rate starting in 2023 and onwards for five to seven years, depending on the NSA decisions.

#### **Outlook to 2030**

- 6.42 Going forward, airlines are disappointed to be expected to pay for air navigation services they never received, especially as they are, on average, in an uncertain financial situation, whereas ANSPs do not seem to have delivered a meaningful contribution in adapting their cost-bases. The pandemic is leaving airlines and their passengers having to deal not only with their own losses, but also with some of that of ANSPs, leading to significant risks of price increases starting from 2022. A4E stated that by now navigation costs as percentage of airline's overall costs will have almost doubled with no real return on investment. ATCEUC and IFTASEA highlighted the long training time before ATCO/ATSEP staff can become operational which will have a knock-on effect on future capacity where training or recruitment was stopped during the pandemic.

#### **Impacts for the travel sector**

- 6.43 According to an ECTAA survey in October 2021, 72% of respondents indicated that bookings through travel agents or tour operators were still 50% to 75% lower than the same season in 2019 and 24% of respondents indicated that they were lower by 25% to 50% than in 2019. Several small travel agencies and tour operators ceased operations during the pandemic (such as D-reisen in the Netherlands). Since 2020, according to IATA, more than 1300 codes (headquarters or branches) have ceased operation.
- 6.44 ECTAA highlighted that there had been significant imbalances: while travel agencies and tour operators had to refund customers under the Package Travel Directive<sup>107</sup>, they were often not refunded from suppliers (especially airlines) leaving them either in a position of not being able to refund or carrying the financial burden. As discussed, to keep their liquidity, many airlines did not refund passengers particularly quickly or only through vouchers. Where travel agents or tour operators were involved in the transaction, it led to complex situations for them.

---

<sup>107</sup> Directive (EC) 2015/2302



## Outlook to 2030

- 6.45 According to ECTAA, business travel is not expected to rebound before 2024 (as there will be more usage of videoconferencing for instance), but long term we expect all market segments to be growing again. Travel agents expect the trend in further consolidation seen before the pandemic to continue even further driven by new debts and weaker finances of airlines. As a result, they expect that large airline groups will continue to push for direct distribution to the detriment of indirect distribution through neutral channels, and fear that this will reduce passenger and travel professionals' transparency.

## Impacts for airport retailers

- 6.46 Car rental companies have indicated that in 2020 they experienced up to a 90% drop in demand in some European markets. In 2021, demand was on average 30% to 40% lower than pre-pandemic levels. European travel retailers indicated that 2020 saw a decline of around 70% to 75% in revenue numbers compared to 2019, with only a modest recovery in 2021. Moreover, the passenger mix changed, in particular the lack of international passengers including some high spenders in duty free and travel retail in Europe further impacted on the sales of retailers.

## Operational impacts

- 6.47 In addition, to the loss of passenger traffic, retailers and car rentals faced some significant issues during the pandemic. Firstly because their customer-facing operations are located in airport terminals, they had to adapt to changes in terminals layouts or closures: they reported that in some airports with closed terminals, it was difficult for customers to locate the rental facilities. ETRC, the European Travel Retail Council estimated that only half of the shops were open during 2020 and 2021, often only the main store opened whilst specialist or smaller shops remained closed. With airport obligations to keep rental operations open despite greatly reduced passenger numbers, in some instances car rentals had to consolidate facilities, reduce the number of customer counters or staff number present at airports. However, in order to offer adequate customer service, some airports required minimum rental staff coverage and opening hours that were seen as "detached" from actual passenger numbers by car rentals. According to LeaseEurope, there are a few examples of airports which added new rental operators to offset losses. This was not seen as helpful by the car rentals who reported that it saturated a depressed rental customer market.

## Minimum annual guarantee

- 6.48 Doing business at airports with international traffic and/or significant passenger flows is attractive for retailers for many reasons: airside, passengers are highly captive and some non-EU travellers are traditionally big spenders. For car rentals, although located landside, they are also completely reliant on arriving passengers (although some passengers will also arrive at train stations, this is usually to a lower extent than at airports). This means that for all these businesses, airports (or cruises) offer a unique proposition.
- 6.49 As a result, the airport retail model is very different for the normal retail market (as typically used in supermarkets or high-street shops) where retailers pay a rent. In airports across Europe, the majority of retailing (food/beverage/duty-free/specialist shop/car rentals) is based on concession contracts between airports and their retailers usually containing a minimum annual guarantee (MAG) where a percentage of the retailer turnover is paid in the form of a concession fee to the airport. To select their retailers, airports often run competitive tender

processes (with a typical duration of 5 to 10 years) or negotiate MAGs with retailers based on passenger forecasts submitted by the airport during the procedure. ETRC indicated that some of the Minimum Annual Guarantees (MAGs) could be up to 70% to 80% of the turnover as the expected fee.

- 6.50 In principle, MAGs are a risk sharing mechanism with an incentive for airports to maximise passenger traffic as it drives retailer sales. Where there is lower passenger footfall, there are lower revenues for the airport. The pandemic has of course brought passenger traffic in airports to a much-reduced state, but LeaseEurope highlighted that there were many instances of Minimum Annual Guarantee arrangements tied to forecast passenger numbers (and not actual passenger numbers), which created a significant strain on these retailers. Some airports amended their approach to MAGs, such as such as Fraport which indicated that contracts with retail tenants had been adjusted to a lower minimum and linked to traffic and passenger development. ETRC indicated that airports with MAG concession contract models have mostly agreed to either cancel concession fees during constrained operating conditions e.g. governmental closing of airports/shop formats etc. or have temporarily amended contracts to use variable fee (e.g. as-a-percentage of sales) for the duration of the pandemic (with individual agreement on passenger levels to be reached). Moreover, some airports also agreed to re-negotiate the rents that link rent level with passenger level.
- 6.51 It was also noted that due to the complexity of many MAG contracts, it was not always possible to trigger the force majeure clause to relieve/decrease retailers' obligations from their contractual arrangements. This was sometimes the case due to national legislation and in some cases, ETRC explained that airports could not always legally change the terms, as there may have been a risk that it would have created competition issues.
- 6.52 In other instances, it was highlighted that some airports had been slow to act on them, or had not been interested to address the issue as retail had become one of the few possible revenue streams left. LeaseEurope which represents the car rental sector noted that MAG arrangements tied to passenger numbers had remained in place, despite the slow return of passengers and the additional challenges in 2021 of a shortage of vehicles due to COVID production issues, greatly exacerbated by the chip shortage. It was also highlighted by LeaseEurope and ETRC that the definition of force majeure applied in MAG contracts often did not consider the COVID-19 pandemic as a case of force majeure.
- 6.53 Only one Member State (Spain) addressed the issue of MAG formally rather than leaving it to commercial discussions, although it was also highlighted in consultation by Italy that this was an issue. Spain's parliament passed a new law 13/2021 in September 2021 which modifies the lease agreements for duty-free, food & beverage and speciality stores that were in place on 14 March 2020 or tendered before then. The law states that Minimum Annual Guaranteed rents (MAG) established in the contracts and running from 15 March 2020 to 20 June 2020, both inclusive, are abolished (retrospectively) and that AENA cannot demand payment. In addition, these will be proportionally reduced from 21 June 2020 onwards by comparing the lower volume of passengers at the Spanish airports to 2019 passenger levels. This formula will stay in place until passenger numbers return to those that match 2019. However, AENA can still demand the payment of variable fees established in the contracts based on the income derived from sales.
- 6.54 This law affects the revenue of commercial contracts with guaranteed minimum revenue for each airport considered individually. According to press reports, AENA estimates a reduction in commercial revenue collections of approximately €1,350 million over the 2020-2025 period

(taking into account AENA's decision not to renew any contract that bound it to reduced rent).

### Outlook to 2030

- 6.55 The strong impact of additional costs on the supply chain of goods supplied to the travel retail market is expected throughout 2022 and likely beyond. According to ETRC, returning passengers flying again for the first time are spending higher than previously and higher than forecast, but there are several factors at play: amongst which is that spending is mainly driven by buying for friends and family not seen for up to two years and the excitement of flying again, resulting in increased self-treat spending. The European Central Bank has also reported an increase in household savings in the EU due to the COVID-19 pandemic, meaning that there might be a temporary increased availability of income for self-treat spending. This can be seen in ETRC revenue figures for Jan - Sept 2021, which show a stronger recovery (around 8%) in revenue than passenger numbers (around 4%). However ETRC does not expect this trend to continue as travel and airport shopping normalise again.
- 6.56 ETRC expect that airports will be even more willing to increase their non-aeronautical revenues going forward. In order to unlock all possible sources of income, ETRC suggests that tax-free shopping upon arrival should be allowed in the EU as it is in airports such as in Istanbul, Moscow or Oslo and would remove a competitive disadvantage to third countries.

## Impacts for airport investors

### New concessions during the crisis

- 6.57 An overview of the concessions introduced in Europe since the start of the pandemic is shown in the table below. The table also includes information on changes to airport concessions. The only new concession which started since 2020 is that of Sofia airport. With the publication of the concession notice in the Official Journal of the EU in July 2018 and bids evaluated in 2019, the start of the concession is not related to the pandemic. However, appeals of unsuccessful bidders delayed the start of the concession as well as the pandemic, which saw the Government of Bulgaria defer annual fee payments for ten years to mitigate the impact of the pandemic on air traffic. The value of the concession for the concessionaire over the 35 years will be EUR 3.89bn, in terms of potential revenues collected (plus a discount of 3% to 4% of total revenue). The concessionaire (SOF Connect: Meridiam 99%, Strabag 1%, Munich Airport: operator) will also have to provide a minimum investment of EUR 600m over the 35-year concession period (2021-2056) and a €281 million upfront fee.
- 6.58 The draft and publicly available concession contract<sup>108</sup> from March 2019 is succinct on airport charges, stating that *"the Concessionaire shall set and collect the airport charges that are set in accordance with the Civil Aviation Act, other applicable EU law acts and their implementing legislation on its own behalf and for its own account"*. According to Reuters<sup>109</sup>, the consortium has committed to annual concession fees of 32% of revenues but not less than €24.5 million per year under the revisions, and will start paying the deferred fees from the 25th year onward. The state will be able to review the concession annually and fee payments may resume earlier if air traffic recovers faster and the airport returns to profit.

<sup>108</sup> <https://concession-sof.bg/en/procedure>

<sup>109</sup> <https://www.reuters.com/article/bulgaria-airport-meridiam-idUKL8N2LA24P>

- 6.59 Bulgaria's tender for awarding a concession contract for the operation of Plovdiv Airport attracted no offers by March 2021, in spite of five bidding deadlines extensions since the launch of the process in February 2020. Press statements of the government stated that *“potential bidders were likely influenced by the devastating impact of the pandemic on the aviation industry”* which seems likely considering that a previous tender for a concession contract was cancelled in 2018 after the first-ranked consortium comprising China's HNA Group and Dutch-registered Plovdiv Airport Invest withdrew its offer, while the second-ranked offer was deemed not good enough by the ministry.
- 6.60 Other changes to existing concession contracts are noted in the table below, as found in the press or reported by stakeholders.

**Table 6.7: Changes to airport concessions since 2020**

Type	Member State	Airport(s)	Notes
New concession	Bulgaria	Sofia	This new concession was already planned by the Bulgarian government pre-pandemic. However, its attribution conditions have been modified due to the pandemic impact on the sector.
Existing concession	Greece	Greek regionals	Concession fee deferral
Existing concession	Italy	All under concession	2-year extension to compensate for the economic damage suffered
Existing concession	Spain	Murcia	Investments relaxed, concession fee modified, and compensation for lower traffic levels

Source: Steer analysis of stakeholder consultation data, public information

- 6.61 In 2018, the French government decided to terminate the 55-year concession contract for the building and management of a greenfield airport in Notre Dame des Landes awarded in 2010 to a consortium led by VINCI Airports, to replace the existing Nantes airport. A tender process, to be concluded in summer 2022, is currently taking place for the 40-year concession of Nantes airport. In parallel, negotiations for the compensation of the cancellation of the concession agreement are still taking place, with the concessionaire reported to have asked for up to €1 billion according to press sources<sup>110</sup> from 2020. The concession contract will only become available<sup>111</sup> after the concession has been awarded by the French State.

### Overall

- 6.62 The profile of risks facing airport investors changed significantly with the pandemic: in the previous crisis where demand had reduced (such as September 2001 or the global financial crisis of 2008), demand had decreased as a result of lower passenger confidence. The major and unprecedented risk that has emerged as a result of COVID-19 has been that Member States have imposed travel bans or restrictions on a very extensive basis (see Figure 3.2).
- 6.63 The combination of airports being in a higher risk environment due to COVID-19, whilst needing to undertake considerable amount of capital investment to support the Green Deal

<sup>110</sup> <https://www.latribune.fr/entreprises-finance/services/transport-logistique/notre-dame-des-landes-le-milliard-d-euros-de-la-discorde-entre-l-etat-et-vinci-837901.html>

<sup>111</sup> <https://cada.data.gouv.fr/20204093/>

makes it a more complex business proposition than pre-pandemic. Investors are concerned that it may lead to a higher cost of finance or greater difficulty in obtaining finance. GIIA stated that it was important to demonstrate that airports can earn enough revenue to cover their costs and losses suffered during a shock, so that capital markets continue to offer financing to airports.

- 6.64 As a result of the pandemic, for the time-being airports have gone from one of the most attractive to one of the least attractive asset classes for investors, although after negative outlooks for Q4 2020 and Q2 2021, airports in Europe are now (Q4 2021) moving back into positive outlook for infrastructure opportunities<sup>112</sup>.

## Impacts on OEMs

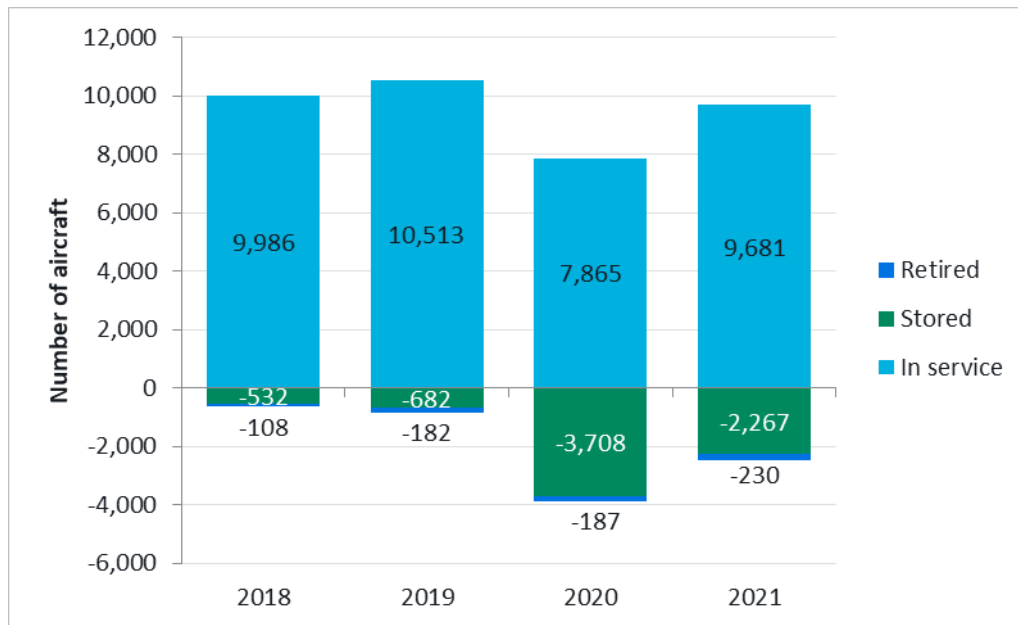
What is the impact of the crisis on OEMs (original equipment manufacturer) production (orders backlog, deferrals, annulations)?

- 6.65 Airbus and Boeing operate largely as a duopoly in the global narrow-body and wide-body aircraft markets, resulting in 50% of these aircraft being designed and manufactured in Europe. Other market segments where the European industry plays a key role include civil helicopters (Airbus, AgustaWestland, Leonardo), engine manufacturing (Rolls-Royce, Safran, GE Avio and MTU) and manufacturing, repairs and overhaul (MRO). Europe had a relatively weak positioning on the regional aircraft market although it is a leader in turboprops with the Airbus-Leonardo Joint Venture ATR and now with the A220 regional jet (ex C-series programme) which was acquired by Airbus in 2018 from Canadian manufacturer Bombardier. These major aircraft and engine manufacturers are often known as Original Equipment Manufacturers (OEMs) and have, alongside the entire air transport industry, been impacted by the pandemic.
- 6.66 As a consequence of the sharp drop in flights and significant cost reduction programmes of airlines worldwide, according to ASD, 2020 sales in civil aeronautics decreased by almost a quarter (-24%) and exports plummeted by as much as 19% in comparison to 2019. R&D investment in the civil aeronautics sector fell by more than 5% (to €7.6bn).
- 6.67 The biggest issue for OEMs was to review the whole production chain to keep up with deferrals and cancellations. In 2020, while Airbus (and its supply-chain) had started the year with preparations to gradually ramp up aircraft production, they were caught by the COVID-19 pandemic: all of a sudden all of Airbus' customers were massively impacted by the crisis, meaning for the manufacturer (and its supply-chain) a reduction in production rate by around 40% compared with previous plans. In spring and summer 2020, this meant that Airbus produced aircraft that it had to temporarily park as its customers were unable to fly them. By the autumn of 2020, the company and its suppliers had managed to converge production and deliveries and from that moment began to reduce the temporarily parked aircraft. Since early 2021, Airbus is gradually ramping up again but needs to consider if its supply chain can keep up.
- 6.68 We present below changes for Airbus aircraft, worldwide fleet, driven by airlines' decisions to ground a share of their fleet. We observe that for Airbus aircraft (although note that Cirium data shows similar results for Boeing), the pandemic has resulted in nearly a quarter of aircraft

<sup>112</sup> GIIA infrastructure pulse survey, Q4 2021, <http://giia.net/wp-content/uploads/2021/10/Pulse-Survey-Oct-21.pdf>

in service in 2019 going into storage in 2020, meaning that in 2020 around one third of the Airbus active fleet was stored. There was no marked increase in Airbus being retired from operations in 2020 (-187), although in 2021 the retirement rate (-230) was 25% that of pre-pandemic, but only 1% of the Airbus worldwide fleet. Airbus confirmed that they had only a limited number of cancellations, mainly coming from airlines in bankruptcy, such as Norwegian.

**Figure 6.6: Airbus aircraft in service, stored and retired (worldwide), 2018-2021 (to date)**



Source: DLR and Steer analysis of Cirium data (accessed in December 2021)

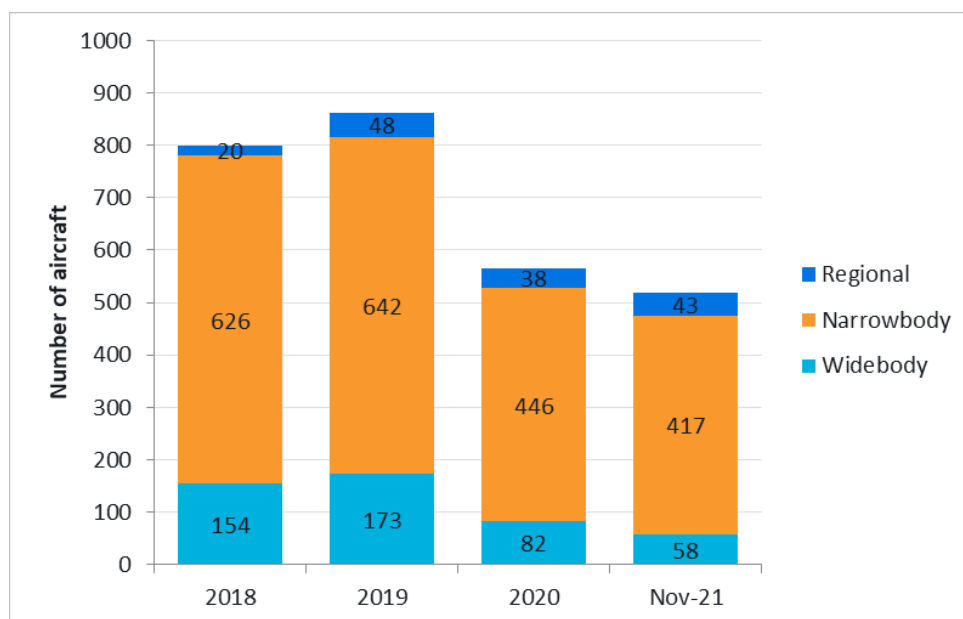
- 6.69 A report for the European Parliament<sup>113</sup> from 2021 observed that the immediate drop in demand for the production of aircraft, coupled with disruptions in the supply of raw materials caused by the limitations in cross-border movements over the first quarter of 2020, triggered delays in production in the European aerospace industry. These, in turn, resulted in cashflow issues especially for second and third-tier suppliers which typically are small and medium-sized enterprises<sup>114</sup>. Overall for the rest of the year, Airbus manufacturing aircraft deliveries decreased overall by 34% in 2020 over 2019, primarily driven by order deferrals.

<sup>113</sup>

[https://www.europarl.europa.eu/RegData/etudes/STUD/2021/662903/IPOL\\_STU\(2021\)662903\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2021/662903/IPOL_STU(2021)662903_EN.pdf)

<sup>114</sup> ASD, 2020, COVID-19: Proposals for EU Relief Measures for Aerospace, Defence and Security Industries, <https://www.asdeurope.org/covid-19-updates-resources>

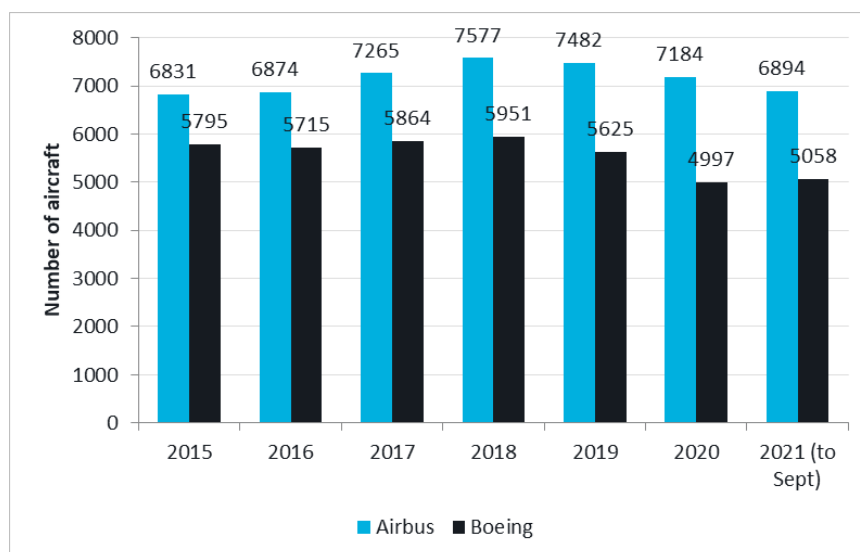


**Figure 6.7: Airbus deliveries by aircraft type**

Source: Steer analysis of Airbus data. Regional = A220, narrowbody = A320, widebody = A330, A350 and A380

- 6.70 The aircraft outcome after the pandemic depends on their characteristics and average age: aircraft older than 10 years and aircraft with older technology types have been slower to return to service and are being retired or stored more by airlines (such as A320/321/319, B737-700, A330, B767, B777), whilst the youngest and more fuel-efficient aircraft have usually been better utilised and seen their value decrease less than older aircraft (excluding the A380), since during the pandemic, airlines have favoured less risky fuel efficient aircraft such as the A220 on short haul markets or the A321LR for medium haul markets. As airlines build back capacity over time, we expect that they will focus on narrow body aircraft, helped in part by OEMs who have reduced their production of wide body aircraft, as illustrated in Figure 6.7 above.
- 6.71 In terms of backlog, whilst there have been some cancellations and deferrals, both manufacturers have a strong order book of aircraft to produce in the years to come as illustrated in Figure 6.8. In addition, there were significant orders by European airlines at the end of 2021:
- In October 2021, Jet2 placed an order for a further 15 Airbus A321neos, adding to an existing order of 36 aircraft placed in August 2021.
  - In November 2021, Wizz Air placed an order via Indigo Partners for 102 aircraft, comprising 75 A321neos and 27 A321XLRs.
  - In December 2021, ITA Airways firmed its order for 28 Airbus aircraft across the A220, A320 and A330 families.
  - In December 2021, Air France-KLM placed a firm order for 100 Airbus A320neo family aircraft, with purchase rights for an additional 60 aircraft. In addition, Air France-KLM signed a Letter of Intent to purchase 4 A350F freighters, with purchase rights for an additional 4 aircraft.



**Figure 6.8: Airbus and Boeing backlog**

Source: Steer analysis of Airbus and Boeing data

- 6.72 The reason for a strong backlog whilst some airlines are still in a precarious financial state is because most airlines in a distressed financial situation will need to return to profitability quickly to engage into the “natural” deleveraging of their balance sheets (i.e. through profits and cash generation) as compared to equity injection or debt restructuring which requires the support from shareholders. Secondly, in addition to restoring profitability, investment in new generation and greener aircraft helps mitigate the risks associated with fuel price increase or with new and costly environmental regulations. Of notice too, is that there is strong demand for single aisle aircraft (see Figure 6.8) which is not yet matched by production capacity. This therefore tends to push back the available slots to outer years, thus creating an incentive for airlines to take early investment decisions before slots become unavailable in the near-term. Finally, some state aid packages have been granted under the conditions that it is invested to reduce carbon emissions (see 3.76).

### Outlook to 2030

- 6.73 Expert analysis<sup>115</sup> shows that they do not expect the level of new deliveries to reach pre-pandemic levels before 2025, and that narrow-body aircraft will contribute 80% of these new deliveries. It also expects longer-range narrow-body aircraft (such as Airbus A321LR and XLR) to be developed to provide transcontinental aircraft with smaller capacity (i.e. easier to fill) to offer more cost-effective long-haul operations. On the other end of the scale, airlines may consider replacing regional jets with turbo-propelled regional aircraft in order to decrease their exposure to higher fuel costs. In any case, the impact of growing environmental pressure and policies is likely to mean that airlines will need to purchase newer aircraft in order to fulfil their environmental objectives. Airbus estimates that European airlines are expected to collectively take deliveries of approximately 3,000 additional passenger and freighter aircraft until 2030. Out of these approximately 3,000 aircraft, a very significant share estimated at 60% will be for replacement purposes.

<sup>115</sup> McKinsey 2021 analysis of Cirium data and Teal Group

The lack of medium-term visibility about air travel and the unprecedented level of uncertainty facing the air transport industry means that Airbus remains “cautiously optimistic” about the recovery of air traffic in the years to come, especially at international level. Looking forward, the expectation is that by 2030, European airlines' fleet in service will be much more fuel efficient than it is today due to the acquisition of latest generation aircraft. According to ASD and Airbus, the level of efficiency improvement will be around 20% by 2030 versus its 2019 level. This investment in greener aircraft will represent a key lever to support the decarbonisation of the industry at European level, and this European airlines' cumulated investment until 2030 is estimated by Airbus to be in the range of €140 to €170 billion.

## Impacts on connectivity

What is the impact of the crisis on the intra-EU/extra-EU connectivity, including remote EU regions and long-haul segment, and how is it going to develop in the future? What is the impact on the hubs vs point-to-point evolution, especially on thin/marginal routes?

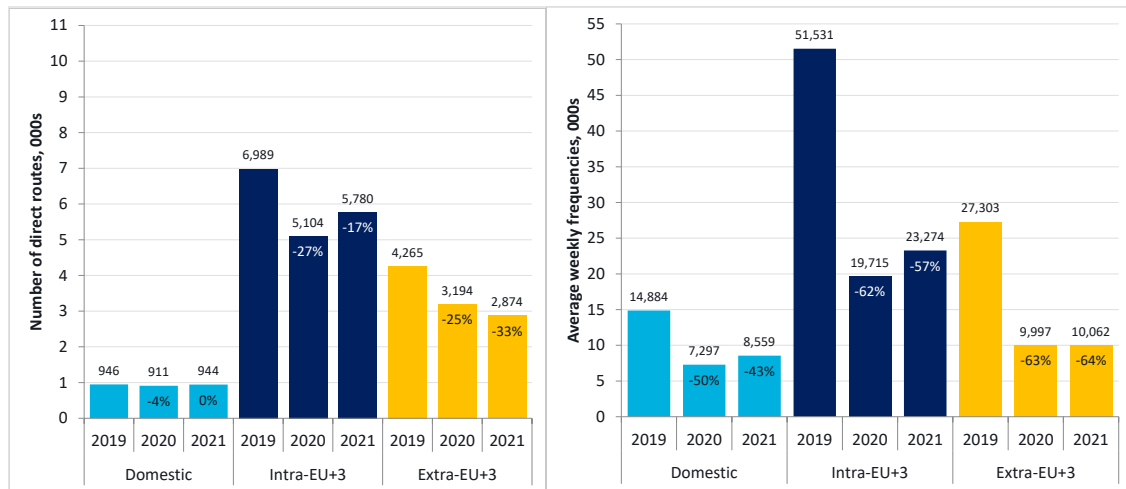
- 6.74 There is no unique definition of air connectivity and how it should be calculated. Different organisations (such as ACI-Europe, IATA, EUROCONTROL) use different approaches. In considering air connectivity, we have examined the different dimensions of it which all give a different perspective on the impact of the crisis on connectivity:
- How the number of direct routes operated from each Member State has changed as a result of the pandemic;
  - How the frequency of air transport routes (expressed in average weekly frequencies) from each Member State operated to various markets has changed as a result of the pandemic; and
  - How many passengers now need to connect versus how many of them could fly non-stop, by markets<sup>116</sup>.
- 6.75 To analyse connectivity, we have used data from the OAG Schedules and Traffic Analyser database which provide information on routes and possible connections. Figure 6.9 below presents the changes in connectivity across EU27+3 Member States in terms of direct routes operated and average weekly frequencies<sup>117</sup>. In the EU27+3 domestic markets loss of connectivity in terms of routes was limited, reducing by -4% in 2020 and returning to close to 2019 levels in 2021. The impact in terms of frequency however was more pronounced, with average frequencies across EU27+3 domestic routes reducing by -50% in 2020 versus 2019 and returning to 57% of 2019 levels in 2021.
- 6.76 The number of direct routes operated on intra-EU+3 and extra-EU+3 route pairs reduced by a similar magnitude in 2020 (-27% for intra-EU+3/-25% for extra-EU+3), however the intra-EU27+3 witnessed some improvement in 2021 to 83% of 2019 levels whilst the extra-EU27+3 saw further decline route reductions to 67% of 2019 levels. Reductions in route frequency of similar magnitude were also registered in 2020, with some frequency improvement in the

<sup>116</sup> Whilst a key output from this analysis is that the proportion of connecting itineraries has only increased slightly (~+1%) at EU27+3 level, it is not possible to calculate the impact of whether this has also been driven by passengers simplifying their itineraries in response to COVID-19. Passengers may have tried to limit connections for fear of being stranded, where previously itinerary choice may have been more determined by cost.

<sup>117</sup> Only routes with greater than 25 frequencies per year are considered in this analysis.

intra-EU27+3 market in 2021, whilst there was frequency stagnation in the extra EU27+3 market.

**Figure 6.9: Change in direct routes operated and average weekly frequencies**



Source: OAG analyser, Steer analysis

6.77 The Domestic, intra-EU27+3 and extra-EU27+3 markets are explored in more detail in the corresponding sections below. Complete data table presenting changes in connectivity in terms of direct routes and frequency can be found in the appendix C.

*Domestic connectivity*

6.78 When looking at the number of direct routes operated domestically in each Member State between 2019 and 2021, there is a small decrease in the number of routes operated in the EU27+3 (981 in 2019, 976 in 2021; decrease of -0.5%), however this obscures individual changes at a Member State level:

- Large increases in route connectivity were seen in Italy (183 routes in 2019), which saw its domestic route network increase by +18% to 217 in 2021; and Spain (193 routes in 2019) where domestic routes increased by +6.2% to 205. In percentage terms, there were also large increases in the number of routes operated in Poland (+25%) from 14 to 18 routes. The increases in Italy and Spain are particularly notable owing to the already large size of the domestic network available in each prior to the pandemic. New routes established were primarily aimed at domestic tourism and would have also provided a means for airlines to redeploy capacity that would have been operated on intra-EU routes in 2019. Reductions in the domestic networks in all other Member States with scheduled domestic routes can be seen.
- Significant reductions were witnessed in Norway (117 routes in 2019) which saw the number of direct routes operated reduce by -9% to 107, Germany (68 routes operated in 2019) reduce by -19% to 55 routes and Sweden (52 routes in 2019) reduce by -19% to 42 routes. Large percentage term decreases in domestic route networks can be seen in Latvia (-100%, from one scheduled route in 2019 to none in 2021), Romania (-33%, from 12 routes in 2019 to 8 routes in 2021) and Austria (-25%, from 4 routes in 2019 to 3 routes in 2021), however this is driven by reductions over a small number of domestic routes operating in these Member States.
- Reductions in Germany and Sweden are notable in absolute terms owing to their large domestic networks, and the fact that many routes in Sweden connect remote

communities. Therefore, the reduction in routes in Sweden in particular could impact remote areas losing routes due to the crisis if they rely heavily on air connectivity. Sweden added in stakeholder consultation that the pandemic had “greatly deteriorated” its air transport connectivity.

- We note also that these markets had been stagnant for many years prior to COVID-19 pandemic due to a number of reasons, including:
  - Expansion of the high-speed and long-distance rail network. The opening of Berlin – Munich high speed routed in December 2017 caused Eurowings to discontinue their Berlin-Nuremberg route in 2019 and the founding of MTRX in Sweden to operate on the core trunk route between Stockholm and Gothenburg;
  - Climate awareness and rise of flight shame trend Lufthansa cancelled its Munich to Nuremberg (138km) flights in 2021 and replaced this service with a dedicated bus. Also, BRA airlines of Sweden cancelled their order A220 aircraft in 2019 owing to a poor (pre-pandemic) outlook in the Swedish domestic market;
  - Higher rates of tax being levied on passengers.
- Domestic networks in Greece (-2%, from 72 in 2019 to 70 in 2021), Iceland (-9%, from 12 in 2019 to 11 in 2021) and Norway (-9%, from 117 in 2019 to 107 in 2021) are all key contributors to domestic connectivity in each country owing to their topography. The structure of route changes in these three countries are different:
  - In Greece, all routes operated in 2019 but not operated in 2021 were ‘secondary routes’ providing connectivity between islands (e.g. Heraklion (Crete), however route cancellations were partially offset by some new routes being established. Connectivity on cancelled routes can still be made via Athens;
  - In Iceland the route between Reykjavik (Keflavik International) to Akureyi was cancelled. This route was aimed at international connections, whilst all other routes (including the one from Reykjavik City airport to Akureyi) remained; and
  - In Norway changes predominantly result from the reorganisation of the complex regional network in the north of the country. Many multistop flights are operated linking remote towns and cities to regional centres such as Bergen, Trondheim, Bodo and Tromso. Five airports (Mo I Rana, Mosjoen, Namsos, Rorvik and Stokmarknes) lost their direct connections to Oslo, however these were operated at less than daily frequencies in 2019 and connections to Oslo via regional centres will still be available.

6.79 In terms of average weekly frequency, it can be seen that across all EU27+3 Member States the impact of COVID-19 on frequencies operated has been far more pronounced than the reduction in routes operated: At the EU27+3 level, frequencies across all domestic routes decreased by -40% on average, with the largest decreases in the Austrian (-74%), German (-74%), Swiss (-73%), Swedish (-60%) and Finnish (-59%) domestic markets. Frequency reductions in Spain (-33%) and Italy (-31%) were better than European market average. Frequency decreases were witnessed in all Member States<sup>118</sup>. A frequency decrease of 60% means in practical terms that where you had a daily flight pre-crisis, there are now only 3 flights a week, or that a route operated 3 times a day has reduced to a daily departure.

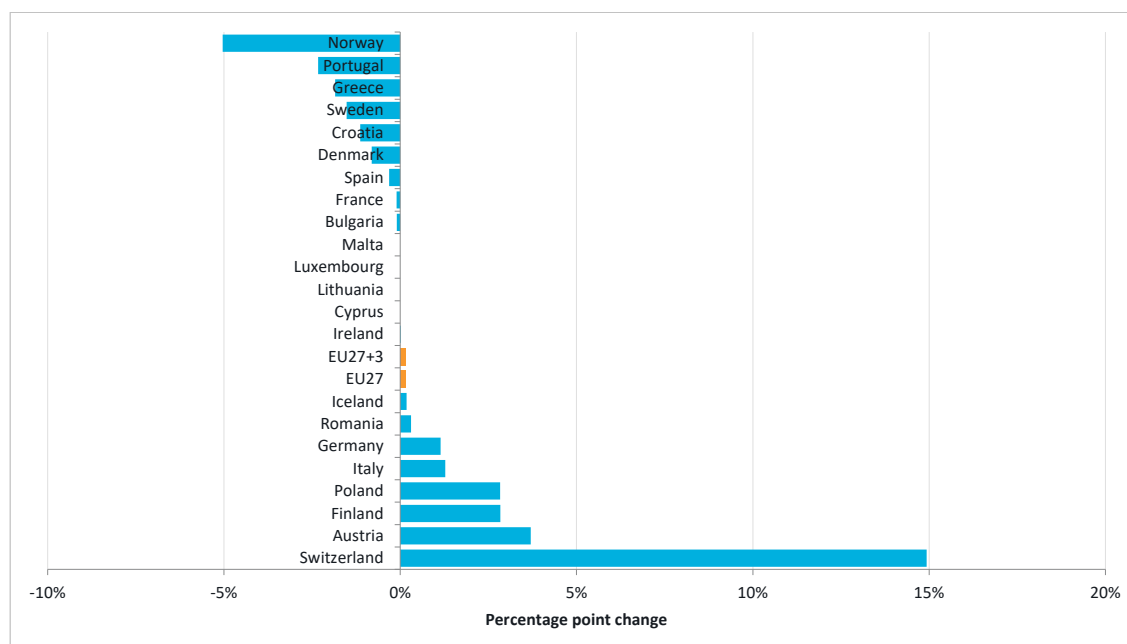
6.80 Figure 6.10 presents the percentage change in proportion of passenger non-stop itineraries of total journeys from each Member State between 2019 and 2021. This provides an indication of connectivity based on passenger ability to either fly direct or whether they were required to

---

<sup>118</sup> Excluding Czechia where data indicates domestic flights increased in frequency from 0.7 to once per week.

connect to reach their final destination. We see that there was a very small increase in the number of domestic itineraries in Croatia, Denmark, Greece, Portugal and Sweden which required one-stop in 2021, where previously they required none, but overall no significant change at domestic level across the countries in scope. The change requirement for more passengers to fly indirectly in the Norwegian domestic market is consistent with the domestic route network being reduced by -95%. Increases in the proportion of passengers flying directly to their destination in Austria and Switzerland are likely impacted by fewer routes being available and thus fewer connection opportunities being available rather than due to improved connectivity.

**Figure 6.10: Domestic passengers flying directly, change between 2019 and 2021**



Source: OAG Traffic Analyser, Steer analysis

- 6.81 Overall, at domestic level, what we conclude is that in most Member States, frequencies were significantly reduced, far more than the number of routes. However, for the limited passengers that travelled domestically during the pandemic, this did not require them to make additional connections.

#### *Intra-EU+3 connectivity*

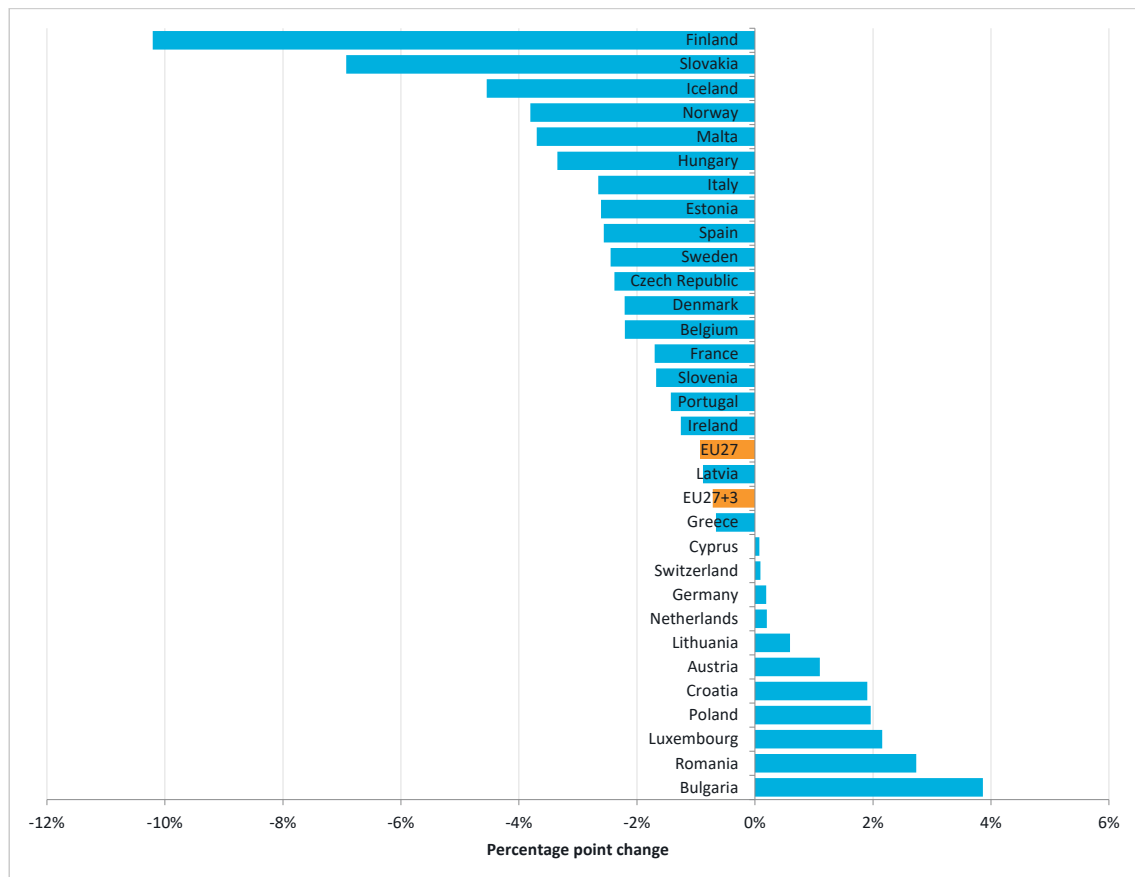
- 6.82 The number of direct routes operated on Intra-EU27+3 routes decreased at an average rate of -13.5% between 2019 and 2021. Only Cyprus (+14%, from 58 in 2019 to 66 in 2021) and Romania (+7%, from 195 in 2019 to 209 in 2021) witnessed increases in the number of routes, whilst the number of direct routes operated from all other Member States reduced between 2019 and 2021:

- Member States in Northern Europe generally saw the largest reduction of intra-EU routes operated. The number of routes operated to/from Finland, Sweden Denmark and the EU reduced respectively by -36% (from 130 in 2019 to 83 in 2021), -30% (from 287 in 2019 to 201 in 2021) and -21% (from 162 in 2019 to 128 in 2021), whilst in Germany the number of routes reduced by -23% (from 1089 in 2019 to 836 in 2021)
- However, Member States with a touristic demand witnessed lower rates of decrease such as Greece and with a limited -4% (from 621 in 2019 to 598 in 2021) decrease in direct

number of intra-EU routes. Other Member States such as the Netherlands (-11%; from 231 in 2019 to 206 in 2021), Poland (-10%; from 352 in 2019 to 318 in 2021) and Latvia (-8%; from 61 in 2019 to 56 in 2021) achieved better results than the EU27+3 average.

- 6.83 Route growth in Cyprus and Romania can be partially attributed to low-cost expansion in these Member States. Wizz established a base in Larnaca, Cyprus in July 2020 whilst Wizz and Blue Air expanded their networks from bases in Romania. These expansion plans may have been supported by State aid connectivity schemes such as SA.57691 (Cyprus) and SA.57817 (Romania).
- 6.84 The reduction in average weekly frequencies operated on intra-EU27+3 routes (-51%) was over three times the reduction in the average number of intra-EU27+3 routes.
- In some Member States, the differential between number of routes lost and frequencies decreases was more limited but drops in frequencies to intra-EU destinations were nonetheless severe such as to/from Czechia (-63%), Estonia (-55%) Finland (-54%), Hungary (-59%), Latvia (-57%), Slovakia (-57%), and Norway (-61%).
  - Greece (-23%), Cyprus (-40%) and Romania (-42%) witnessed to lowest reductions in frequencies and interestingly also had some of the lowest/no reductions in routes available.
- 6.85 Figure 6.11 presents the proportion of passenger non-stop itineraries by journey type from each Member State between 2019 and 2021. For intra-EU itineraries, we see that the proportion of non-stop itineraries reduced from 89.6% to 88.7% (-0.9pp), with the largest reductions being witnessed in Finland (-10pp), Slovakia (-7pp), Iceland (-5pp), Norway (-4pp), Malta (-4pp) and reflecting the loss of routes from these Member States.

Figure 6.11: Intra-EU+3 passengers flying directly, change between 2019 and 2021



Source: OAG Traffic Analyser, Steer analysis

6.86 Passengers travelling on intra-EU27+3 flights in 2021, saw their choice of routes decreased by -13.5%, but not as much as the frequencies available which were more than halved. This was even stronger for the Northern and Eastern of Europe Member States, where these changes have necessitated passenger to take more indirect itineraries to reach their destination.

*Extra-EU connectivity*

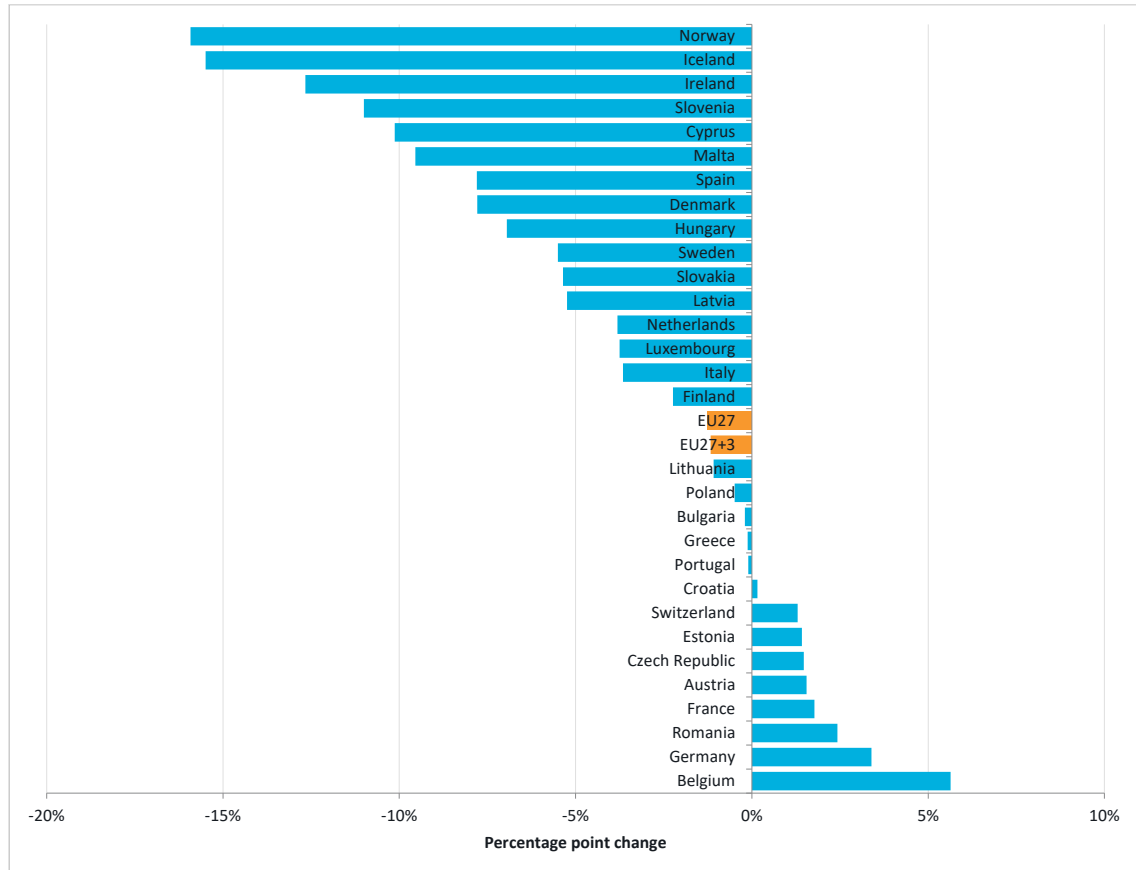
6.87 Unsurprisingly, given the various travel restrictions imposed worldwide, in the extra-EU+3 market there was a stronger decrease in the number of routes operated, with the number of flights on direct city-pairs reduced by -30.6% between 2019 (4988 routes) and 2021 (3460 routes). This was particularly the case for Italy (-48.4%; from 525 in 2019 to 271 in 2021). Member States with intercontinental hubs were also less affected but Germany and France still recorded a loss of -31% (from 693 in 2019 to 481 in 2021) and -37% (from 596 in 2019 to 378 in 2021) respectively, whilst the Netherlands mitigated the reduction at -18% (from 185 in 2019 to 151 in 2021) of routes. Cyprus (-6%; from 80 in 2019 to 75 in 2021) and Greece (-8%; from 237 in 2019 to 218 in 2021) are notable outliers; this can likely be explained by the fact that these two Member States focussed their policy efforts to boost tourism figures, as their economies heavily rely on this sector, by accepting a larger range of vaccination certificates



than most European Member States or by providing financial incentives<sup>119</sup> for airlines to fly there.

6.88 There was also a more significant decrease in the frequencies operated. Between 2019 and 2021, the number of flights on direct city-pairs reduced by approximately two-thirds, without too much variation between Member States. For extra-EU itineraries, we observe small changes where the proportion on non-stop itineraries reduced from 69.7% to 68.5% (-1.2pp). The largest reductions were witnessed by Norway (-16pp), Iceland (-15pp), Ireland (-13pp) and Slovenia (-11pp).

Figure 6.12: Extra-EU+3 passengers flying directly, change between 2019 and 2021



Source: OAG Traffic Analyser, Steer analysis

*Change in the type of airlines operating to/from European airports*

6.89 The same analysis was undertaken by airline type at each airport for the domestic and intra-EU27+3 markets. Due the small proportion of low-cost long-haul connections, analysis on the extra-EU27+3 market was not conducted.

6.90 In the domestic market the number of routes operated by low-cost carriers increased by +13.4%, whilst those operated by network carriers reduced by -8.4%, however there is no general trend across Member States and it should be noted that these figures will be influenced by the respective quantity of routes operated by each airline type in each Member

<sup>119</sup> European Commission, C(2020) 4551 final, State Aid SA.57691 (2020/N) – Cyprus – COVID-19 – Incentive scheme towards airlines in this case of Cyprus.

State prior to the pandemic. The number of routes operated by LCCs in France increased by +19.2% from 78 routes in 2019 to 93 routes in 2021, while routes operated by network carriers decreased by 23.7% from 139 to 106. This same trend was seen in Spain where LCC routes operated by LCCs grew by +10.2% while routes operated by network carriers decreased by -10.2%. A similar trend was observed in Italy, where the number of routes operated by LCCs increased by +26.4% from 129 to 163. Low-cost carriers entered the Bulgarian market, where they had no presence in 2019.

- 6.91 In terms of frequency, LCC frequencies reduced by an average of -35% whilst network carrier frequencies reduced by -41.5%. Of the 14 Member States where LCCs and network carriers both operate domestic routes, frequency reductions made by LCCs were higher in six Member States: Denmark, Finland, Germany, Greece, Sweden and Norway. In the Nordic countries this was likely driven by the restructuring of Norwegian airlines.
- 6.92 In the intra-EU27+3 market, the number of routes operated by LCCs reduced by -17.3% whilst those operated by network carriers reduced by -23.6%. This trend was witnessed in 22 of the 30 Member States analysed, with the reverse trend seen in Austria, Germany, the Netherlands and the Nordic countries. In terms of frequency, average LCC frequencies reduced by -53.5%, whilst those for network carriers reduced by -55.7%. Smaller decreases were made by LCCs in 22 of the 30 Member States analysed.
- 6.93 Airport industry stakeholders, including ACI-Europe, Fraport, and Budapest Airport, stated that LCCs such as Ryanair and Wizz Air have aggressively expanded their market share during the pandemic through opening new bases across Europe. At the same time, full-service carriers have struggled due to the slower recovery of business travel compared to the VFR and leisure market segments; this again benefits LCCs to a greater extent than full service carriers. At Dublin Airport, LCC traffic was stated to be 80% of 2019 levels during the consultation phase, compared to less than 50% of 2019 levels for flag carriers. SEA Group, the operators of both Milan airports, reaffirmed this finding, with LCC passenger share increasing from 35% in 2019 to 40% in 2020 and over 50% in 2021.
- 6.94 It should be recognised that connectivity at some airports may be impacted by the higher share of low-cost airlines as this can present fewer interlining options for passengers who may instead have to bear transfer risks themselves (rather than the airline) in the case that they wish to connect onwards. This also reduces the connectivity of air freight as low-cost airlines do not transport cargo in their belly-hold and remote/peripheral regions do not usually have a high share of freighter traffic. However, these effects of an increased market share of low-cost carriers may only manifest themselves in slot-congested airports, as FSCs will otherwise be able to offer routes at the same airport as LCCs.
- 6.95 On more regionally focussed routes, LCCs also tend to operate larger aircraft and thus routes must be operated at a lower frequency to remain viable. Whilst this may be suitable for leisure passengers, this may give rise to issues with connectivity for business passengers as the business market returns as this market segment generally required higher frequencies.

#### **Impacts on Public Service Obligations routes**

- 6.96 Under the Air Services Regulation (No 1008/2008), PSOs are exceptions to the free provision of air transport services in the EU Internal Market. Their exceptional nature is justified by their importance in preserving minimum connectivity where there is a market failure. There are two types of PSO routes, open or restricted/closed.

- Open PSOs are where any air carrier can operate the PSO if it complies with their requirements. There is no exclusivity and no compensation is granted.
- Restricted/closed PSOs are where a Member State can restrict access to the route if no carrier is willing to operate the route as an open PSO. The selection of the operator of the route must be made by public tender published or announced at Union level: only one air carrier can operate the PSO. If exclusivity is not sufficient to ensure the financial viability of service, then compensation is awarded too.

6.97 In order to enable Member States to put urgently in place public services to respond to specific needs or to temporarily replace commercial offers that have become unavailable due to the COVID-19 outbreak and related containment measures, a guidance on the State aid rules and public service obligations rules applicable to the air transport sector during the COVID-19 outbreak was published in April 2020. It was updated in March 2021 based on the development of the pandemic and the experience of DG MOVE and DG COMP with support measures adopted by the Member States over the past year<sup>120</sup>. Specifically on PSOs, the Commission decided that some services of general economic interest (“SGEI”) essential to fulfil a specific public need (e.g. providing connectivity across territories) are allowed but will have to be limited in time and scope. In the passenger air transport sector, public service compensation is generally granted to air carriers under specific public service obligations (PSO).

- The Air Services Regulation allows Member States (Article 16(12)) to select another airline by mutual agreement to operate that PSO route for up to seven months, if there is a sudden interruption to a service provided by the selected air carrier. However, emergency PSOs under Article 16(12) of Regulation 1008/2008 do not apply to routes operated commercially prior to the COVID-19 outbreak, but the Commission allowed public authorities to organise emergency PSOs for air routes that were commercially operated before the crisis and may not be considered as PSOs under Regulation 1008/2008.
- The introduction of these emergency PSOs was allowed for a period of three to six months, in accordance with public procurement procedures that were made more flexible because of the crisis, on the basis of the Commission guidelines. It was also noted that any such emergency PSO may be prolonged only once for three months with a simple change of contract with the same operator. On this basis, it was therefore possible to set up emergency PSOs under a negotiated procedure without publication, noting that the relevant State aid rules had to be complied with.
- In case an emergency PSO was needed for a longer period (i.e. beyond the maximum six + three months), a new award for a renewed emergency PSO of up to three to six months can be done under certain conditions. Where a Member State envisaged that the market was unlikely to satisfy the minimum connectivity needs as of the end of a renewed emergency PSO, the Member State was required to organise a fully-fledged tender pursuant to Article 17 of Regulation 1008/2008, which should be limited to one or two years maximum as to not foreclose the market for a long time. However, the Air Services Regulation cannot be relied upon to provide an emergency PSO service with different conditions or scope by the *same* operator. In this case, the Commission clarified that COVID-19 related modification should be valid for a maximum of three to six months,

---

<sup>120</sup> [https://ec.europa.eu/transport/media/news/2021-03-25-updated-overview-state-aid-rules-and-public-service-obligations-rules\\_en](https://ec.europa.eu/transport/media/news/2021-03-25-updated-overview-state-aid-rules-and-public-service-obligations-rules_en)

provided that they respect the principles of necessity and proportionality. Beyond this, a new contract must be awarded instead.

6.98 Based on data provided by the European Commission on EU27 aviation PSO routes in 2018 and 2020, we observe from the table below that many Member States (Croatia, Cyprus, Estonia, Greece, Portugal, Spain and Sweden) did not change the number of routes under PSO between 2018 and 2020, nor the type of PSO routes (peripheral, development or thin). Meanwhile only two Member States stopped altogether having PSOs and no longer have any intra-EU PSOs: this was the case for the Czechia (where no carrier applied for the tender even before the pandemic) and Lithuania (the route from Vilnius to London is no longer an intra-EU PSO, hence not included in the data of the European Commission). The most significant changes in terms of the number of PSO routes operated that took place in 2020 but also in 2021 were in:

- Finland: Four closed routes were launched for a very short duration: from 1 April 2021 to Dec 2021. The operators that won the tenders were not operating PSOs in Finland previously.
- France: there was a loss of two peripheral and two development routes, with the rest of the network remaining the same. However, this is a small reduction for this Member State which is traditionally the largest user of PSO with nearly 80 PSO routes in 2018.
- Ireland: the number of routes under PSO fell from four to one. This was as a result of the bankruptcy of Stobart Air. An emergency PSO to last several months was put in place and a more long-term PSO tender competition for the Dublin to Donegal route was recently completed with a new operator assigned for several years. Another route has been taken over by Ryanair on a commercial basis.
- In Italy, the authorities were faced with the bankruptcies of carriers which operated PSOs: Tayanjet and Alitalia SAI. This resulted in a loss of services for Trapani airport on six closed PSO routes at the end of 2021 and from Comiso airport to the two largest Italian cities. Emergency procedures for PSO was launched for Comiso-Milan and Comiso-Rome. However, no carrier applied for the tender. Volotea, a low-cost airline also entered the largest Italian PSO market (to Sardinia).
- Norway<sup>121</sup>: Avinor indicated that in the beginning of the pandemic, some commercial routes were operated as PSO routes, as these routes had become commercially non-viable due to lost traffic volume. SAS and Norwegian operated most of these routes. Support to emergency PSO routes was gradually phased out as demand increased. 10 routes were temporarily made PSO routes from March 2021 to September 2021; four of these routes have been made PSO routes permanently (Oslo-Florø, Oslo-Ørsta/Volda, Stokmarknes-Tromsø and Stokmarknes-Bodø).
- Sweden: eight emergency COVID-19 PSO routes were introduced in April 2020 (Kiruna-Stockholm, Luleå-Stockholm, Umeå-Stockholm, Östersund-Stockholm, Skellefteå-Stockholm, Örnsköldsvik-Stockholm, Sundsvall-Stockholm, Visby-Stockholm), of which six returned to commercial traffic later in 2020 (Kiruna-Stockholm, Luleå-Stockholm, Umeå-Stockholm, Östersund-Stockholm, Skellefteå-Stockholm, Visby-Stockholm) and two in 2022 (Örnsköldsvik-Stockholm, Sundsvall-Stockholm).

---

<sup>121</sup> Norway data was not included in DG MOVE database

**Table 6.8: PSO routes operated in EU27, 2020 vs. 2018**

MS	Year	Total no. of routes	Justification/s for PSO routes*		
			Peripheral	Development	Thin
HR	2018	10	2	10	8
	2020 (change vs. 2018)	10 (0)	2 (0)	10 (0)	8 (0)
CY	2018	1	1	0	1
	2020 (change vs. 2018)	1 (0)	1 (0)	0 (0)	1 (0)
CZ	2018	3	0	2	3
	2020 (change vs. 2018)	0 (-3)	0 (0)	0 (-2)	0 (-3)
EE	2018	3	3	3	3
	2020 (change vs. 2018)	3 (0)	3 (0)	3 (0)	3 (0)
FI	2018	3	0	1	3
	2020 (change vs. 2018)	7 (+4)	1 (+1)	1 (0)	6 (+3)
FR	2018	37	31	30	18
	2020 (change vs. 2018)	38 (+1)	29 (-2)	28 (-2)	18 (0)
EL	2018	28	28	28	21
	2020 (change vs. 2018)	28 (0)	28 (0)	28 (0)	21 (0)
IE	2018	3	3	1	0
	2020 (change vs. 2018)	1 (-2)	1 (-2)	0 (-1)	0 (0)
IT	2018	11	11	11	5
	2020 (change vs. 2018)	15 (+4)	15 (+4)	15 (+4)	1 (-4)
LT	2018	1	1	1	0
	2020 (change vs. 2018)	0 (-1)	0 (-1)	0 (-1)	0 (0)
PT	2018	20	19	1	0
	2020 (change vs. 2018)	21 (+1)	20 (+1)	1 (0)	0 (0)
ES	2018	23	18	23	5
	2020 (change vs. 2018)	23 (0)	18 (0)	23 (0)	5 (0)
SE	2018	11	11	0	11
	2020 (change vs. 2018)	19 (+8)	11 (0)	0 (0)	11 (0)

Source: Steer analysis of European Commission data on PSO routes. Note: changes in 2020 vs. 2018 presented in parentheses. Note (\*): PSO routes can have multiple justifications, hence the number of justifications may exceed the total number of PSO routes operated.

6.99 However, other changes took place on PSO routes during the pandemic, which do not appear in the data on the number of routes.

- The requirement on aircraft type in the PSO contract was suspended to address the issue of demand and reduce airline operating costs. This was the case in Finland for instance where the required ATR-72 was swapped for a Saab 340 on a PSO route, but was also mentioned by France.
- The Spanish authority explained that it reduced the number of frequencies to be mandatorily operated. However it maintained all the routes.

- The French authorities amended their PSO requirements to allow airlines to fly a reduced programme of frequencies and avoid further airline loss-making on these routes. This allowed the authority to avoid airlines terminating contracts.

6.100 Of the Member States that normally operate PSOs (as per table above), only a handful reported that they had used the emergency PSO legislation during the pandemic: Italy (using Regulation 1008/2008), Sweden (using the COVID-19 temporary guidance on PSOs) and France (using Regulation 1008/2008). ACI-Europe also mentioned that there were two failed attempts to establish emergency PSOs in two other Member States, but whilst Italy reported (as above) that no airlines stepped in, the other Member State did not report this in consultation.

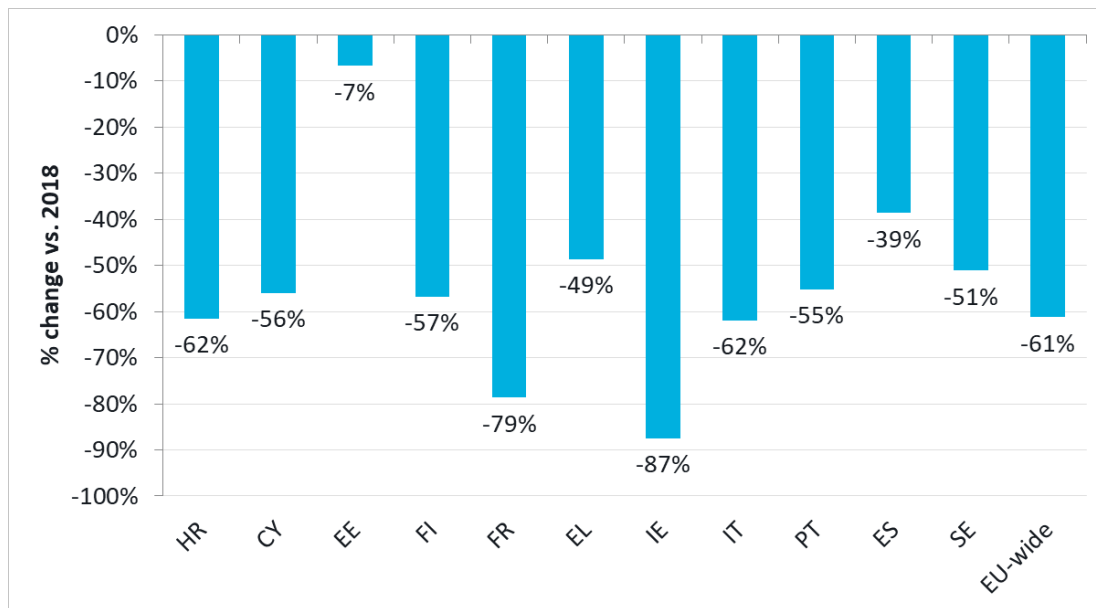
6.101 For those Member States, only Sweden and France commented on the Guidance on the State aid rules and public service obligations rules applicable to the air transport sector during the COVID-19 outbreak. Sweden used the procedure several times during the pandemic, always after a competitive public tender procedure (i.e. no direct award of contracts). They highlighted the following points:

- They found there was competition for each contract. Bids came in from several airlines, both Swedish and airlines from other Member States, in every procurement. This was even the case in the very first procurement procedure where the time for submitting an offer was just under a week, and the time between signing of the contract and start of air services was just three days. Thereafter, the procurement procedure was improved with longer periods.
- Overall Sweden found the Guidance to be satisfactory, but noted that the Guidance document should have been clearly dated, with newer revisions benefiting from a clear mark-up of what had changed.
- The Guidance could have been clearer on how long an emergency contract for a route could be before the Member State had to follow the procedure laid down in Regulation 1008/2008. It should be noted that the time limit for the contract (up to seven months) in the regular emergency procedure of Article 16(12) of Regulation 1008/2008 is set so that it is possible to follow the regulation and organise a new tender for the next, regular contract on that route. If flexibility is needed, there are ways to include that in the regular contract, e.g. amendment clauses, shorter contract periods with options to prolong, as set out in Article 17(3) of Regulation 1008/2008.

6.102 France stated that the emergency PSO procedure set out in Article 16(12) of Regulation 1008/2008 has many disadvantages: it cannot be triggered if a company has already notified of contract termination (with a notice of at least six months), and that issuing a call for tenders in less than six months was difficult. More generally, it also highlighted that the PSO legislative framework is quite rigid during a crisis and that the authority would have benefited from improvements such as minimal requirements with the possibility to have a dialogue between the authority and the carrier to obtain a better priced offer, whilst maintaining the transparency and competition pillars of Regulation 1008/2008.

6.103 Whilst the number of PSO routes has remained broadly equivalent in the vast majority of Member States, the drop in traffic has also affected these routes, with an overall loss of 61% (excluding the 2018 traffic of Czechia, Lithuania and the UK). At national level, Estonia managed to maintain its PSO traffic to very similar levels pre and post pandemic with only a 7% drop. All other Member States witnessed a significant decrease with -87% for Ireland or -79% for France for instance.

Figure 6.13: Change in PSO passenger traffic, EU27+3, 2018- 2020



Source: Steer analysis of European Commission data on PSO

- 6.104 Supporting PSO traffic can have a financial impact for Member States in the case of closed PSO routes with compensation, although not all PSO routes are subject to the payment of compensation. For those that do, depending on the specifications and characteristics of the route, as well as the number of PSO connections/routes, the financial burden varies from €2.8 million in Estonia in 2020 to €103 million for France the same year. Excluding the Member States which have stopped PSO routes in 2020, the total annual compensation provided has slightly increased between 2018 and 2020 by 3% to reach €236 million. Please note that this is based on the data provided by Member States to the Commission, and that there are some gaps in the data. Some routes in the database are listed as being subject to compensation, but no detail is available on how much compensation was paid. So the figures presented here may need to be revised up. However, as already explained above by some Member States, not all planned compensation for 2020 will have been paid, meaning that the precise amount of compensation paid for the period remains unclear.
- 6.105 A final observation made by a Member State and an airport is that there have been in a few cases some PSO tenders now operated by low-cost airlines or leisure airlines compared to full-service carriers. This does not appear to be necessarily a direct result of the pandemic but part of a wider trend. Both stakeholders noted that whilst the route is maintained, the service quality can sometimes be lower: for instance, with flight times less aligned to the business segment which is an important travel segment in the case of some PSO routes, or the lack of interlining options. However, service quality, flight times, and interlining options are all part of PSO conditions to be met by the carrier selected in a PSO tender (or operating an open PSO without exclusivity and compensation), and it is the responsibility of the relevant authority to ensure the selected carrier can meet these criteria.

**Changes to bilateral agreements**

- 6.106 We did not ask stakeholders questions on bilateral agreements, nor were we required to report on them, so what we present below is anecdotal but worth mentioning. At least two Member States (Poland and France) explained that the pandemic had led to a de-facto



unilateral suspension of bilateral traffic rights. The Polish Member State mentioned that some third countries introduced special measures aiming at prevention of COVID-19. In case they were based on the sound and transparent criteria, it was fully acceptable. However, it seems that some countries decided to use the COVID-19 pandemic in order to limit the access to its market for foreign carriers for the benefit of its own carriers. This is the case of India, which required the conclusion of a special arrangement (so called “air bubble”) in order to authorise foreign carriers to enter its market during pandemic. Moreover, such arrangements were subject to additional conditions, not connected with the COVID-19 pandemic (some additional concessions from Member States).

- 6.107 A stakeholder (ENAA) highlighted that air transport agreements had been negotiated at a time when carriers of each party (EU vs. third countries) were operating global networks, meeting growing demand. Due to the COVID-19 pandemic, these circumstances which were the basis of the decision to negotiate the agreement, are no longer given.

#### **Conclusion on connectivity impacts**

- 6.108 Due to the prevalence of international travel restrictions due to the pandemic, domestic connectivity has logically resulted in relatively better domestic connectivity retention than cross-border connectivity. This fact however hides national disparities and the fact that leisure markets generally suffered far less than business markets. Intra-EU markets with tourism-demand (such as Greece, Spain or Italy) were clearly less affected than those without it (such as Northern and Eastern Europe).
- 6.109 When passengers needed to fly cross-borders, the heterogenous management of travel and travel requirements/restrictions/quarantine across Europe impacted both Intra-EU and extra-EU connectivity. Nonetheless, the European Digital COVID Certificate and other measures taken at European and national level helped to restore routes and frequencies at the intra-EU+3 level and the impact of these measure can clearly be seen between the intra-EU27+3 and extra-EU27+3 markets.
- 6.110 The impact of the pandemic on PSO routes has followed the general loss of demand. Authorities and carriers reacted by making changes to contract requirements to reduce the financial impact on airlines, and to avoid the operation of empty flights. In par with the connectivity trends explained in the section above, frequencies (and aircraft size) decreased sharply, but PSO routes were maintained unless the carrier ceased operating altogether: no authority has reported that PSO contracts were terminated early. It seems therefore that the PSO legislation has mostly managed to ensure minimum connectivity (in a downgraded manner compared to normal circumstances but in par with the commercial market) to the more remote and peripheral parts of the European Union. Additionally, some previously commercially viable routes are now operated under PSO arrangements to ensure domestic connectivity in Finland and Norway – those identified were:
- Finland – Helsinki – Joensuu/Jyvaskyla/Kajaani/Kemi-Kokkola;
  - Norway – data not included in PSO reports.
- 6.111 As to whether emergency PSOs helped to maintain connectivity, there is a mixed experience: some authorities suggest that it did as they successfully concluded a number of tenders (using Regulation 1008/2008 provisions), whilst at least one other could not obtain bids. There are possibly many reasons for these mixed views, some linked to specific aspects of the emergency legislation, whilst others may be resulting of national choices over granting PSO status.

- 6.112 Outside Europe, travel restrictions to the USA, Australia/New Zealand, China, Hong Kong or other destinations had a strong impact on connectivity. Some Member States consulted (FR, IT) also mentioned that the crisis had somehow put on hold bilateral agreements with third-countries (without necessarily a legal framework to do so).

### Outlook on connectivity

- 6.113 We expect domestic connectivity to recover as soon as 2022 with Intra-EU27+3 connectivity lagging behind. For both markets, there will be some variations as airports located in touristic areas are expected to be recovering to 2019 levels sooner than airports focussed on business passengers. However, the precise recovery of both markets may be negatively affected if passenger travel perception worsens as a result of a war on the border of the EU. This may be especially the case for Intra-EU connectivity on leisure routes to/from Member States located close to the Ukraine border such as Poland, Slovakia, Hungary or Romania.
- 6.114 It remains uncertain whether the expansion into new routes and markets, particularly by LCCs, during the pandemic will be maintained, or whether these ventures were short term measures to increase revenues. The number of domestic routes operated by LCCs in Europe increased in 2021 versus 2019 as they sought to capture revenues from the increased domestic tourism markets during the pandemic and the retention of these routes will be dependent on whether the domestic tourism market is maintained, or whether it reverts back to the pre-COVID-19 structure. LCCs will be able to allocate capacity dependent on market requirements, however this may result in reduced connectivity on domestic routes going forward, especially where other airlines have vacated routes due to low-cost competition.
- 6.115 Extra-EU27+3 connectivity was expected to be the market that would recover more slowly pre-Ukraine war. Figure 3.5 shows that it is indeed the market with the weakest signs of a rebound for 2021. The precise impacts of the Ukraine war still have to be considered, but we note that flights to Asia will be impacted by the Russian airspace ban, as well as creating some issues for flights to/from Baltic States and Finland.

## Impact on passengers

### Impact of businesses ceasing operations on passengers

- 6.116 Airline bankruptcies are normally heavily publicised as the impact on passengers or ticket holders can be significant, including lost money, except in the case of orderly wind-downs as was the rare case for Air Berlin. Surprisingly perhaps, the impact of such insolvencies on the passengers concerned was in most cases limited by the pandemic as very few passengers were flying at the time of operation cessation and/or many airlines had already suspended operations many months prior to closing. Table 6.9 presents how each of the airline closures identified above would have impacted passengers. Please refer to Chapter 7 for the impact on staff.

**Table 6.9: Impact of European airline closures on passengers**

MS	Airline	Ceased operations	Notes
UK	Flybe	05-Mar-20	Estimated over 20,000 <sup>122</sup> passengers were stranded due to the closure, but due to the large proportion of domestic

<sup>122</sup> <https://www.consultancy.uk/news/29715/how-150-consultants-from-ey-parthenon-helped-save-flybe>

MS	Airline	Ceased operations	Notes
			itineraries, replacement travel by train/coach was available to many (but not all) customers. No repatriation programme was provided by the authorities. Core routes have been taken over by other operators.
SE	BRA Braathens Regional	06-Apr-20	Suspended flights on 6 April due to Swedish government recommendation to not travel. Impact on passengers not directly from airline closure.
DE	German Airways (previously LGW)	Apr-20	No impact on passengers – Passengers would have been booked on Eurowings flights.
AT	LEVEL Europe (VK)	18-Jun-20	Operations suspended in March 2020 – no impact from closure on passengers.
DE	SunExpress Deutschland	23-Jun-20	No impact on passengers – Services taken over by SunExpress (Turkey) and Eurowings.
FR	LEVEL OpenSkies (LV)	08-Jul-20	Operations suspended in March 2020 – no impact from closure on passengers.
DK	Jet Time	21-Jul-20	Unknown.
SK	Go2Sky	19-Aug-20	Unknown.
AT	Laudamotion	Oct-20	No impact on passengers – Services taken over by Lauda/Ryanair.
UK	Norwegian Air UK	Jan-21	Operations suspended in March 2020 – no impact from closure on passengers.
NO	Norwegian Long Haul	Jan-21	
IE	Norwegian Air International	Apr-21	
BE	Air Antwerp	11-Jun-21	Final operation in November 2020. No impact on passengers.
IE	Stobart Air	12-Jun-21	Impact on Flybe passengers due to flybe closure. Limited impact on Aer Lingus Regional passengers due to the pandemic. Transition of services to Emerald Airways (commencing March 2022). Some regional routes from Ireland affected due to the lack of regional aircraft to operate in the interim. Some routes are temporarily being operated by Aer Lingus (mainline) or other IAG carriers until Emerald Airways commences services.
EL	Orange2Fly	Sep-21	Unknown.
DK	Great Dane Airlines	11-Oct-21	Unknown. Operated seasonal charter services and 2/3 aircraft were leased to Bamboo Airways (Vietnam) at closure.
IT	Alitalia	15-Oct-21	Orderly transition to ITA, no impact on passengers.
IT	Luke Air	26 Oct 2021 (suspended)	Unknown.

Source: Steer analysis of OAG data, industry press

### Impact on prices paid by consumers

What has been the impact on the pricing policies of different actors (airlines, airports and ground-handlers) in the aviation value chain?

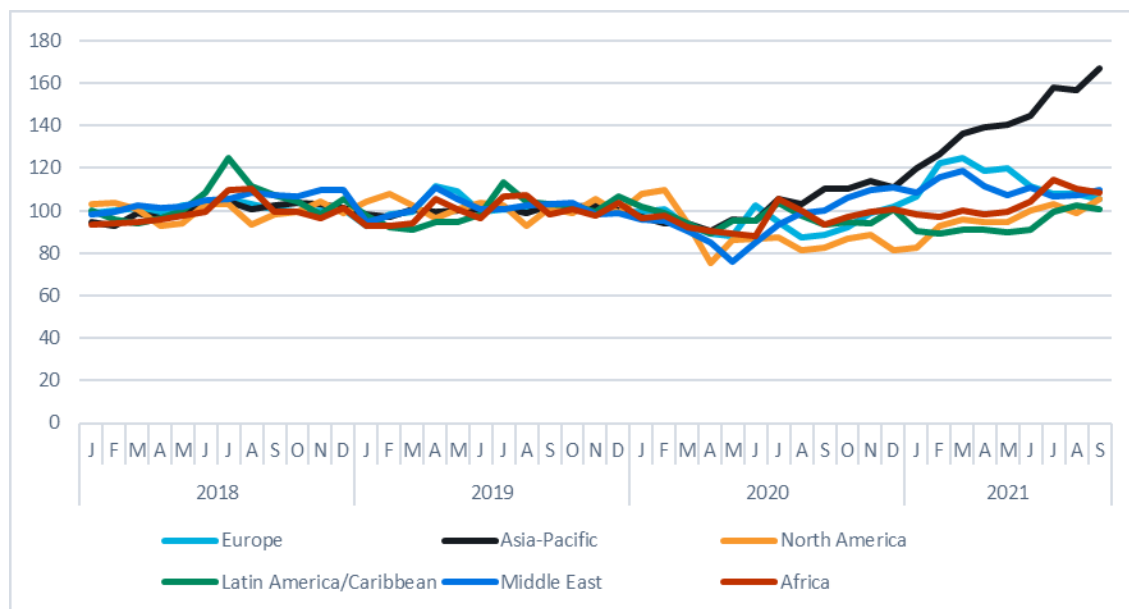
- 6.117 In order to understand airlines' approaches to pricing during the pandemic, we have undertaken an analysis of fare data in a variety of markets, from 2018 to 2021. The data analysed is from Sabre Market Intelligence fare data (which includes taxes, surcharges and other fees an airline collects from passengers, but excludes ancillary fees such as baggage and seat reservation fees), which is consistent with the definition of how air fares should be communicated to the general public under Article 23 of Regulation 1008/2008. This information has been collated on a monthly basis for the period between January 2018 and

September 2021. The data is displayed as a fare index, based on the weighted average of the average fares paid in all city-pairs in the markets in scope, for both non-stop and connecting flights. The index is normalized to average prices in 2019. The advantage of a price index is that, unlike average prices paid, it is independent of changes in passenger volumes on individual routes. This means, for example, that an increase or decrease in the average distance flown has no effect on the price index. However, what the price index does not take into account is passenger decisions not to fly or to fly to a cheaper destination when they assess that prices are too high.

*By region*

- 6.118 The two charts below present fare evolution between EU27+3 countries and a number of markets, including Europe (in light blue), Asia-Pacific (in black), North America (in orange), Latin America and the Caribbean (in red), Middle East (blue) and Africa (green).

**Figure 6.14: Fare evolution between EU27+3 and world regions, 2018-2021 Q3 (2019 = 100)**



Source: DLR analysis of Sabre MI

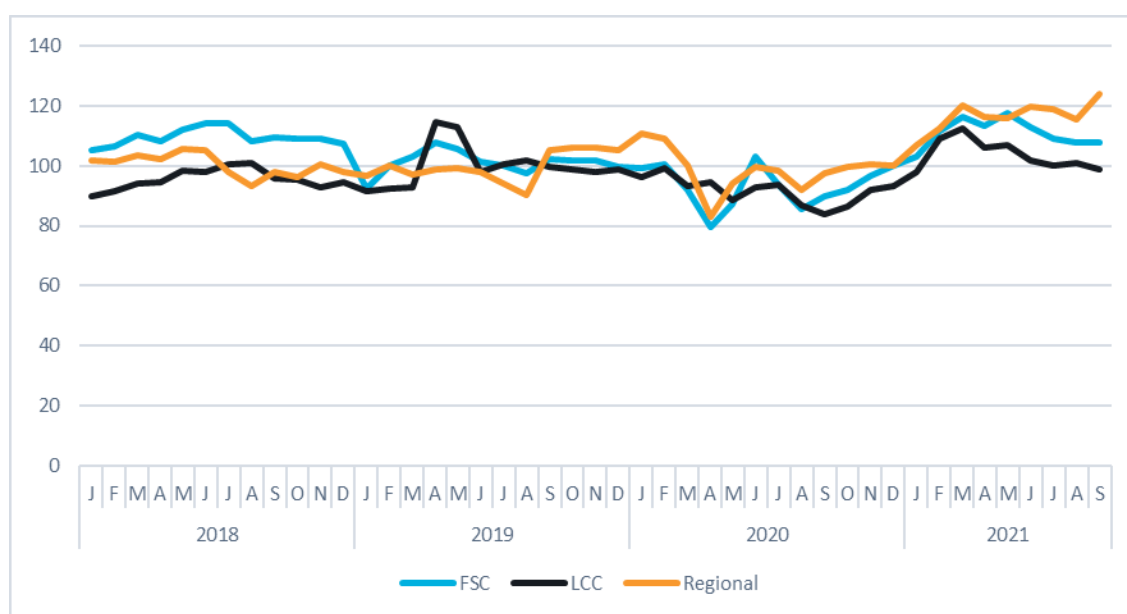
- 6.119 We observe that with the pandemic, prices declined significantly in the first half of 2020: flights within the EU and to the rest of Europe were, on average, up to 16% less expensive in 2020 compared to 2019. For North America and the Middle-East, the fare decline was even more pronounced, with a drop of up to 24% in 2020 compared to 2019 (noting that from March 2020 until early November 2021, a travel ban was imposed by the US on travel by non-US passport holders). In contrast, the maximum decline in average fares in 2020 for flights to Latin America/Caribbean and Africa was more moderate at around 10%.
- 6.120 In the beginning of 2021, average fares to almost all regions increased significantly, with the exception of routes to Latin America/Caribbean. Price increases were particularly pronounced for flights to Asia-Pacific. At the end of the third quarter of 2021, fares to Asia-Pacific were 67% higher compared to 2019. The reason for this strong price increase is in particular the high prices for flights to countries with strict entry regulations, such as China, Japan, South-Korea, Singapore and Australia. The high prices to these countries are, in turn, likely a result of

the low traffic volumes in 2020 and 2021. On routes within the EU and to the rest of Europe, fares were up 20%, on average, at the end of the third quarter of 2021 compared to 2019.

*By airline type*

6.121 Analysing flights within the EU and from the EU to the rest of Europe, and disaggregating airlines by type (full-service carriers<sup>123</sup>, low-cost carriers<sup>124</sup> and regional airlines<sup>125</sup>) show that fares of low-cost carriers fluctuated more over time than those of full-service carriers and regionals: this is explained by the fact that fuel prices have a larger impact on costs of low-cost carriers, as they account for a larger share of total costs but possibly also because of more dynamic pricing by these airlines. We also observe that full-service carrier fares fell more during the pandemic than those of low-cost carrier and regionals. The maximum price declines compared to 2019 was 20% for full-service carriers, 16% for low-cost carriers and 17% for regionals.

**Figure 6.15: Fare evolution between EU27+3 and Europe by carrier type, 2018-2021 Q3 (2019 = 100)**



Source: DLR analysis of Sabre MI.

*By Member State*

6.122 In relation to individual Member States, we present below price development differentiated by EU Member State between the first three quarters of 2019 and the first three quarters of 2021. We observe for intra-European flights, that there are different outcomes for each Member State.

- The Member States with higher price increases (above 10%) tend to either have a limited lack of alternative options (Cyprus) or smaller air transport markets (Estonia, Latvia, Slovakia, Slovenia).

<sup>123</sup> Air France/KLM, British Airways, Iberia, Lufthansa, LOT, SAS, TAP, TAROM

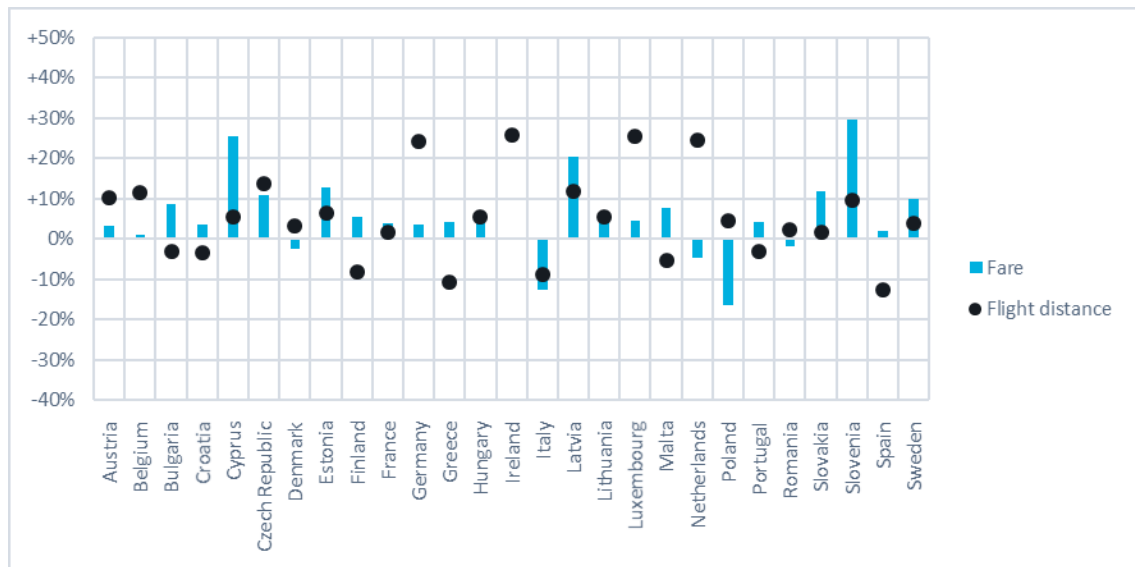
<sup>124</sup> Ryanair, easyJet, Wizz Air

<sup>125</sup> airBaltic, Binter Canarias, Widerøe

- The Member States with the lower price changes tend to have large air transport markets (France, Germany, Netherlands, Italy, Spain), although other Member States with smaller markets also recorded no or very limited changes (Greece and Luxembourg).
- The Member States with higher price declines (above -10%) are the exception (Italy and Poland).

6.123 In terms of average distance flown, we do not observe clear patterns on intra-European routes. It is likely that some passengers had to switch to connecting flights where non-stop services were discontinued, but there is no evidence from the chart below to suggest that where passengers had to use less direct flights across Europe that fares increased. In fact, in many markets with fare increases the average distance flown remained approximately the same, meaning that fare increases were maybe as a result of a change in the operating carrier (from low-cost airline to network airline), from a lack of demand or from a reduction in the number of competitors operating on a route.

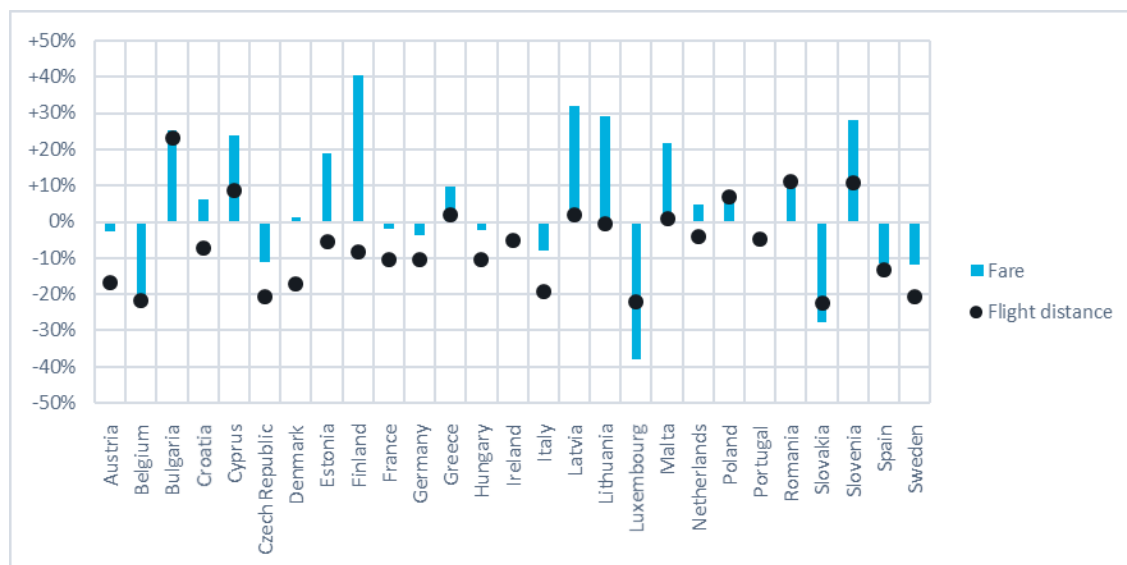
Figure 6.16: Intra-Europe fares by EU country – 2019 vs 2021 evolution (Q1-Q3)



Source: DLR analysis of Sabre MI.

6.124 For intercontinental traffic, if we compare the results with intra-European fare changes, we see that fare changes differed more between Member States and were in part more pronounced, with average fare changes of over 30%. We note that fare increases were especially strong on Asia-Pacific routes and thus Member States with a high share of Asian-Pacific traffic in 2019 (e.g. Finland) tended to show higher fare increases.

Figure 6.17: Intercontinental fares by EU country – 2019 vs 2021 evolution (Q1-Q3)



Source: DLR analysis of Sabre MI Airports

### Impact on commercial pricing models

How will the commercial/pricing models be affected by trajectory to carbon neutrality? How will the commercial/pricing models be affected by further digitalisation of airlines and distribution technologies?

#### Impact of carbon neutrality on commercial/pricing models

- 6.125 The lack of supply of SAF is a key issue to address so that the price differential of SAF<sup>126</sup> with jet fuel can reduce as SAF becomes more available. Until then, assuming that the SAF mandate of the Fit for 55 proposals is implemented as drafted, operating costs will increase. How much airlines will be able to absorb these costs rather than pass them to the passenger in a competitive market has to be considered further but it seems unlikely that recovering from COVID-19, with debt to repay and further cost rises anticipated (from increased energy prices, inflation or from ATM costs in Europe, etc.) they will be able to absorb most of it. Consequently, it seems likely that ticket prices will rise.
- 6.126 The blending mandate could be costly to achieve evenly across all regions and all airports, and therefore 10 years' flexibility has been proposed.
- 6.127 Another proposal included in the Fit for 55 package is to phase out free allocation of allowances for the EU ETS in the aviation market for intra-EEA flights, as well as flights to Switzerland and the UK, though it is not proposed to extend the scope of EU ETS to extra-EU flights (where CORSIA may apply). Therefore, long-haul European carriers may not have to pay for their extra-EU flights through the EU ETS (and may have to pay through the CORSIA scheme that is implemented under the ETS Directive), whilst short-haul carriers only flying within the EEA may pay through the EU ETS only. Depending on the cost differential for allowances between the EU ETS and CORSIA, there may be an unequal impact on pricing for short-haul

<sup>126</sup> "Depending on the production pathway used, the production costs of SAF are generally estimated to be between 1.5 to 6 times higher than for conventional fossil jet fuel": source: Proposal for a Regulation on ensuring a level playing field for sustainable air transport, COM(2021) 561 final.



and long-haul operations. For example, if CORSIA is cheaper per tonne of CO<sub>2</sub>, we anticipate that short-haul flights will in the shorter term experience a proportionally larger increase in costs as a result of the path to carbon neutrality.

- 6.128 Many airlines and airports shared a concern during the stakeholder consultation process<sup>127</sup> that the increased costs and subsequent pass-through related to compliance with environmental regulations could give a competitive advantage to neighbouring countries who are not required to comply with European-specific measures (for example, Turkey, Gulf countries, Northern African countries). Airports and airlines serving regions close to these neighbouring countries may be worst affected, losing market share to these neighbouring countries if the cost to travel to these regions becomes relatively cheaper than flying within Europe..

*Impact of crisis on pricing policy of airlines*

- 6.129 Looking at Table 6.10, we observe that the pricing policies for passengers have in general not changed other than full flexibility has been granted regarding rebooking, whether on network airlines or on LCCs. While pre-pandemic lowest fares did not allow rebooking or free rebooking, this has typically been granted since the beginning of the pandemic. However, it remains uncertain whether this flexibility on pricing policies will stay as demand recovers. Flexibility was offered to passengers by airlines during the pandemic to increase confidence in bookings. It may be the case that as the recovery from the pandemic continues, with lower risks of travel disruption caused by border closures or quarantine requirements, airlines will no longer need to offer flexible ticket policies (for free) to sustain demand and may withdraw these offers and reduce their own risk. In terms of the value of prices, airlines have reported fare erosion<sup>128</sup> as well as lower fares (AIRE).

**Table 6.10: Impact of the pandemic on pricing policy of airlines**

Company	Impact of the pandemic on pricing policy
Air France KLM (FR/NL)	We now offer a more flexible booking policy, where rebooking can be done at no extra costs and tickets are refundable.
Lufthansa Group (DE/AT/BE/CH)	Pricing policy in general has not changed other than full flexibility has been granted to all passengers regarding rebooking. While pre-pandemic lowest fares did not allow rebooking or free rebooking, this is granted since beginning of COVID-19. Also, primarily two new benefits are/were offered to the traveller: COVID-19 insurance as well as a “Bring me Home” commitment in case e.g. countries close borders. Lufthansa Cargo: LCAGs pricing policy has not changed in particular. LCAGs is “flowing” with the general market trend, usually achieving a slight premium as LCAG is valued as premium quality carrier by its customers. However, long-term contracts and contracts with reimbursement clause had to be reduced, as in the pandemic flight schedules could not be guaranteed. That led to increased “spot market” activity. Service offerings have been enhanced by tailoring a specific product for COVID-19vaccine transportation.
IAG (ES/IE/UK)	Temporarily, due to COVID-19 travel restrictions, IAG offered greater flexibility for all customers to make refunds and changes and gave them the confidence of knowing that they can change the date of their flights free of charge or get a refund in the form of a

<sup>127</sup> Airlines: Air France KLM, Lufthansa Group, LOT, IATA, AIRE, BDF, +2 confidential. Airports: ACI EUROPE, ADV, Vienna, Fraport, Hamburg, Cologne-Bonn, Munich, Stuttgart, Budapest, Dublin, Milan Bergamo, Malta, Royal Schiphol Group, Timisoara.

<sup>128</sup> Fare erosion refers to a lowering of price expectations from consumers.

Company	Impact of the pandemic on pricing policy
	voucher to swap for tickets and services on the airline website in some circumstances. Flexibility policy and products have been evolving staggered to meet different needs regarding flexibility as the pandemic situation changed, and as a result some of IAG's airlines have created new products for its customers to choose: New products as flexibility "à-la-carte" form of free changes and refunds can be added in non-flexible Fares during the online booking flow or new fare families with greater flexibility. Other airlines in the group have continue to adapt their existing products and extend flexibility depending on the level of restrictions in their key markets
LOT Polish Airlines (PL)	Decreased demand for air travel has resulted in decreased fares
AIRE	In many cases the lack of demand has resulted in lower and more flexible prices. Where the capacity has been reduced, there are number examples of routes with higher prices.

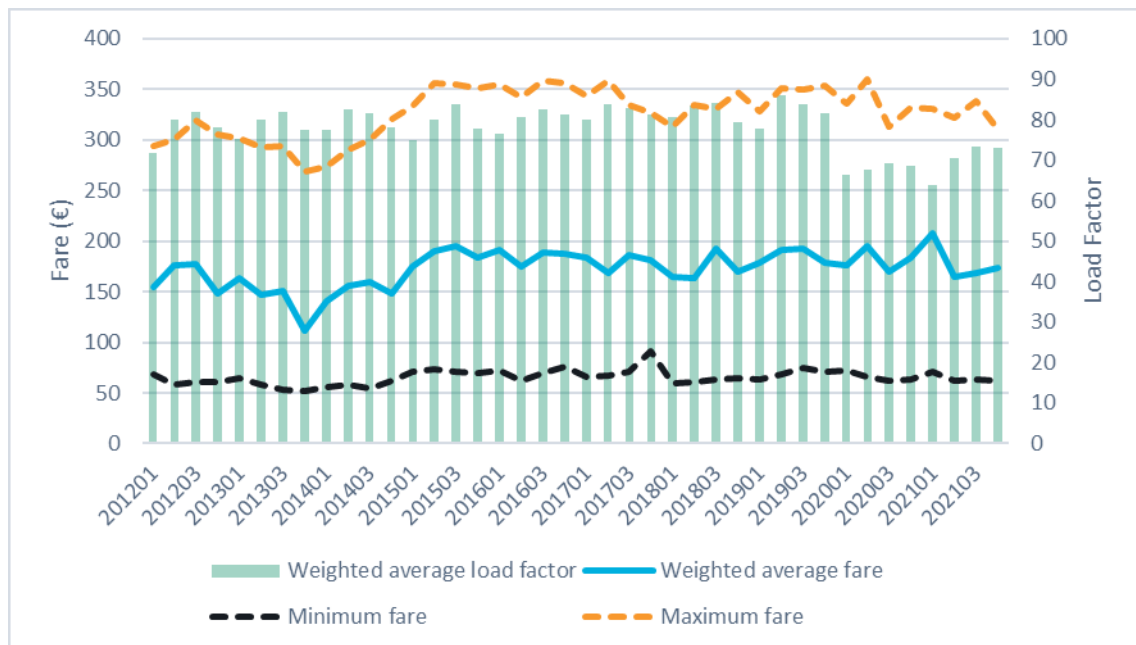
Source: Steer analysis of stakeholder consultation responses

### Passenger willingness to pay

Has the pandemic affected the price that passengers are prepared to pay for an air ticket?

6.130 Airline fare information is difficult to come across. What we present below is the maximum and minimum observed fares of intra-EU routes where data for these routes is available for the entire period from January 2012 to March 2021. This covers approximatively 50 Origin-Destination pairs. We do not see from the figure below major changes in fares (either minimum, maximum or weighted average) which we could interpret as showing relatively stable willingness to pay overtime. However, as load factors have decreased during the pandemic, whilst the prices have remained constant one could argue that COVID-19 has decreases the willingness to pay (or maybe only the willingness to travel).

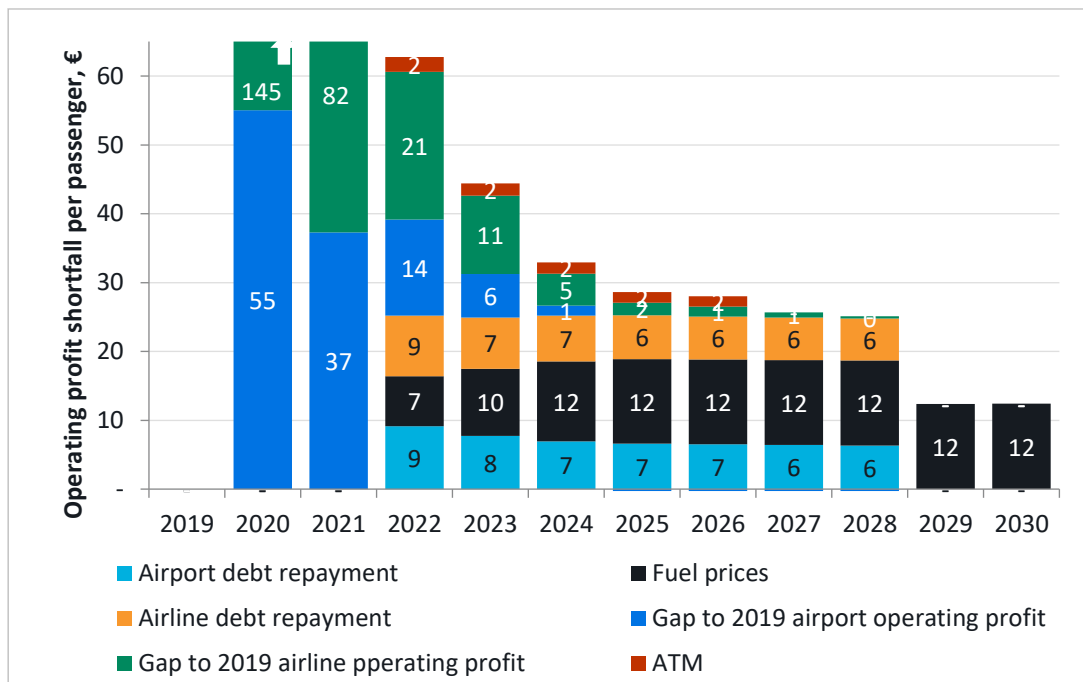
Figure 6.18: Evolution of minimum and maximum fare levels on selected Intra-EU routes, 2011-2021



Source: DLR analysis of MIDT data (Sabre)

- 6.131 Going forward, based on the outlook to 2030, airport and airlines will incur significant increases in costs (user charges, fuel and environmental costs) as they also start to pay back COVID-19 associated borrowing, which may be passed onto customers if additional costs cannot be absorbed. This is compounded by passenger demand remaining below 2019 levels until at least 2024 and the impact this will have on both airline and airport revenues.
- 6.132 Airports will likely be required to increase aeronautical tariffs and also seek new streams of non-aeronautical revenues from both passengers and other ventures to try and close this gap in funding. Any increases in aeronautical charges will be charged to airlines and this will further increase their costs. It was estimated that aeronautical revenues per passenger would need to be increased by a magnitude of around +40% per passenger between 2022 and 2028 solely to allow airports to meet their repayment obligations. Further to this, operating profit will still remain considerably below 2019 values until 2024/2025, which will continue to impact airport cashflow and their ability to pay for historical, required and future capital expenditure programmes.
- 6.133 Airlines will be required to increase passenger fares to:
- Counteract additional airport charges levied by airports;
  - Counteract additional fuel costs due to market forces and also due to requirements to transition towards alternative fuels such as SAFs and/or be required to pay taxes on fossil fuels;
  - Assist with repayments of COVID-19 related borrowing; and
  - Provide operating profit to ensure cashflow for ongoing and future investments, especially those required to comply with their decarbonisation objectives.
- 6.134 The projection tool, developed by Steer for this Study, was used to estimate the impact of these cost increases on passengers in the case that all additional costs are passed on. Figure 6.19 presents the components of the additional average fare required by passengers to allow airlines and airports to both pay additional costs, also and achieve an operating profit equal to that of 2019.
- 6.135 In 2020 and 2021 additional costs required are related to closing the gap to 2019 airport and airline operating profits only. Due to the low levels of passengers in 2020 and 2021, these are sizable and would equate to average passenger fares increasing by €200 in 2020 and €120 in 2021 to cover this.
- 6.136 In 2022 additional costs are expected due to the repayment of COVID-19 related debts as well as due to increased fuel prices. In 2022, a total additional fare of €63 per passenger would be required to cover all costs and meet 2019 operating profit levels, however this figure reduces to €44 per passenger in 2023, €33 per passenger in 2024 and €28 per passenger in 2025 as these costs can be spread over more passengers as demand returns.
- 6.137 Between 2025 and 2028, additional costs per passenger reduce slightly from €27 to €24. The “gap” to reaching 2019 operating profits is very small as passenger numbers start to exceed 2019 levels and additional costs are focussed on debt repayment and fuel costs only.
- 6.138 From 2028 only additional costs associated with increased fuel prices are expected, however this will be dependent on debt repayment schedules and interest rates.

Figure 6.19: Additional costs per passenger estimations



Source: Steer analysis

## Impact on competitiveness

### How will the impact of the crisis affect the competitiveness vis-à-vis third country competition?

- 6.139 Competitiveness relates to how effective is competition of European businesses with non-European businesses. Whilst both quality and price aspects should in principle be considered, we only discuss here price. Pricing approaches are influenced by whether cost changes are globally harmonised or stronger in some regions than others. If the increases in cost are greater in some regions than others, this provide opportunities for some players while for the most exposed this will be a penalty. If a regional or national markets experiences distortions in the cost of achieving carbon neutrality relative to other markets for a sustained period of time, it is likely that exposed players will fail.
- 6.140 We have already discussed that globally, Europe has been one of the worst affected world regions and has also seen a slower recovery than the Asian (mainly China) and US markets. Certainly compared to China and US, European businesses could not from the outset rely on the domestic market based on a single set of national COVID related rules. In addition, some non-EU carriers (especially US airlines) have also had access to state aid under the CARES Act with less requirements of reimbursements than their European counterparts. Non-EU competitive pressure for European airlines may intensify as the policy landscape may increases the cost of operating aviation services. For extra-EU travel, hubs close to the EU may increase their attractiveness for long-haul travel.
- 6.141 There is also a risk of competitive distortion with non-EU businesses, but also possibly internally, posed by different legislative proposals:
- Price of SAF: depending on the type of SAF used, costs can be on average two to six times higher than those of conventional kerosene. The higher the cost difference, the higher the risk of competitive distortion for airlines operating from EU airports (subject to a SAF mandate) compared to those operating from non-EU airports (not subject to a SAF mandate), with the risk of diversion of traffic from EU to non-EU airports. The study supporting the impact assessment of the ReFuelEU Aviation initiative found that the impact of ReFuelEU Aviation should be limited constituting around 1% of the ticket price in 2030. However, some aviation stakeholders estimated that the impacts will be higher. They highlighted that the guaranteed demand introduced by the Fit for 55 package coupled with the current lack of supply of SAF in Europe may take longer to realise the benefits associated with scale up of technologies, whereby SAF prices should reduce, and with the price of fossil increase due to price signals introduced in the Fit for 55 package. At the same time, it is important to consider that free allowances for the uptake of SAF, as agreed under the EU ETS, will play a major role in bridging the price gap between SAF and fossil Jet-A in the early years of the newly created market until at least end of 2030.
  - Price of emissions allowances under the ETS compared to the price of offsets under CORSIA: the price of ETS aviation allowances (EUAs) reached over €70/tonne of CO<sub>2</sub> in November 2021 (in its impact assessment on the proposed ETS reform, the European Commission uses the assumption of a carbon price of €32/tonne of CO<sub>2</sub> in 2030). In the course of 2021, offsets have generally become more costly as well, but overall can still be obtained at significantly lower prices. In addition, with CORSIA using 2019 emissions as its current baseline until the end of 2023, as long as global emissions do not exceed 2019 levels, no offsetting requirements will apply at all. Consequently, there is a risk of

competitive distortion between airlines (such as regional airlines and LCCs) operating on intra-EEA routes (subject to the ETS) and those operating on extra-EEA routes subject to CORSIA (such as long-haul carriers).

- Stringency of environmental regulation in other regions: if ICAO or other regions introduce more stringent environmental regulation, this might reduce the gap in ambition compared to European policies and as such also alleviate competitive distortion risks.

6.142 The Fit for 55 package of measures, which will be agreed soon and rolled out in the coming years, will have some impact on European carriers at a time where they regaining competitiveness after the crisis, and, without further support, could leave them in a less competitive position than some of their non-EU competitors. More broadly, the severity of the COVID-19 crisis means that the whole EU air transport sector may face stronger competition from third country operators having received similar support during the crisis but not having the same level of environmental obligations.

6.143 Without consideration of these issues, the European air transport competitiveness may lose out to a certain extent. In particular carriers from Turkey may take advantage and expand their hubs and network to transport passengers at lower cost than EU carriers will be able to do. Equally London in the UK may become a very attractive alternative for flights to the US and Canada, or the Caribbean although the level playing-field non-backsliding provisions of the EU-UK Trade and Cooperation Agreement should in principle prevent that. Without a level playing field there may be harm caused to the EU economy whilst the intended climate effect may not be fully reached.

#### *Impact of planned sectoral changes*

How will the planned sectoral changes, such as greening (including the shift to multimodality) or digitalisation, affect the competitive structure and business models present in the market as well as relations across the market levels (e.g. groundhandling companies vs airports vs airlines)?

#### *Competitive structure and business model changes for airlines*

6.144 The planned sectoral changes concerned are the greening and the digitalisation of the industry. These are very different as one is policy-lead (greening) whereas digitalisation is led directly by each business based on expected future productivity enhancements or other competitive improvements. It is therefore not realistic to comment on how digitalisation will affect the future competitive structure of the market, without knowing precisely what solutions the various businesses are implementing. We can only say that we expect that some businesses will improve their market shares and further their business models through digitalisation.

6.145 The main competitive consequence of the planned sectoral change comes from Fit for 55 proposals which do not include flights to non-EEA destinations under ETS but instead under CORSIA. It was estimated by Transport and Environment<sup>129</sup> that intra-EU carriers will have 80-90% of their emissions covered by the ETS, whereas long-haul carriers only purchase credits for around 19% of their emissions (which are much greater: the same source estimates that

<sup>129</sup> <https://www.transportenvironment.org/discover/airlines-call-for-an-end-to-loopholes-in-carbon-market-and-back-european-climate-measures/>

departing long-haul flights alone represent just 6% of all flights but generate 51% of the emissions from European aviation).

- 6.146 Airlines who tend to fly intra-EU flights only include regional and low-cost airlines. A low-cost airline explained that such a policy would incentive airlines to operate leisure flights to non-EEA destinations (such as to Morocco or Egypt) instead of EEA destinations. This would negatively impact the environment as flights to non-EEA destinations typically have longer flight times as well as negatively impact on tourism income.

*Competitive structure and business model changes for airports*

- 6.147 For European airports, greening is resulting in the need to invest into sustainable sources of energies (and if possible self-production through photo-voltaic, wind or other forms of energy). Shorter-term, airports will also need to ensure that groundhandling companies have sufficient access to charging points and that enough SAF can be offered alongside kerosene supply.
- 6.148 This will mean significant levels of investments by European airports, which will need to be passed through charges to passengers and cargo customers, whereas non-European airports may not need to deliver the same scale of greening projects. Where there is competition between some EU and non-EU airports for traffic (such as between hubs), there is a risk of a loss of competitiveness for European airports.

*Competitive structure and business model changes between groundhandlers and airports or airlines*

- 6.149 In terms of greening, groundhandlers need access to electricity (charging points), as well as incentives to invest in greener ground service equipment. Access to charging points is provided by the airports. Some airports across Europe may also have their own groundhandling subsidiary, so there may be a need to ensure that both airport-owned and non-airport-owned companies have access to the same number of charging points, in the location that they need (i.e. at the terminals where they operate), at the same tariff. In terms of incentives, these usually come from tender requirements which can either be drafted by airports or Member States. There may be a need to ensure that tenders do not put some groundhandling companies at a disadvantage with excessively high requirements. It would also be important to ensure that the same requirements also apply to companies selected through tenders, airport-owned companies and airline self-handling. Further incentives may also come from airlines as they select the groundhandlers that will operate their flights. It would be helpful if airlines could support the approach of airports when tender specifications are drafted.

*Shift to multimodality*

- 6.150 Improved intermodality between different transports modes (sea, land and air) will serve to increase connectivity so long as they are based on consumer/business preference and driven by market demand. There are some examples in Europe of air and rail intermodality (in Belgium, France, Germany, Netherlands), usually driven by the airline who seeks, where there is a suitable rail alternative to substitute flights for train services. We are not aware of commercial air to coach or air to maritime intermodal solutions in Europe. There are some national policies that aim to further incentivise multimodality: for instance in Belgium from April 2022, an air passenger tax has been introduced which vary as a function of the distance of the flight. However, the impact of such policies will need to be further assessed.



- 6.151 There may be some further development of air to rail mobility, but only where there is a high-speed rail network offering comparable levels of service. Clearly aviation cannot be systematically replaced by high-speed trains and there are some locations without suitable alternative mode of transport (such as island or areas where rail and road infrastructure is not yet developed to a sufficient degree, remote regions, e.g., northern places in Norway, Sweden or Finland). Trains are not yet able to provide airport direct connectivity in almost all of Europe, nor are they able to provide such fast connection times and security procedures as the airline industry.
- 6.152 This is the case for most hub feeding routes, which cannot easily be replaced by rail to preserve connectivity needs in a suitable way. On thick routes it is important to maintain air/rail competition, otherwise rail prices escalate as can be seen on the Eurostar network. A case-by-case approach is therefore necessary in order to assess the feasibility of the necessary (intermodal) shift. Other tools may be more readily available to promote a multimodal service, such as possibilities linked to multimodal travel information and ticketing.

Figure 6.20: Top 150 intra-EU routes, by train journey duration

**Top 150 intra-EU routes, by train journey duration**

Duration of journey	Number of routes	Proportion of routes among the top-150 intra-EU routes (%)	Cumulative number of air passengers on these routes (million)
Less than four hours	21	14	24
4–6 hours	30	20	34
6–8 hours	15	10	15
8–16 hours	58	39	55
More than 16 hours	23	15	21
Cannot be travelled by train	3	2	2
Total	150	100	152

Source: Greenpeace (2021), 'Get on track: the alternative to short-haul flights in Europe', October.

## Role of public financing in greening/digitalisation

What will be the role of the public financing (e.g. State aids incl. RRF, InvestEU) concerning green transition and digitalisation?

- 6.153 The investments faced by the entire air transport industry for the green transition are enormous:
- For the top 50 European airports, ACI-Europe estimated during stakeholder consultation that achieving Net Zero CO<sub>2</sub> on airport terminals alone would require €26 billion;
  - Capex in the range of USD 219 billion to USD 306 billion will be required in Europe to enable SAF production capacity in line with the Net Zero CO<sub>2</sub> goal for 2050<sup>130</sup>;
  - Airlines will invest in more fuel-efficient aircraft that will amount for European airlines of around €140-170 billion of investments in new aircraft by 2030<sup>131</sup>. Destination 2050 reported investments of € 5,000 billion for the acquisition of 26,000 new aircraft (at global level);
  - €12 bn will need to be invested in R&I until 2030, whilst the subsequent development of new aircraft technologies costs €15 bn per aircraft type<sup>132</sup>;

<sup>130</sup> ATAG's Waypoint 2050 study

<sup>131</sup> Airbus, as per stakeholder consultation response

<sup>132</sup> EU Clean Aviation Partnership

- 6.154 But these investments will not stop beyond 2030 and in fact the entire European fleet and airport eco-system will need to be adapted to supply green hydrogen and electricity and to handle hydrogen (and to a lesser extent electric) aircraft, in parallel with aircraft on jet fuel and SAF as they gradually retire from service.
- 6.155 The scale of investments that faces the industry is unprecedented, even when we take into consideration that a part of these investments would probably have been made regardless of the green transition: for instance, airlines would have kept investing in new aircraft where the unit-costs would have justified such an acquisition. However, what is new and important here, is that some of these investments have been brought forward because of decarbonisation commitments for instance, or that some of these investments would not pass the “normal” economic cost-benefit assessment if decarbonisation was not added as an objective.
- 6.156 There is no doubt that an industry very much in a recovery mode and with huge decarbonisation costs will need some form of regulatory incentives to ensure that it has no choice but comply with the urgent green transition as well as public support to ensure that it can fulfil its objectives on time rather than shrink and increase its burden on its passengers and freight forwarders. Digitalisation is important as well as it plays a crucial role in optimising transport flows, not just for passengers but also for freight.

#### *Next Generation EU*

- 6.157 Next Generation EU is the temporary instrument designed to boost the recovery, with more than €800 billion temporary recovery instrument to help repair the immediate economic and social damage brought about by the coronavirus pandemic. The centrepiece of Next Generation EU is the Recovery and Resilience Facility. It is a temporary recovery instrument, which allows the Commission to raise funds to help Member States implement reforms and investments that are in line with the EU’s priorities (including green transition and digital transformation) and that address the challenges identified in country-specific recommendations under the European Semester framework of economic and social policy coordination. It finances reforms and investments in Member States from the start of the pandemic in February 2020 until the end of 2026 and makes available €723.8 billion (in current prices) in loans (€385.8 billion) and grants (€338 billion) for that purpose.
- A key issue is that airport investment following RRF must conform with the 2014 Aviation State aid Guidelines. These guidelines prohibited all aids to medium and larger-sized airports. Whilst smaller airports can access RRF funding, stringent limits on access explains why apart from two exceptions (one being related to the electrification of ground handling systems<sup>133</sup>), airport projects including those focusing on decarbonisation have not been included from national recovery plans. However, these guidelines have been revised and since 2022 they now allow green investments into airports, regardless of airport size.

#### *InvestEU Programme*

- 6.158 The InvestEU Programme is a major element of the European Union’s Recovery Plan for Europe: In in the current crisis, the market allocation of resources is not fully efficient and the perceived risk impairs private investment flow significantly. The InvestEU Programme, whose budget stems partly from Next Generation EU, is able to provide support to companies in the

---

<sup>133</sup> Source: [https://ec.europa.eu/info/sites/default/files/com\\_2022\\_75\\_1\\_en.pdf](https://ec.europa.eu/info/sites/default/files/com_2022_75_1_en.pdf)

recovery phase. In addition, the Programme can provide funding for greening and digitalisation not specifically tied to the recovery from the pandemic.

- 6.159 There are four main policy areas (known as “windows”) than InvestEU focuses on:
- Sustainable infrastructure: supporting clean transport and energy, digital connectivity, and other innovative technologies to contribute to environmental and social sustainability standards of the EU;
  - Research, innovation and digitalisation: supporting R&D and innovation, including demonstrations and deployments of innovations;
  - SMEs: making finances available for innovative SMEs and businesses with difficulties in access to finance; and
  - Social investment and skills: investments in social enterprises, equality, social impact investing, and other related investments.

6.160 All commercial stakeholders highlighted that ensuring that aviation climate action is eligible for funding under the mechanisms foreseen by the Next Generation EU was crucial, as well as in the Multiannual Financial Framework (2021-2027) and EIB mechanisms. Stakeholders called for Member States to recognise the strategic importance of aviation in the Recovery and Resilience Facility plans.

6.161 Member States who responded to the question on public instruments almost always noted that public financing was going to be important to leverage green investments in Europe. Austria noted that instruments such as the RRF, a revision of DG COMP state aid guidelines and the implementation of the EU taxonomy regulation are of particular importance to facilitate these investments. It added that certain measures, such as State aid, should be limited for a certain period of time (e.g. until 2030/2035) to support green investments.

*Other types of EU funds available*

6.162 Horizon Europe is the EU’s key funding programme for research and innovation with a budget of €95.5 billion. Horizon Europe is to be set in the broader context of the pronounced systemic and holistic approach taken to the design of the new Framework Programme and the overarching Multi-annual Financial Framework (MFF) 2021-27. At least 35 % of the expenditure from actions under the Horizon Europe Programme will address the Sustainable Development Goal 13: Climate Action. The funding will be distributed through a complex work programme with different pillars. For instance, aircraft research may benefit from funding through Pillar II.

6.163 Support from the Clean Aviation Joint Undertaking (CAJU), a public-private partnership aimed at research and innovation in developing new technologies to make aviation climate-neutral by 2050. The three key thrusts benefitting from targeted R&I are in hybrid electric regional aircraft, ultra-efficient short and short-medium range aircraft, and hydrogen-powered aircraft. Clean Aviation builds on the Clean Sky Joint Undertaking programme which runs until 2024, delivering 34 flagship demonstrators, over 100 other demonstrators contributing to flagship demonstrators, and over 1000 technologies by the end of the programme.

6.164 The Connecting Europe Facility (CEF) for Transport is the funding instrument to realise European transport infrastructure policy. It aims at supporting investments in building new transport infrastructure in Europe or rehabilitating and upgrading the existing one. CEF Transport focuses on cross-border projects and projects aiming at removing bottlenecks or bridging missing links in various sections of the Core Network and on the Comprehensive

Network (link), as well as for horizontal priorities such as traffic management systems. CEF Transport also supports innovation in the transport system in order to improve the use of infrastructure, reduce the environmental impact of transport, enhance energy efficiency and increase safety.

- 6.165 The EU Innovation Fund provides funding for the demonstration of innovative low-carbon technologies, such as low-carbon technologies in energy-intensive industries, carbon capture and utilisation, carbon storage, renewable energy generation, and energy storage. Around €38 billion of support (assuming a carbon price of €75/tCO<sub>2</sub>) is available between 2020 and 2030, funded through the auctioning of EU ETS allowances. One example of the Innovation Fund's use for aviation is the commercial demonstration of SAF to fuel flights.

#### *EU Structural funds*

- 6.166 Over half of EU funding is channelled through the 5 European structural and investment funds. They are jointly managed by the European Commission and the EU countries. The purpose of all these funds is to invest in job creation and a sustainable and healthy European economy and environment. The structural and investment funds mainly focus on 5 areas: research and innovation, digital technologies, supporting the low-carbon economy, sustainable management of natural resources and small businesses.
- 6.167 In January 2022, the Commission adopted new guidelines on State aid for climate, environmental protection and energy (CEEAG). The new guidelines expanded the categories of investments and technologies that Member States can support to all technologies that will help to deliver the European Green Deal, such as investments in renewable energy, energy efficiency, and industrial decarbonisation. In addition, the new CEEAG features a dedicated section for clean mobility, covering all transport modes including aviation. More clarity and detailed guidance on the availability of aid for the aviation industry and refuelling infrastructure increases the legal certainty for Member States providing aid to the sector. As an example, green investments in airports which were previously restricted are now easier to access through State aid funding.

### Summary

- 6.168 We only provide here a summary of the main sections of Chapter 6.

#### *Impact on groundhandling companies*

- 6.169 Hardly any public aid has reached third-party groundhandling companies in 2020 and 2021 in Europe (apart from job support schemes). They reported that aid given to airlines/airports did not “trickle down” to them (except in case of self-handling or airport handling subsidiary). Where Member States provided social protection/job support schemes this has been very beneficial because the groundhandling activity is very labour intensive. Nonetheless, up to 60-70% of the workforce has been furloughed on average during the pandemic.
- 6.170 The quality of service provided seems to have decreased during the pandemic as cost pressure increased from the entire aviation chain and staff was less available to meet peaks and troughs of demand. For groundhandlers the pandemic was a mix of limited handling activities with sharp peaks, temporary change in airport layouts and high staff turnover.
- 6.171 Where possible, airlines provided groundhandling themselves during the pandemic. Apart from a limited number of groundhandling bankruptcies or market exits, no significant changes to the level of competition or market structure at European airports has been noticed as a

result of the pandemic. However, the groundhandlers with the better pandemic outcomes were those with cash reserves, the generalist ones (especially where they had cargo services), and those with a network of stations to allow for cross-subsidisation.

#### *Impact on ANSPs*

The dramatic reduction in traffic demand as a result of the COVID-19 crisis had a major impact on the service units required for flights across the Single European Sky. Where traffic falls, ANPS revenues fall following a similar pattern. Service units fell by -58% in 2020 and 2021. Where ANPSs made costs savings, they were primarily focussed on staff costs (e.g. reduction in overtime and training expenses), other operating costs (e.g. reduction of maintenance, travel and insurance expenses) and capital-related costs (e.g. postponement of capital expenditure).

Most European ANSPs also reported cancelling or deferring non-essential investments, which primarily mitigates cash constraints but will also reduce capital-related costs in the longer term. A key concern is that cost cutting measures do not impact the investment plans unless investments are considered non-operational. This is because there is a clear need for investments in new technology to accommodate the traffic recovery and especially to provide the necessary capacity. The significant drop in air traffic coupled with the limited ability of ANSPs to reduce expenditure required ANSPs to manage the gap in revenues in different ways using either their own resources, loans (See Appendix B) or injection of equity by their owners (which usually are the Member States).

- 6.172 Due to traffic losses in 2020 and 2021, the net amount billed by SES ANSPs for en-route charges in 2020 was €3.2 billion versus (-59% decrease compared to €7.9 billion in 2019). Slightly lower numbers are expected for 2021 as well, resulting in some €7.6 billion overall for 2020 and 2021 that would need to be charged to airspace users through adjustments to the unit rates, starting from 2023 (i.e. between €1.5 Billion and €1.1 Billion to be recovered per year on top of normal annual costs). This will result in a significant increase of en-route unit rates in 2022 as well as in future years when these adjustments will be applicable.

#### *Impact on connectivity*

- 6.173 Due to the prevalence of international travel restrictions due to the pandemic, domestic connectivity has logically resulted in relatively better domestic connectivity retention than cross-border connectivity. This fact however hides national disparities and the fact that leisure markets generally suffered far less than business markets. Some previously commercially viable routes are now operated under PSO.

Intra-EU, around 20% of routes were lost but the frequencies reduced by two-thirds. Northern Europe and Eastern Europe Member States were much more impacted than tourism-driven destinations (such as Greece, Spain, Italy). Extra-EU connectivity was significantly affected with key European intercontinental hubs recording a third of routes cut. Overall, this was of the order of -23% in 2020 and -31% in 2021 compared with a two-thirds reduction in frequencies operated.

#### *Impact on passengers*

- 6.174 During the pandemic, the impact of airline insolvencies on the passengers concerned was in most cases limited by the pandemic as very few passengers were flying at the time of operation cessation and/or many airlines had already suspended operations many months prior to closing.

- 6.175 The pricing policies for passengers have in general not changed other than full flexibility has been granted regarding rebooking, whether on network airlines or on LCCs: while pre-pandemic lowest fares did not allow rebooking or free rebooking, this has typically been granted since the beginning of the pandemic. A lot of passengers also experienced delays with their airline ticket reimbursements.
- 6.176 As a result of low demand, ticket prices declined significantly in the first half of 2020: flights within the EU and to the rest of Europe were, on average, up to 16% less expensive in 2020 compared to 2019. In the beginning of 2021, average fares to almost all regions increased significantly, with the exception of routes to Latin America/Caribbean. On routes within the EU and to the rest of Europe, fares were up 20%, on average, at the end of the third quarter of 2021 compared to 2019.
- 6.177 The European trajectory to carbon pricing, under the current state of the proposals, coupled in particular with inflation, higher fuel costs, debt repayment or ATM costs will result in a significant increase of operating costs. Due to low profit margins in the sector (pre- and post-pandemic), it is expected that a significant pass-through to the passengers of additional costs will take place.

*Impact on third-country competitiveness*

European aviation market has been one of the worst affected regions and has also seen a slower recovery than the Asian (mainly China) and US markets. Certainly compared to China and US, European businesses could not rely on the domestic market based on a single set of national COVID related rules.

Non-EU Competitive pressure for European airlines may intensify as the policy landscape may increase the cost of operating aviation services. Nevertheless, the impacts still remain unclear, as they are tied to a multitude of factors such as travel demand, the pace of green investments, and the evolution of regulatory framework in other jurisdictions. Such competitive situation may also be impacted and potentially rebalanced by the decarbonisation efforts taking place in third countries and on a global level.



## 7 Social impacts

What has been the impact of the crisis on the employment and working conditions of aviation staff (e.g. aircrew and groundhandling staff) in particular in terms of lost jobs, change of employment status (e.g. employment through intermediaries, self-employment) and quality of working conditions?

Have these possible changes had any impact on the level-playing field for operators?

Has the crisis affected the ability of competent authorities in the Member States to ensure effective monitoring and enforcement of applicable EU and national rules to prevent fraudulent practices?

Has there been any impact of the crisis on gender balance and diversity in general?

### Social impacts by sectors

- 7.1 Eurostat<sup>134</sup> indicates that in 2019, 408,000 persons aged between 20 and 64 were employed in the air transport sector in the European Union (EU), representing an 11% increase compared with 2018. These workers accounted for 0.2% of total employment in the EU. Among EU Member States, Luxembourg recorded the highest share of persons employed in the air transport sector (1.0% of total employment), followed by Malta (0.5%), Ireland, the Netherlands and Portugal (all 0.4%). With regard to the gender balance, the majority of air transport workers were men (56%).

#### Airline staff

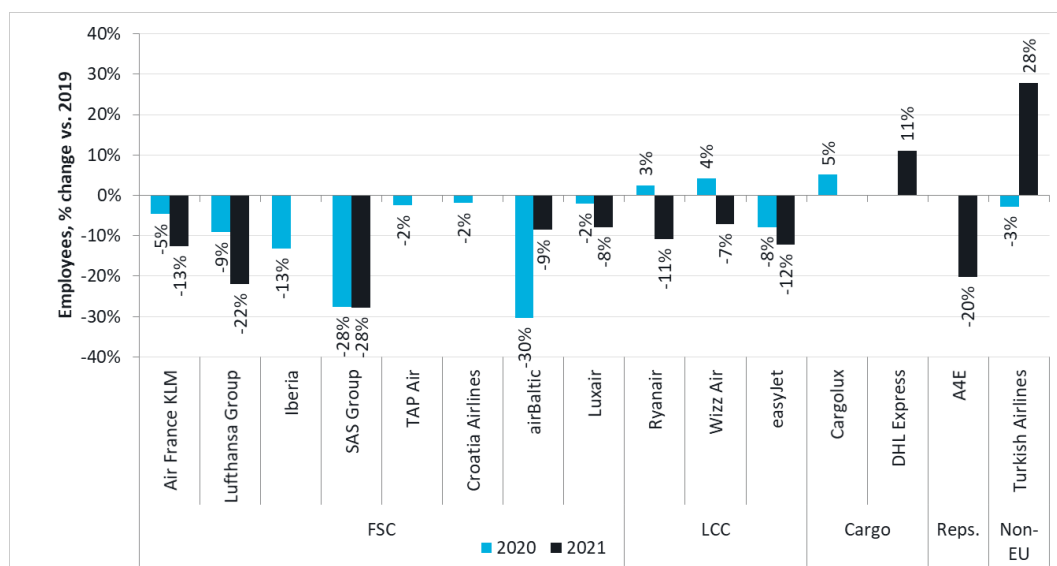
- 7.2 From consultation with airlines across Europe, it is clear that the majority of airlines have reduced their headcount from pre-crisis levels. Figure 7.1 below indicates the headcounts from 2019 and 2021 provided by stakeholders. We observe that the largest reductions were made by the Lufthansa Group, reducing its global headcount by 22% from 138,000 employees at the end of 2019 to 107,000 employees at the end of Q3 2021. Airlines for Europe, an airline representative, reported that of the eight members they have information for, their headcount reduced on average by 20% from 343,635 in 2019 to 275,778 in 2021. IATA made similar estimates that employment by European airlines fell by approximately 18% in 2020 vs 2019. However, it is not clear whether all of this 18% represents staff furloughed, or what proportion of staff were re-employed from furlough in 2021.
- 7.3 The only increase observed from passenger airlines is Turkish Airlines, who have raised their headcount by 28% from 29,491 in 2019 to 37,670 in 2021, according to data provided by AIRE. Whilst Ryanair and Wizz Air both reported increases in headcount for 2020, this is a consequence of their financial reporting year; 2020 headcount refers to March 2020, just as the pandemic's effects were beginning, whilst 2021 headcount refers to March 2021.

<sup>134</sup> <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20200525-1>



7.4 In 2021, the impact on headcount has in general worsened compared to 2020. The majority of passenger airlines with data available further reduced their headcount in 2021, with only airBaltic and Turkish Airlines increasing headcount from 2020 to 2021. In the cargo sector, DHL Express reported an 11% increase in headcount between 2019 and 2021, representing the strong demand for package and express mail services during the pandemic.

Figure 7.1: Airline employment changes, 2021, 2020 vs. 2019



Source: Steer analysis of airline annual reports, stakeholder consultation responses

7.5 Airlines were in many cases able to utilise furlough, employee protection, or other related short-time work schemes to prevent redundancies during the crisis and reduce staff costs. The table below indicates that, where furlough schemes were used, they typically were used by the majority of airline employees. Only two airline stakeholders provided information to suggest that furlough use declined slightly in 2021.

Table 7.1: Short-time work/employee protection measures used by airlines, 2020-2021

Airline	Furlough/employment protection	Employment wage subsidy
Air France/KLM (FR/NL)	In France, further to the Partial activity scheme implemented in 2020, the company and the unions signed an agreement with the three staff categories (cabin crew, Ground Staff and Pilots) to enable the company to benefit from the Long-Term Partial working regime, from January 1, 2021 and for two years (the maximum allowed by law). This agreement will extend the savings on personnel costs for Air France over this period and mitigate the effects of the crisis on the Air France KLM Group's cash position in 2021. In April 2020, the Dutch government launched a generic wage support grant for companies in the Netherlands whose revenues had been impacted by the Covid-19 crisis. Both KLM and its subsidiaries applied for this so-called NOW-grant (whose literal translation is the Emergency Bridging Measure for Employment) and committed to respecting the conditions linked to this measure. The NOW-grant covered the period from March 2020 until September 2021. This support mechanism has prevented forced redundancies as much as possible in the short term.	
Lufthansa Group (DE/AT/BE/CH)	In its home market regions of Germany, Austria, Switzerland and Belgium, up to 80% of those eligible for short-term work were affected by it in 2020; up to 70% in 2021.	Overall, LHG received around €1.9 billion in reimbursements due to short-time work (in Germany, Austria, Switzerland and Belgium).

Airline	Furlough/employment protection	Employment wage subsidy
airBaltic (LV)	No furlough scheme in place	
Luxair (LU)	Employment protection scheme: 4% Furlough: 0%	Available to all.
AIRE	Around 50% or more for its members, but 0% for Turkish Airlines	Furlough schemes have been critical for survival. Turkish Airlines had access to a wage subsidy scheme for 5 months Apr-Aug 2020.
IATA	IATA estimates that employment by European airlines fell by approximately 18% in 2020 vs 2019. However, it is not clear whether all of this 18% represents staff furloughed, or what proportion of staff were re-employed from furlough in 2021.	IATA estimates that wage subsidies to European airlines totals €12.6bn at the latest estimate, with information provided by IATA in January 2022. This aid is non-reimbursable; wage subsidies represented a large quantity of non-reimbursable aid given to airlines.

Source: Steer analysis of stakeholder consultation responses

### Pilots

- 7.6 Flying crew were affected differently to ground staff by the pandemic, as their employment numbers are more restricted through licensing obligations. In its stakeholder consultation response, the European Cockpit Association (ECA) stated that according to EASA pre-pandemic there were around 60,000 commercial pilot licences in Europe. If EASA licensed pilot numbers fell in the same proportion as pilot representative ECA members, we can estimate a drop in pilot population across Europe of approximately 15%, so to around 50,000 active pilots by now.
- 7.7 As traffic declined during the pandemic, a significant number of pilots have been put on furlough or laid-off. Some may have also experienced other changes to their day-to-day employment conditions, but circumstances varied significantly for pilots depending on where they were based, which airline employed them and their employment contractual arrangements, which we detail below. Note that some pilots also experienced different outcomes, such as:
- High workload where they flew cargo services; and
  - Immediate lay-off and loss of visa of staff employed by non-EU companies: in some locations, notably in the Gulf and in China, European pilots were in some cases dismissed immediately without notice and without compensation, sometimes accompanied with an obligation to exit the territory of the country where they worked.
- 7.8 On working conditions, based on information from staff representatives we report on two aspects, firstly on “day-to-day” working conditions during the pandemic for those staff that carried on being employed, and on other working conditions as a result of the pandemic. For the staff that continued working in 2020 and 2021, conditions varied depending mostly on where they were flying and what type of flight. Staff representatives have reported on issues of day-to-day working conditions for pilots of passenger flights, as well as for pilots of cargo flights, that were affected by the possible following issues:
- It is common practice for pilots to commute across borders in some regions (e.g. EE, LV, LT). However, border crossing became increasingly complex and burdensome for pilots. Importantly, as a result of border closures, some pilots had to spend a lot more time out-

of-base compared to pre-pandemic (pilots do not necessarily reside next to their base, or base allocation may change in the course of a year not allowing pilots to settle-down). This resulted in pilots having to pay for additional accommodation requirements or being prevented from being with their families;

- Regular mandatory testing requirements sometimes resulted in additional financial expenses which were not covered by governments or employers; and
- Quarantine conditions sometimes close to detention during long periods. According to ERA, cargo crews in Budapest were escorted by armed guards to the hotels where they were locked in their rooms.

7.9 On the wider issue of working conditions post-pandemic, staff representatives have identified a number of possible working condition changes that are likely to have affected some pilots in Europe. However we have insufficient evidence to assess and quantify to what extent pilots employed by EU companies were affected by these changes.

**Table 7.2: Possible changes to pilot employment and working conditions**

Airline event	Pilot impact (according to staff representatives)
Collective labour agreements in place were terminated/suspended by airlines and replaced by emergency agreements	<ul style="list-style-type: none"> <li>• As part of many agreements that were made during the crisis, airlines are demanding more hours from pilots and reduced paid leave, sometimes for an extended period of time (e.g. until 2025).</li> </ul>
Airline change employment terms of contractors/pilots employed through an agency/self-employed pilots <sup>135</sup>	<ul style="list-style-type: none"> <li>• Immediate effect;</li> <li>• “take it or lose job” approach;</li> </ul> <p>Pre-pandemic, a study for DG MOVE<sup>136</sup> estimated that 8% of pilots were using this type of contractual arrangement.</p>
Firing staff followed by re-hiring a couple of months later	<ul style="list-style-type: none"> <li>• According to staff representatives, pilots that had formerly been employed by the same employer had to undergo a full recruitment process;</li> <li>• Common consequence is loss of seniority levels;</li> <li>• New and lower pay scales.</li> </ul>
Closing of operational bases	<ul style="list-style-type: none"> <li>• Where bases have been closed, crews have had to face the choice between relocation to different regions/countries or termination of employment.</li> </ul>
New entrant or replacement of an airline employer with a cheaper one from the same airline group	<ul style="list-style-type: none"> <li>• Airlines focus on readily available pilots (i.e. with the adequate aircraft type rating);</li> <li>• New and lower pay scales;</li> <li>• Airlines are keen to hire cheaper pilots (such as cadets) rather than more experienced ones; and</li> <li>• According to staff representatives, may use staffing agencies for both pilots and cabin crew (especially new entrants).</li> </ul>

Source: Steer analysis of stakeholder consultation responses

7.10 The crisis accelerated some changes in airlines relating to aircraft types: as presented in this report in Chapter 6 on OEMs, there has been a change in the aircraft types that airlines have

<sup>135</sup> Pursuant to Directive 2008/104/EC, a temporary agency workers’s basic working and employment conditions must be at least those that would apply if they had been recruited directly by the user undertaking.

<sup>136</sup> Study on employment and working conditions of aircrews in the EU internal aviation market, 2018

operated, with less twin-aisle aircraft and greater use of smaller aircraft. As a consequence, staff representatives explained that some pilots had to re-train to different aircraft type-ratings which affected their employability (since airlines prefer to use “readily available pilots”), their income (as while there was some financial support in some Member States to provide crews with an income, generally there was no specific support to allow crew to keep up-to-date with their licences or for type-training) and the demographic profile of active pilots as most often the pilots close to retirement age (most experienced and with the highest salaries) were the ones who left voluntarily. No sufficient information was provided to assess whether and to what extent pilots employed by EU companies were affected by this.

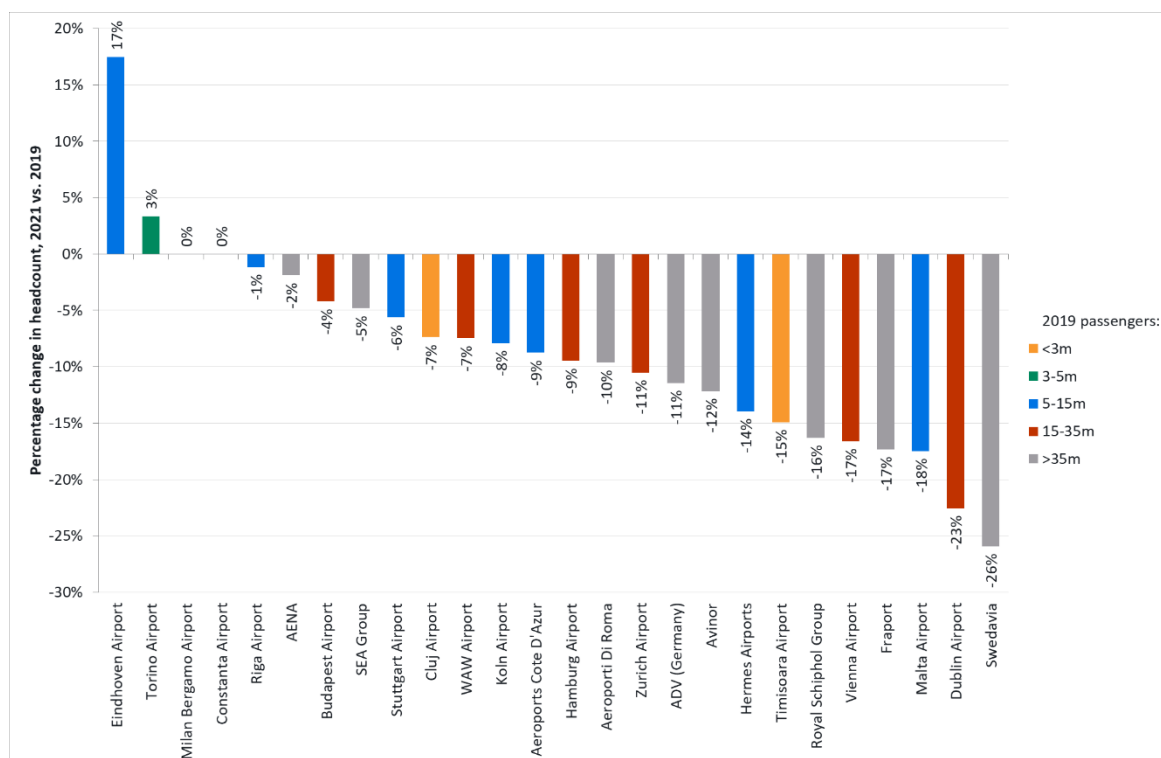
#### *Cabin crew*

- 7.11 In its stakeholder consultation response from December 2021, EurECCA estimated that there were around 50,000 cabin crew in Europe. Whilst salaries of cabin crews are not comparable with pilots’, many employment and working conditions mechanisms are similar between the two categories of flying staff.
- 7.12 EurECCA note that cabin crew were often placed on furlough or Member States asked to keep employees employed and provided wage subsidies; in either case, cabin crew suffered from a loss of income during the crisis. The furlough and wage subsidy schemes used by cabin crew were more favourable in 2020 than in 2021, indicating that the impact on cabin crew remaining on furlough or wage support became worse in 2021. In some cases where wage subsidies were not provided, according to EurECCA, some airlines laid off staff or cut working conditions, including breaking up collective agreements and reducing salaries.
- 7.13 EurECCA explained that the crisis exacerbated the cost-sensitivity of airlines which consequently results in downward pressure on labour costs, which may lead to the use of atypical forms of employment such as bogus self-employment, as well as existing flexible employment arrangements such as wet-leasing and temporary cabin crew cover during peak seasons. However no specific examples of these changes were provided during the stakeholder consultation phase.
- 7.14 Going forwards, EurECCA expressed concern that the arrangements introduced during the crisis may be adopted in new collective agreements in the future. A key driver of these changes identified is that employers will try to be as efficient as possible in the recovery from the crisis.

#### **Airport staff**

- 7.15 The majority of airports providing data have indicated a reduction in their headcount from 2019 to 2021. The data is summarised in Figure 7.2 below. The vast majority of airports (76%, 25 of 33) reduced their headcount by up to -20%. The largest percentage reductions in headcount were made by Swedavia (-26%) and Dublin Airport (-23%).
- 7.16 4 airports did not reduce their headcount; of these 4, Eindhoven Airport and Torino Airport both increased their headcounts by 17% (from 63 in 2019 to 74 in 2021) and 3% (355 in 2019, 367 in 2021) respectively.

Figure 7.2: Airport employment changes, 2021 vs. 2019



Source: Steer analysis of stakeholder consultation responses

7.17 Of the airports providing information as part of the stakeholder consultation, we observe that a number of airports accessed furlough, employee protection, or other related short-time work schemes during the crisis. The format that support took, the length of support, and the number of employees accessing this support all varied between airports. The information provided by stakeholders is detailed in Table 7.3. In France, a report by the French Audit Office<sup>137</sup> explains that at the end of 2020, the airport workforce (based on responses from 10 large airports) was down by 5%, which is driven by the non-renewal (in 75% of the case) of temporary employment contracts.

Table 7.3: Airport responses to use of furlough/employee protection measures, 2020-2021

Airport	Furlough/employee protection measures	Employee wage subsidy
ACI EUROPE	<p>On average most airports have had 30 to 40% of their workforce on furlough, for a period of three to 18 months, depending on the national regime. Small and seasonal airports have benefitted the most. Overall, government support greatly helped European airports to retain their staff during 2020.</p> <p>However, in 2021 the air traffic picked up to - 50%, the national furlough schemes were discontinued in most EU Member States – those two factors resulted in airports bringing their employees back to work and/or search for</p>	<p>Some airports, depending on their location and national regime, have benefitted from wage subsidies, and have also compensated fully or partially the salary losses.</p>

<sup>137</sup> <https://www.ccomptes.fr/sites/default/files/2022-02/20220216-RPA-12-grands-aeroports-fran--ais.pdf>

Airport	Furlough/employee protection measures	Employee wage subsidy
	alternative cost cutting solutions (early retirement scheme, temporary work contracts, subcontracting to/from other industries). This furlough scheme was not applied in non-EU/EEA airports.	
ADV (DE)	In 2020 almost 70% of staff were on short time work. In 2021 more than 50% of staff were on short time work.	Under the legal framework of short time work in Germany, airports received and paid wage subsidies. These helped the airports to maintain liquidity during the pandemic and to stay in business.
Vienna (AT)	Since March 16th 2020, the employees of Vienna Airport are working on a short-time working scheme subsidized by the Austrian Employment Agency (AMS). Except the workers in the fire department and the power centre, all employees were able to work between 10% and 80% of their normal working time, while earning 90% and later on 80% of their normal wages. Vienna Airport did not have to place workers on furlough or on (other) employment protection schemes. Since the beginning of the crisis, there were only voluntary resignations (roughly 1,000).	
Hermes Airports (CY)	Employees were not placed on furlough schemes at any time during the pandemic. However, since 2019, 23 employees have resigned.	Hermes participated in the governmental support schemes provided for the period of March 2020-July 2021. On average, 60% of the salaries of 65% of the total number of employees was subsidised by the government. This support was essential as it helped minimize the payroll costs, retain our employees, and maintain business continuity.
Copenhagen Airport (DK)	In the spring 2020, around 2,200 (1,600 FTEs) of 2,600 employees were furloughed or put on rotation under the salary compensation scheme	-
Nice (FR)	To cope with the decline in activity and to control the company's cash flow: - in 2020, 17% of our employees were placed on furlough/employment protection schemes - in 2021, 13% of our employees were placed on furlough/employment protection schemes - on 01/01/2021, we signed an agreement relating to long-term partial unemployment	We benefitted from wage subsidies for furlough, but do not have compensated the salary losses.
Fraport (DE)	Fraport guaranteed between 80% and 95% net income in relation to the extent of reduced working hours.  About 85% of staff were affected by short-time-working during 2020 and about 70% of staff were affected by short-time-working during 2021.	In the case of short-time work, the employer receives a reimbursement of the short-time work allowance. This amounts to 60% (for employees with children 67%) of the last net wage.  In the case of uninterrupted short-time work with at least 50% loss of wages, the short-time work allowance increases to 70/77% from the 4th month and to 80/87% of the net wage from the 7th month. The higher rate applies to employees with children.  However, since Fraport guarantees a higher net remuneration (up to 95%) on the basis of the company agreement on short-time work with the works council, parts of the costs of short-time work are not reimbursed by the employment agency.

Airport	Furlough/employee protection measures	Employee wage subsidy
Hamburg (DE)	In 2020 55% of all employees were placed on furlough/employment protection, in 2021 this reduced to 53%.	The airport received wage subsidies by the state that helped to reduce the financial loss a little, but the airport also topped it up for the employees.
Cologne-Bonn (DE)	Approximately 30% for period.	Short-time allowances were claimed. This was an essential element in overcoming the crisis.
Budapest (HU)	22% (Two collective redundancy procedures in 2020).	Due to employment wage subsidies, less employees were affected by collective redundancy. Despite the reduced workload, the company had been able to keep employees in employment without significant pay reduces.
Dublin (IE)	100% of staff were placed on a 4-day week from May 2020 to April 2021.	Yes - the assistance subsidies have reduced pay bill by approx. 30%.
Aeroporti di Roma (IT)	The entire workforce, except seasonal staff, were placed on an employment protection scheme using the Italian social safety net (Ammortizzatori Sociali - Cassa Integrazione Guadagni). On average the individual non-working period (from March 2020 to December 2021) was 40%, where the Italian Government paid the 80% of their wage. We were able to keep all of our staff except for 100 employees who accepted a voluntary early retirement scheme/proposal.	The organization used either standard and covid specific "Cassa Integrazione Guadagni", the Italian wage subsidy tool, plus a small integration paid from the Company.
Milan Bergamo (IT)	24% furlough/employment protection schemes in 2020; 19% on furlough/employment protection schemes in 2021.	These subsidies used are Cassa Integrazione Guadagni Straordinaria and Fondo di solidarietà del Trasporto Aereo. These subsidies covered 80% of our workers' wages.
SEA Group (IT)	29% ACT 2020 (12 months); 26% ACT 2021 (11 months). The figures refer to the hours of furlough/employment protection scheme used in relation to the volume of working hours available.	22% ACT 2020 (12 months); 22% ACT 2021 (11 months). The figure refers to the effect of employment wage subsidies on total labour costs.
Torino (IT)	N/A	From March 2020 to December 2021 the redundancy fund (Cassa Integrazione) was applied for all employees, as form of business support by Italian Government in the pandemic period.
Riga (LV)	Approximately 30%.	No information
Liepaja (LV)	None	-
Malta (MT)	All employees were placed on reduced hours (between 10% and 50%) during the periods April - July 2020 and during February - April 2021, accompanied by a fixed reduction in salary of 10% in 2020 and 5% in 2021. In addition to this cost-cutting measure, a number of employees were offered early retirement and a large number of staff were being given short-term employment contracts. Furlough was not adopted in Malta, but we have a handful of	Practically all employees within the organisation were entitled to a Wage Supplement from the government between the period March 2020 and January 2022. The Wage Supplement was critical during this period to retain staff when business was significantly impacted. The Wage Supplement is expected to end in January 2022, when the airport is experiencing low recovery rates.



Airport	Furlough/employee protection measures	Employee wage subsidy
	employees who were not reporting to work for certain periods due to the fact that they were considered to be “vulnerable”. They were granted leave of absence for a short time when cases were spiking and health authorities were enforcing a semi-lockdown. This applied only to employees who could not work from home.	
Eindhoven (NL)	No employees were placed on furlough (due to COVID-19).	Due to the employment wage subsidies provided by the government, we were not forced to place any of the employees on furlough.
Royal Schiphol Group (NL)	N/A	Schiphol Nederland B.V. used the “NOW” arrangement, a general measure issued by the Dutch national government to compensate businesses in different sectors of the economy for the wages of employees.
Warsaw (PL)	In 2020, the employment protection program covered 94% of employees, and in 2021, 2.4% of employees	In 2020 and 2021, Warsaw airport received wage subsidies for salaries and social security contributions. The support made it possible to avoid the reduction of employment and the approach to reducing wages.
Cluj (RO)	There were no staff placed on employment protection schemes/furlough from the Airport.	N/A
Constanta (RO)	1% of staff - beneficiaries of childcare leave during school suspension	-
Timisoara (RO)	80% in 2020 and 50% in 2021	Timisoara Airport applied to the job support scheme issued by the Romanian government.
Aena (ES)	Due to the pandemic, Aena has carried out a Record of Temporary Employment Regulation (ERTE) that affected less than 0.5% of the work force directly linked to the increase in activity that is normally recorded in summer which did not occur in 2020.	No, Aena has not been involved in Employment Wage Subsidies.
Swedavia (SE)	Yearly average 2019: 0% of the staff on furlough. Yearly average 2020: 49% of the staff on furlough. (Note: For nearly the whole of Q1 2020, there was no furlough. So overall 65% of the staff was on furlough when available) Yearly average 2021: 30% of the staff on furlough. Note: in Q4 2021 furlough was no longer available. 40% during the time furlough was available.) Also note that during 2020 Swedavia reduced the number of staff and at the end of 2020 air traffic started slowly increasing, resulting in less people being on furlough during 2021.	The government covered part of salary expenditures.
Zurich (CH)	20% to 25% of overall working hours reduced by short-time working	Short-time work insurance (by Swiss federal law) was an important measure to reduce spending.
Avinor (NO)	A total of 750 employees have been partly or fully furloughed in the period from 20 May 2020 until 30 September 2021. This translates to 1,396 monthly FTE's, equivalent to 130 yearly FTE's.	Employees on furlough more than 40% have received wage subsidies from the government. The subsidies reduced Avinor salary costs and prevented layoffs.

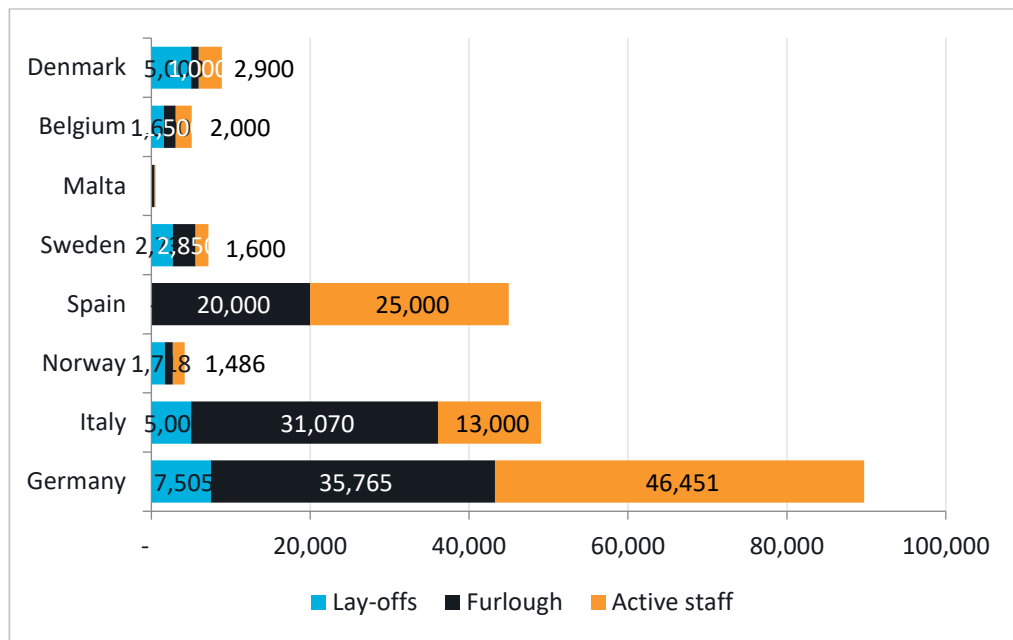
Airport	Furlough/employee protection measures	Employee wage subsidy
	264 employees have been furloughed 100%. The duration of 100% has spanned from 425 days to no more than 4 days.	
Isavia (IS)	Furlough/employment protection schemes were not applied, redundancy measures were taken to reduce the workforce by 34% in 2020. Approximately 44% of the previous staff were rehired as the traffic increased in 2021.	The company did not receive employment wage subsidies.

Source: Steer analysis stakeholder consultation responses

### Groundhandling staff

- 7.18 Information provided by ASA indicates that pre-crisis, around 160,000 FTEs were estimated to work within the ground service provider industry across the EU/EEA/CH/UK regions. Since the pandemic, ASA estimates that the current reduction in staff across the industry to be between -20% to -25%, indicating an estimated loss of between 32,000 and 40,000 FTEs. ASA also notes that whilst ground service providers are recruiting at present, the labour market is particularly difficult, most significantly for ground handling.
- 7.19 Swissport provided information stating that its global employee headcount had reduced by 38% from 65,000 to 40,000. The company notes that employment was reduced in areas where demand was not required, in particular ground handling; its cargo division experienced more stable demand and was able to retain employment as a result. A Romanian ground handler noted its staff headcount reduced from 350 in 2019 to 290 in 2021, a decrease of 17%. Additionally, 80% of its workforce were placed on some form of employee protection scheme in 2020 and 2021.
- 7.20 Data provided by ETF shows significant impacts for ground staff (which we assume means groundhandling staff but may possibly include security staff as well) across companies in a number of European Member States. It provides a picture of the situation at a given time during the pandemic noting that employment numbers in air transport have been fluctuating based on travel demand and supply as well as employment protection schemes. The data shows that not-active staff (either having been made redundant or being on furlough) accounted for between 22% in Sweden and 56% in Spain. We also see that, at this point in time, a fifth (21%) had already lost their employment. Of the remaining ground staff employed, nearly half (48%) was on furlough (and therefore still included in employment numbers reported in annual reports).
- 7.21 Overall in these Member States, approximately 55% of the ground staff employed pre-pandemic found itself either laid-off or on furlough *at this point in time*. According to ETF, “inactive” ground staff numbers match well with the reduction in use of airline and airport networks.

**Figure 7.3: Ground staff employment status as a result of the pandemic, selected Member State**



Source: Steer analysis of ETF data

- 7.22 Swissport have noted a “skill fade” in staff, with less opportunities to upskill staff as the demand no longer requires it, staff moving across departments to where there is work for them, or skilled senior staff leaving the company early due to the crisis. Similarly, they add that many people have left the industry and the labour market is dry; it is expected to take time to build up the skill levels of staff, and there will be an experience gap in aviation for years to come.
- 7.23 Similarly, ETF also state that the groundhandling industry is competing for employees with the hospitality sector, where working conditions may be better; this is further making it challenging to find staff willing to work in the industry given the opportunity cost they face to work elsewhere for a similar wage. ETF also expressed concern that low wages and difficult working conditions may lead to lower-skilled employees working in the sector, with a potential knock-on effect on service quality. For example, ETF noted that in Denmark, newly employed groundhandling companies were offered 20% lower salaries compared to pre-crisis, including employment offered to groundhandling companies who were returning to the industry. As a result, there is little appetite among previously employed groundhandling staff to return to a challenging job for 20% less pay.

**Staff employed at airports**

- 7.24 Car rental companies based at airports across Europe have had between 40% up to 85% of staff on furlough in 2020, depending on the market. In 2021, furlough schemes have continued to be used, but at a lower level, up to 20% to 30% in some markets. Some markets such as France and Germany saw a lot of reduced hours as opposed to others that had people undertaking a mix of 100% work on some weeks combined with furlough on others.
- 7.25 The need for enhanced sanitary protocols in branches and cars, together with a reduction in contact with customers during the rental process required a significant adaptation to the way employees worked and to operational practices. Those employees in customer facing roles were the most impacted. Due the aforementioned often significant drops in passenger footfall

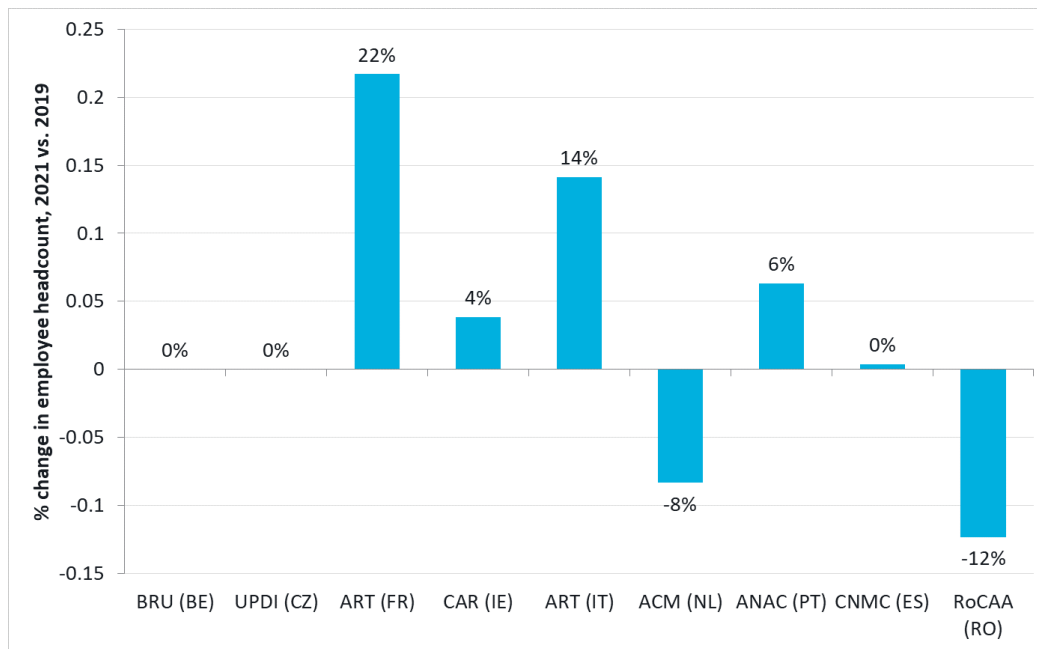
in airports and therefore demand for Rental vehicles, some rental operators were forced to close some branches or consolidate operations around physically larger locations. This therefore meant moving employees to service those larger locations.

- 7.26 The European Travel Retail Confederation (ETRC), the representative for the duty free and travel retail industry in Europe, estimates that at some point in spring 2020, more than 75% of staff were placed in furlough or equivalent schemes. Whilst data is not readily available at a European level, ETRC estimates that at least over 50% of staff employed in 2019 remain employed in 2021. ETRC note the importance of wage subsidies to their members, citing its decisive contribution to reducing costs where they were available, and the security they offered to the employees.
- 7.27 In terms of working conditions, ETRC states that the working form varied significantly between airports in terms of hours worked, shifts, and whether furlough schemes were available to staff. Additionally, the need to adapt quickly to changing regulations and operational requirements was essential for retailers. ETRC also notes that mobile working has become established for many people, except for those where presence is essential to conduct their job (i.e., logistics, retail, security, receptions, etc.).
- 7.28 ETRC also said that job security concerns had become more prominent, as employees were put off working in/returning to the industry for the fear of further restrictions, closures, and potential job losses. Wage inflation has also been observed, and recruitment has been made further challenging as non-national staff have often returned home during the pandemic and are yet to return in many cases.

#### **Authorities and Member States**

- 7.29 For ISAs, the impact of the crisis on employment numbers was less pronounced than in other sectors of the aviation industry. Of the nine ISAs providing data on employee headcount, two experienced declines in headcount: ACM (NL) reduced its headcount from approximately 600 to approximately 550, whilst the Romanian CAA reduced its headcount from 219 to 192. Four ISAs increased their headcounts: ART in France had the largest percentage increase of 22%, with an increase from 83 to 101 FTEs in 2021.
- 7.30 In terms of furlough, employee protection or other related measures, none of the ISAs provided information on their use of these schemes.

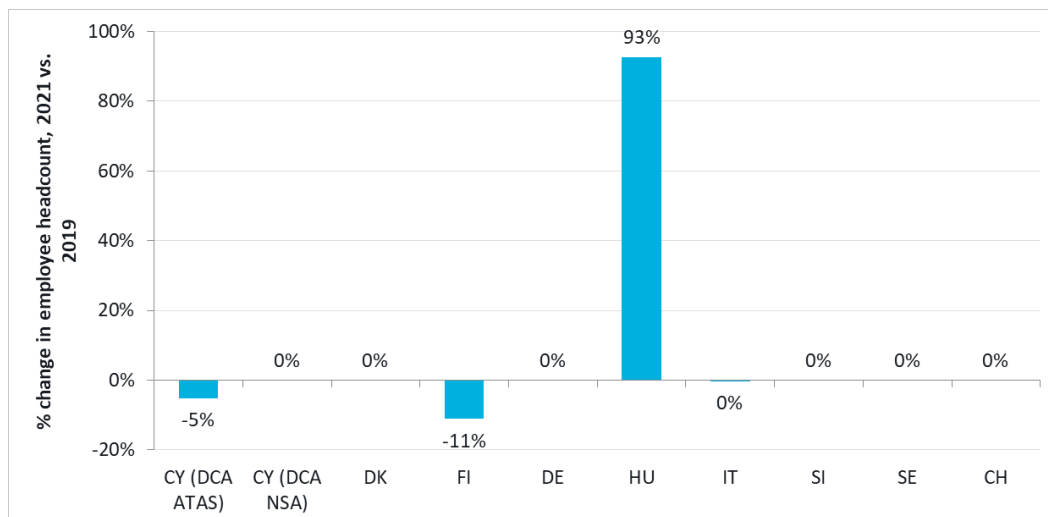
**Table 7.4: ISA employment changes, 2021 vs. 2019**



Source: Steer analysis of stakeholder consultation responses

7.31 For Member States, the majority of those providing employment data (six of ten) indicated that employment levels were unchanged between 2019 and 2021. Three Member States reported a decline in headcount in their department: Cyprus (58 in 2019, 55 in 2021), Finland (90 in 2019, 80 in 2021), and Italy (651 in 2019, 649 in 2019). Only Hungary increased its headcount, from 67 in 2019 to 129 in 2021 (the reason why is unclear). It should be noted that Member States may report employment data for departments consisting of multiple modes of transport, and so they may not correspond directly to aviation. What is clear, however, is that the impact of the pandemic on employment for Member States is minimal in many cases.

**Figure 7.4: Member State employment changes, 2021 vs. 2019**

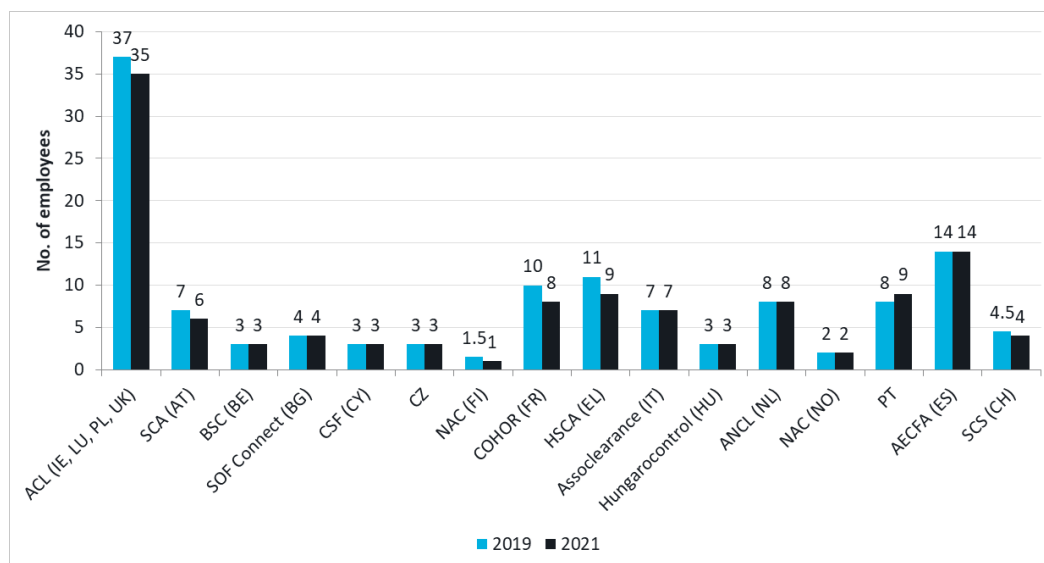


Source: Steer analysis of stakeholder consultation responses

7.32 For slot coordinators, the impact of the pandemic on employment numbers is also minimal. Of the slot coordinators providing employment data (16 in total), a total of 8 jobs were lost at six

slot coordinators. Nine slot coordinators maintained the same employment numbers from pre-crisis, whilst the Portuguese slot coordinator increased its headcount by 1.

**Figure 7.5: Slot coordinator employment changes, 2021 vs. 2019**



Source: Steer analysis of stakeholder consultation responses

### Staff employed by ANSPs

- 7.33 ATAG estimated<sup>138</sup> that in 2018 air navigation service providers employed 43,000 staff throughout Europe, whilst a recent report<sup>139</sup> by EUROCONTROL estimated that pan-European ANSPs employed a total of 55,700 staff in 2020, with 32% (17,400 staff) being air traffic controllers (ATCOs) on operational duty. On average, 2.2 additional staff are required for every ATCO in OPS in Europe.
- 7.34 The report highlighted that for the CRCO area (SES Member States plus non-EEA countries) after four years of increase in the number of ATM/CNS staff (+0.6% p.a. between 2015 and 2019, 2020 showed a -3.4% reduction, mostly from “other staff” categories (-20%) and less so from ATCOs (-2.7%) or technical support staff (-3.5%). On the other hand, increases are observed for ATCOs on other, reflecting a reallocation of some ATCOs from operational to non-operational duties due to the traffic reduction in 2020. However, the report also highlights that the overall reduction in staff trend is heavily influenced by the Ukrainian ANSP (UKSATSE), explaining that if this ANSP had been excluded, the total number of ATM/CNS staff in 2020 would be close to its 2019 level (-0.1%), meaning that ATM/CNS staff in Europe have barely been affected in 2020, as far as job numbers are concerned, by the crisis, contrary to all other air transport professionals.
- 7.35 The numbers for 2021 and 2022 may change slightly as there has been some voluntary redundancies and early retirements plans across Europe’s ANSPs which would not necessarily have appeared in 2020 staff figures or cost numbers: for instance, NAVIAIR has successfully initiated an early retirement-scheme during COVID-19 for their ATCOs. Some ANSPs will also have frozen recruitment, although the report noted that the number of ab-initio ATCO

<sup>138</sup> Aviation: Benefits Beyond Borders

<sup>139</sup> High-level Summary Report on Preliminary ACE 2020 Data, December 2021

trainees increased by +1.2% in 2020. Overall, Steer only expects very limited changes to the overall profile and demographics of the ATM labour pool in the short-term, whilst in the longer term the ATCO's job is expected to evolve and change substantially.

- 7.36 Steer's understanding is that working conditions of ATM/CNS staff are largely unchanged as well, in principle at least, if the fact that in practice staff is not getting to work overtime or getting other discretionary allowances is excluded.
- 7.37 From the ANSPs providing further information to Steer on employment figures, the Cypriot ANSP did not reduce its headcount (remains at 200) and are continuing with recruiting based on their long-term forecast. Both the Latvian and Romanian ANSPs, LGS and ROMATSA, have reduced headcount slightly by 10% (263 to 325) and 5% (1,655 to 1,573) respectively when comparing 2021 with 2019. None of the three ANSPs mentioned have accessed furlough or related employee protection schemes.

### Aerospace sector

- 7.38 At the end of 2020, the European aerospace sector employed approximately 33,000 people less than before the COVID-19 crisis (-8.3% vs end 2019).

## Cross-sector topics

### Impact on monitoring and enforcing employment regulations

- 7.39 Authorities in charge of the monitoring and enforcement of employment conditions reported different outcome on their activities during the pandemic, as displayed below. Please note that whilst the question was focussed on employment regulations, many authorities appear to have responded on the wider topic of "monitoring and enforcing regulations", rather than solely on employment. The responses not focussing on employment conditions have been removed from the table below. We observe that most (Austria, Denmark, Ireland, Italy, Switzerland) reported no change, with audits or checks being conducted online. Hungary was more nuanced and highlighted that it was not the same as pre-pandemic: Hungary stated that the level of monitoring was sometimes not enough.

**Table 7.5: Member State responses to the ability of competent authorities to ensure effective monitoring and enforcement**

MS	Ability of competent authorities to ensure effective monitoring and enforcement
AT	No changes reported.
DK	The pandemic has not affected competent authorities' ability to effective monitoring and enforcement. However, the low traffic levels have affected the finances of competent authorities, who might find it necessary to increase charges.
HU	As normal activities (audits, meeting) could not be done as pre-pandemic, the level of monitoring of the enforcement was sometimes not sufficient.
IE	From an Irish perspective, this has not been presented as an issue by our competent authorities.
IT	The pandemic did not affect the ability of the competent authorities of the Member States to ensure effective control and enforcement of applicable national and EU rules. ENAC continued to monitor all air transport operators and ensured the application of all national and Community market protection measures.
ES	The civil aviation authorities of Spain have not had any relevant problems to monitor and enforce the EU and national rules.
CH	No change

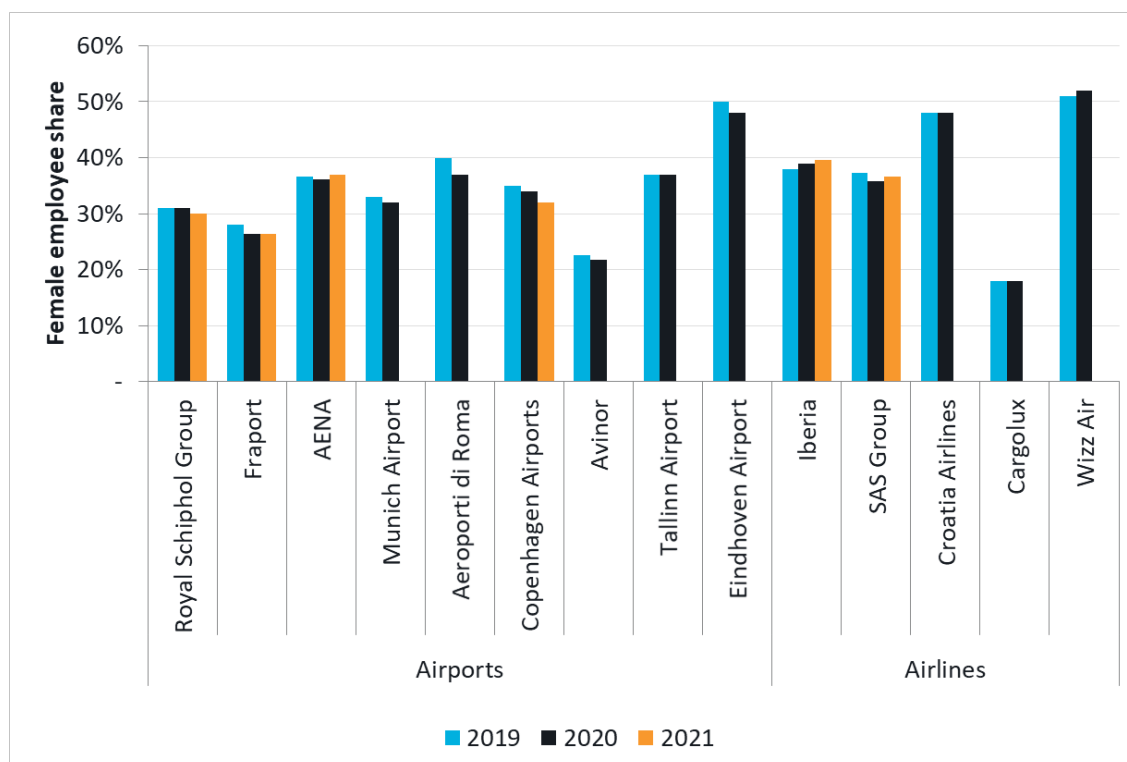
Source: Steer analysis of stakeholder consultation responses



## Gender balance and staff diversity

- 7.40 On the impact of the pandemic on gender balance and staff diversity, we have received different views, with some stakeholders reporting no change, whilst others saw changes affecting one gender only. There were no responses that discussed staff diversity apart from age profiles, perhaps showing that diversity reporting is very much in its infancy in air transport and beyond.
- The vast majority of airports (ADV, Vienna, Nice, Fraport, Hamburg, Cologne-Bonn, Munich, Stuttgart, Budapest, Dublin, Bergamo, Torino, Malta, Eindhoven, Schiphol, Aena, Warsaw, Zurich) did not report much change to the pre-pandemic situation on gender balance and diversity. Some stated that turnover during the pandemic also represented an opportunity to address these themes;
  - Airlines had the same view as the airports above;
  - Avinor highlighted that women had been furloughed more often than men as their jobs tend to be located in terminal functions rather than in airside roles, where staff had been kept on duty for emergency preparedness requirements. Swedavia concurred with this view by explaining that passenger service work force (where women predominantly work) was affected much harder by the decrease in traffic than the more male dominated professions like infrastructure related jobs.
  - ECA mentioned that female pilots are on average among the younger ones and therefore lower on seniority lists. In case of redundancies in airlines, the lower the seniority, the higher the likelihood of being laid-off. It is likely this imbalance will seek to be corrected once the rehiring processes restarts but will likely mean that the average balance between female and male pilots will take a little longer to be addressed than it would have pre-pandemic.
  - It was also mentioned by ETF that most lower paying jobs in aviation are performed by women (such as cabin crew and ground staff). While this is not an aviation specific issue, ETF also noticed that wage support, work time reduction and consequent income loss, combined with care work in the household have had a massive impact on female workers (in aviation and beyond). Additionally, on the ground and in the air most problems with unruly and violent passengers (which increased during the pandemic) tend to be dealt by women more frequently as they are typically more customer facing workers than their male colleagues.
- “ Steer analysis of selected airport management companies and airlines indicates that changes in the gender balance of the workforce at the airports and airlines studied were limited in terms of percentage point changes. The majority of companies studied (8 of 14) reduced the proportion of female employees in the workforce in 2020 relative to 2019, with the largest change being 3 percentage points at Aeroporti di Roma. In 2021, of the companies with available data, 2 of 6 decreased the proportion of female employees, 1 remained the same, and 3 increased the proportion of female employees.

Figure 7.6: Gender diversity changes, 2020 vs 2019



Source: Steer analysis of airline/airport annual reports

Beyond gender and diversity composition of staff, some stakeholders reported changes in the age profile of staff: Aeroporti di Roma and Innsbruck airport reported higher turnover in younger employees, whilst Royal Schiphol Group explained that its overall staff population became younger with a lot of elder employees using the voluntary leave arrangement offered. Changes in the age structure of staff may constitute a problem in terms of transmission of know-how.

### Future recruitment prospects

- 7.41 Difficulties in recruitment is a key concern for the vast majority of the stakeholders consulted in this study (from airlines, airports, groundhandling companies to staff representatives) who indicated that the labour market will get more difficult for the aviation sector. Clearly the pandemic has publicised to the whole of Europe how vulnerable many aviation jobs can be in times of crisis. Air transport has not been the only sector affected by this, but alongside others such as hospitality or retail, it finds itself struggling to put a good value proposition (in terms of wage and working conditions) in front of low skilled staff. This means that there will be an increased competition for these staff from other non-aviation sectors as well as for staff with skills in high-demand post pandemic (such as in the field of digital or communication skills).
- 7.42 In addition, a new trend in recruitment independent of the pandemic that has been perceived by many stakeholders is the fact that aviation may no longer be a sector that naturally attracts young people due to the conflict between environmental concerns of the young and aviation perceived as being one of the worst polluters. With this in mind, respondents also mentioned that attracting and retaining talent will become more dependent on intangible benefits such as corporate culture, social care, inclusivity, personal development, office/working from home balance, as well as move away from shift work where possible, etc.

- 7.43 Stakeholders expect this situation to translate into possible labour shortages, as well as increased workload for those in employment in the sector and increased automation: this would be particularly the case for airport security, groundhandling staff, ground staff, freight staff, cabin crew as well as airport retail or airport catering. Some stakeholders expect some significant operational problems as a result as soon as the traffic is back to 80% of its pre-pandemic level. Reports of long security and immigration delays at a number of European airports over Easter and the May bank holidays or airlines removing seats on board to reduce the number of cabin crew have already emerged. It was also reported that staff may also need to be trained on multiple roles, noting that the retraining capacity of employees strongly depends on the technicality and transversality of their skills.
- 7.44 It was also feared that there could be a skills shortage, particularly for groundhandling staff, with significant experience having left the industry in the past two years and not the same pipeline of talent coming through as previously. An industry that has been impacted as hard as aviation is always going to struggle in the short/medium term to demonstrate long term job security.
- 7.45 Airlines mentioned that their workforce plans will continue to evolve as per the needs of their flying programme, with seasonality an important component especially as leisure traffic is expected to drive the recovery. On wages, airport expect that they will increase for their staff so that they can keep their qualified staff and lower the risk of losing staff to other non-aviation sectors. Staff representatives were less confident that they would be able to ensure wage increases to their members as they explained that companies employing them (such as security providers, groundhandling companies or others) simply did not have the money to give pay rises, and that it may remain so until the demand was firmly back to close to 2019 levels to justify higher salaries. The need for trained employees will certainly increase the bargaining power of staff, but a staff representative highlighted that this should be seen in the context of social conditions having been significantly degraded during COVID-19, therefore taking time to come back to the pre-pandemic situation. For example, ETF noted the loss of income faced by cabin crew with variable pay, whilst ECA states that many pilots incurred salary reductions as a result of cost-cutting measures by airlines; though in both cases, the scope of these reductions is difficult to establish. ECA added that in the case of bogus self-employment, changes to contractual agreements were often imposed unilaterally with immediate effect (take it or lose your job), whereas direct employment contracts benefitted from stronger employment protections.

#### **Possible changes on the level-playing field for operators**

- 7.46 A European Commission report<sup>140</sup> on social standards in aviation from March 2019 highlighted that the European Parliament, the European and Economic and Social Committee, Member States, airlines and social partners expressed concerns of a possible uneven playing field for operators in the field of aviation employment rules.
- 7.47 In this study, staff representatives have highlighted there is a risk that as airlines try to be as efficient as possible to compete in the market and recover their losses, they might be more inclined to consider atypical forms of employment. However, we have not been able to obtain enough evidence from staff representatives, from Member States and from airlines as to

---

<sup>140</sup> COM(2019) 120 final <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52019DC0120&from=EN>

whether this risk and the possible uneven playing field highlighted by the European Commission pre-pandemic have remained or have increased as a result of the impact of COVID-19 on the industry.

## Conclusions on social impacts

- 7.48 Air transport has been significantly affected by the pandemic, but there are some marked differences across the sectors. Certainly some jobs have benefited from much greater degrees of protection (ANSP staff or staff employed by authorities and Member States) compared to other types of workers, while others have been more impacted (groundhandling companies, ground staff working at airports, flying staff), often linked to the levels of skills, or their unique knowledge levels.

**Table 7.6: Summary of employment impacts**

Staff category	Employment impacts
Groundhandling staff (ramp, passenger, etc)	Significant use of job protection schemes mechanism (up to 60%-85% of staff at its peak). Permanent loss of staff across Europe estimated at 32,000-40,000 people (25%)
Airline staff	Pilots and cabin crew: Significant use of job protection schemes mechanism (up to 85% of staff at its peak). Permanent loss of pilots across Europe estimated at 15% Overall loss of staff at European airlines estimated between 7% and 20%
Airport staff	Significant use of job protection schemes mechanism (up to 30%-40% of staff at its peak). Most airports reduced their headcount in a range of 0% to 20%
Other ground staff (airport retail/car rental staff, security staff, etc)	Significant use of job protection schemes mechanism (up to 60-75% of staff at its peak). Staff permanent losses could be in the order of 25-50%
ANSP staff	Very limited changes to the overall profile and demographics of the ATM labour pool
Member States and authorities (slot coordinators, ISAs, MS)	Minimal loss of staff, some limited increases in staff reported

Source: Steer analysis of stakeholder consultation responses

- 7.49 However these numbers only show a partial overview of employment impacts of the pandemic, as they do not illustrate resulting employment impacts on the entire aviation chain of suppliers, cuts by larger companies to temporary workers, contractors or other forms of less stable employment (such as being employed through agencies or as self-employed personnel). We note that we have not consistently obtained much information on changes of employment status and quality of working conditions from all stakeholders and that there is some uncertainty as to whether and to what extent the possible changes in working conditions are relevant for workers falling within the scope of EU labour law.
- 7.50 As highlighted in the table above, employment impacts vary based on the sector concerned, the relationship between jobs and level of traffic, the type of employment contract (employed, self-employed, etc), the national job protection framework as well as national measures for employment protection (if any) and possible conditions attached to them.
- 7.51 In addition to changes to the job market, according to staff representatives various temporary and permanent changes to working conditions took place (as reported in Table 7.2), such as collective labour agreements in place terminated/suspended and replaced by emergency

agreements, changes in employment terms of contractors/staff employed through an agency<sup>135</sup> or move to self-employment by staff<sup>141</sup>, firing staff followed by re-hiring a couple of months later, replacement of an employer employee with a cheaper one from the same company group or closure of operational bases/stations requiring staff relocation. This mostly concerned airline staff, groundhandling companies, and ground staff. In some cases, changes were limited to the removal of overtime and variable compensation or pay freezes.

### Outlook to 2030

- 7.52 There are some significant concerns across the entire industry (airlines, airports, groundhandling companies and their suppliers) about how services will be delivered when traffic returns to 2019 levels due to resourcing gaps. Naturally there are some variations between sectors with those that are labour-intensive, low-paid and with limited prospects of automation (such as groundhandling, security, airport retail, cabin crew, etc) more impacted by gaps in staff numbers. For pilots, it is unclear to us if these trends will also apply post-pandemic, but we note that there was a pilot shortage at a global level, pre-pandemic.
- 7.53 This is likely to translate into quality of service issues, especially at peak-times. This will have an impact on the entire aviation value chain: impacts at airports with longer waiting times at screening points, groundhandling companies with more delayed aircraft/passenger/cargo, retailers/car renters with less staff to address customer needs at peak-times, airlines with less crew available to fly aircraft or conduct maintenance and repairs overnight impacting schedules and reliability and passengers with longer queues and overall poorer quality of service.
- 7.54 Moreover the feedback collected during this study raised the issue that the entire aviation eco-system is concerned with wider staff retention and talent attraction, and not just sectors that rely on less-skilled staff and which shared pre-pandemic many of the issues highlighted here. The pandemic has raised issues of risks of employment and prospects for the aviation industry which is cyclical and linked to the demand for air travel.
- 7.55 Other industries have faced similar impact, but for the aviation industry stakeholders report that there has been a profound job market shift with a level of voluntary departures not seen before. This further reinforces the need for aviation jobs to be competitive and offer competitive working conditions to expect to retain its staff and attract new staff.
- 7.56 In addition, the younger generations are now putting greater consideration on the environmental performance of the industry of their jobs. This already existed pre-pandemic but is now a stronger issue for an industry which no longer can solely rely on its traditional appeal of being an exciting and growth industry.

---

<sup>141</sup> The qualification as a 'worker' is not necessarily excluded from their contractual designation as self-employed – this depends on whether the individual fulfils the criteria for being considered a worker, as determined by the Court of Justice of the European Union

## 8 Impacts on the EU aviation regulatory acquis

### Introduction

Has the pandemic indicated any regulatory gaps in the context of the EU aviation regulatory acquis in relation to airlines/air services and airports? Have the provisions of the EU aviation regulatory acquis enabled stakeholders and regulatory bodies to effectively and timely respond to the crisis situation? What were the biggest shortcomings?

- 8.1 Very quickly the pandemic has shown that there were some shortcomings in EU legislation. Sometimes gaps were already known, and the Commission was quick to address them (such as on State state-aid, slots or groundhandling, etc), in other instances no emergency intervention took place at European level. Legislation is in most cases written for a “business as usual” situation and therefore it could be expected that in an unprecedented and unpredicted situation such as the COVID-19 pandemic, gaps and shortcomings would be found.
- 8.2 Whether or not emergency legislation had to be drafted, it is important for the Commission and stakeholders to consider how well the existing European aviation regulatory acquis has coped and will cope with the challenges that the pandemic has thrown at the sector. This chapter therefore considers whether the problems and problem drivers described in previous studies applied to potential amendments to EU aviation related legislation remain valid, or whether they have changed in nature or scale. In particular, this task requires that the impact of additional factors which may have emerged since the outbreak of the COVID-19 pandemic are considered, and to assess how these may have changed the nature of the problem(s) and problem drivers.

### Air Services Regulation

#### Context

- 8.3 The Air Services Regulation (hereafter “the Regulation”) provides common rules establishing the EU internal market for air services and governing the smooth functioning thereof. The Commission evaluation<sup>142</sup> of 2019 found that the Regulation had brought sizeable EU added value in creating the EU internal market for air services. Consumers, airlines, airports and aircrews have all benefited from more activity, new routes and airports, new business models, a wider range of advertised fares and an increased overall quality of service for consumers. At the same time, the evaluation identified a limited number of areas for improvement to ensure a better functioning internal market for air services. Areas for improvement identified (among others) included:

---

<sup>142</sup> [https://ec.europa.eu/info/sites/default/files/swd\\_2019\\_0295\\_en.pdf](https://ec.europa.eu/info/sites/default/files/swd_2019_0295_en.pdf)

- Conditions for the granting of an operating licence, notably around authorities' supervision of airlines' financial fitness and the practical application of ownership and control provisions; and
- Insufficient clarity in some provisions, such as on public service obligations or price transparency, which can lead to inconsistent interpretation or application.

8.4 The evaluation concluded that the regulatory framework may need some adjustment. Before the Covid-19 pandemic, the Commission planned such a review (and possible legislative revision) to ensure the Regulation remains fit for purpose in an increasingly competitive environment (Commission Work Programme 2020). However, in 2020 the Commission put the initiative on hold to take into account and assess the structural impacts of the COVID-19 crisis on the sector, the experience gained during the pandemic and the requirements of climate policy.

8.5 The Commission published on 8 November 2021 a Call for evidence in view of a possible revision of the Regulation. Therefore, in this study we are not considering the full policy aspects of Regulation 1008/2008 to the same extent as the three other texts, but instead focus the analysis on the policy changes made since the start of the pandemic.

#### **Policy changes introduced during the pandemic: Regulation (EU) 2020/696 and the State Aid Temporary Framework**

8.6 The EU adopted a temporary framework on the operation of air services<sup>143</sup> in May 2020 as per Regulation (EU) 696/2020 amending Regulation (EC) No 1008/2008 on common rules for the operation of air services in the Community in view of the COVID-19 pandemic. Beyond what has been discussed above in relation to groundhandling, the amendments to the Air Services Regulation allowed:

- Airlines in temporary financial difficulty to keep their operating licence. The EU extended in December 2020 the temporary measures until the end of 2021; and
- Member States to maintain COVID-19 related flight restrictions if necessary.

8.7 In addition, the State Aid Temporary Framework<sup>144</sup> adopted to address the crisis has been further extended until the end of June 2022, with the exception of investment and solvency support measures, that will be in place until 31 December 2022 and 31 December 2023 respectively. Aid according to the Temporary Framework, clarifying that general measures applicable to all economic sectors, such as wage subsidies, suspension of corporate tax and VAT or social contribution payments, do not constitute State aid and do not need to be notified to the Commission.

#### **Impact of Regulation (EU) 2020/696 on temporary changes to operating licences**

Regulation (EU) 2020/696 temporarily suspended the requirement for competent licensing authorities to withdraw or suspend the operating licence of a carrier in financial difficulties or issue a temporary licence. What proportion of carriers benefited from this measure, and what is the longer-term outlook for these businesses? What is the expected impact on the wider aviation market?

---

<sup>143</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32020R0696>

<sup>144</sup> [https://ec.europa.eu/competition-policy/system/files/2021-05/air\\_transport\\_update\\_March\\_2021.pdf](https://ec.europa.eu/competition-policy/system/files/2021-05/air_transport_update_March_2021.pdf)



- 8.8 Regulation 1008/2008<sup>145</sup> on common rules for the operation of air services, among other issues, governs the licensing of European air carriers. The operating licence is an authorisation granted by the competent licensing authority to an undertaking, permitting it to provide air services. Conditions to obtain an operating licence include the possession of a valid air operator certificate certifying that the carrier complies with safety standards, having the principal place of business in the Member State granting the licence, being majority owned and effectively controlled by EU shareholders and compliance with certain financial conditions. The operating licence provisions require competent licensing authorities to monitor compliance with the applicable requirements, including air carriers' financial situation. Once an EU carrier can no longer meet its actual or potential obligations for a 12-month period, the national licensing authority shall suspend or revoke the licence. The authority may grant a temporary licence for a duration not exceeding 12 months to the carrier, provided safety is not at risk and there is a realistic prospect of financial reconstruction within that time period. Under the temporary COVID-19 measures, authorities had the choice to allow carriers to continue to operate under their full operating licence (i.e. they could choose not to suspend/revoke the licence, without being obliged to issue a temporary licence), again provided safety was not at risk and there was a realistic prospect of financial reconstruction.
- 8.9 According to stakeholders consulted across Europe, the use of temporary licences or waivers took place, although not in all Member States, as summarised in Table 8.1. Where Member States used the waiver introduced by Regulation 2020/696 (such as in Germany, Sweden), this enabled some airlines to continue operating where otherwise they may have had their operating licence revoked.
- 8.10 Steer observes that had licences of major airlines been removed (such as that of Lufthansa's for instance), this would have resulted in major disruptions in the connectivity of four European countries and large cities of Germany, Austria, Belgium and Switzerland and other regions of Europe, passenger issues such as lack of options but also vouchers becoming totally void, to negatively impacting the entire market of European aviation (large and small airports, airline suppliers) as well as to the rest of European airlines in various ways (depending on their relationship/competitive status, market shares and geographic positioning).

**Table 8.1: Stakeholder responses on carriers benefitting from temporary licences**

Type	Name	Response
Airline	Lufthansa Group (DE/AT/BE/CH)	Our licensing authority reviewed our financial performance during the pandemic - on the basis of the amended regulations. In this respect, we benefited from the regulatory relief. On the impact without the waiver in place, it is difficult to say. For the wider aviation market, it can be assumed that European licensing authorities would probably have had to revoke the operating licences of some airlines.
Member State	Austria	We had no case concerning the waiver of the rules on suspension/revocation of an operating licence or the issuance of a temporary licence.
	Denmark	No waivers granted
	Finland	No waivers granted
	France	The use of temporary licences means that financial issues become public which usually accelerates the ceasing of business operations. The application of temporary licences should be used for exceptional cases. In France, temporary

<sup>145</sup> <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32008R1008>

Type	Name	Response
		licences were used for Open-Skies when the company formally notified DGAC of an end of operations date. DGAC strongly encourages a more continuous monitoring of any carrier such as requesting more detailed data.
	Germany	Financial performance was assessed on the basis of Regulation (EU) 2020/696. No company was exempt from the provisions of Art. 9(1a) (revised Regulation (EU) 1008/2008). Without the waiver, for some companies the operating licence would have had to be suspended or limited in time because they could no longer meet their potential obligations for a period of 12 months in advance. Instead of this, they only meet their actual obligations.
	Hungary	Hungary did not use this waiver and did not suspend/revoke any operating licences
	Italy	No waivers granted
	Luxembourg	No waivers granted
	Poland	In Poland, no airline has benefited from the repeal of the regulations on suspension / revocation of a licence, including the issue of a temporary licence. It is difficult to estimate what impact it would have on these companies and on the entire aviation market in our country without the waiver in place.
	Sweden	Braathens Regional Airways and Norwegian Air Sweden both benefitted from the waiver. We had considered revoking the operating licence and possibly issuing a temporary licence. We believe that the waiver and financial support provided by each Member State has enabled several airlines to continue their operations.
	Spain	No airline with significant presence in the Spanish air transport market has seen its operating licence suspended or revoked. Without the waiver, it would have been likely that some airlines would not have complied with the requirements to maintain a licence and it would have resulted in disruptions in the connectivity of the country.
	Switzerland	The waiver gave the company sufficient time to prove its economic viability. Without the waiver, the procedure for revoking or limiting the operating licence should have been initiated.

Source: Steer analysis of stakeholder consultation responses

- 8.11 From the responses provided by the Member States, we see that the proportion of carriers who have benefited from the temporary waiver is small (whilst observing that not all Member States responded to this question including some which provided public aid to airlines, meaning that this proportion is likely to be revised up). Nonetheless, given the potential large and complex impacts that could have materialised if a major carrier had lost its licence, it is important to appreciate the benefit of the protection granted, even if just for one airline.
- 8.12 The temporary protection mechanism certainly provided value on the basis of preventing dramatic drops in short-term connectivity, along with job losses and wider economic upheaval where an airline would have lost its licence. Note that a safeguard was part of the mechanism as the carrier had to have a realistic prospect of economic turnaround to benefit from it. In terms of the longer-term outlook for the businesses which benefited from this protection, we refer to Chapter 4.
- 8.13 We note that on the temporary amendments to the operating licence supervisory rules by Regulation 2020/696, no European-based airline, airport or Member State voiced concerns on the level playing field.

### **Impact of Regulation (EU) 2020/696 on temporary changes to public service obligations**

8.14 Please refer to the analysis done in Chapter 6, paragraph 6.97.

#### **COVID-19 pandemic and emergency measures to refuse, limit or impose conditions on the exercise of traffic rights**

8.15 Regulation 2020/696 introduced a specific (lighter) procedure for Member States to refuse, limit or impose conditions on the exercise of traffic rights for reasons related to the COVID-19 pandemic, after the existing Article 21 on emergency measures was found to be insufficiently flexible in the early stages of the pandemic.

8.16 A number of stakeholders have commented on this issue. The report from the Commission on common rules for the operation of air services as amended in view of the COVID-19 pandemic<sup>146</sup> notes that before the pandemic, Article 21 had rarely been used. Several Member States made use of Article 21, including Czechia, Denmark and Ireland but all explained that it had been a limited use only and we understand that only seven Member States did not make use of the possibility offered either by Article 21 or 21a of the Regulation. The report explains that Member States rapidly decided to put in place alternative measures which “appear more suitable, effective and proportionate to contain the COVID-19 pandemic than flight restrictions as such”.

8.17 The requirements in Article 21 with the time limit of 14 days and with prolongations for further periods of 14 days with the agreement of the Commission, was highlighted by Denmark as not fitting well with the reality of the increasingly unexceptional circumstances of COVID-19 (over 2 years), where Member States introduced emergency measures (flight bans) for a longer period of time. Ireland concurred while explaining that rather than restricting flights they sought to impose testing and quarantine requirements on arrivals from certain states. However, they did use Article 21 in late December 2020 to restrict flights from the UK due to the emergence of the Alpha variant of COVID-19.

8.18 Sweden also explained that restrictions of air traffic is not an efficient way to prevent the spread of disease, but they thought that the control mechanism that follows from the requirement of approval from the Commission after 14 days, prevents misuse of the emergency measures. Switzerland also agreed with the view that the suspension of traffic rights could also have detrimental effects even for cargo flows (e.g. pharmaceutical products or even vaccines), whilst observing that Article 21 might nonetheless have some value “in certain very specific situations (e.g. new immune-evasive variant not yet present nationally)”.

8.19 Overall, we note that traffic suspension, as highlighted in this report, has heavy consequences: the suspension of traffic rights for one direct routing might displace passengers and freight to indirect routings, making it more difficult to apply stringent sanitary measures and reducing the connectivity offered (as reported in Chapter 6). In addition, the effects of traffic right suspensions are different based on the geographic situation (e.g., island or land-locked country with open borders).

---

<sup>146</sup> [https://ec.europa.eu/transparency/documents-register/detail?ref=COM\(2020\)714&lang=en](https://ec.europa.eu/transparency/documents-register/detail?ref=COM(2020)714&lang=en)

## Groundhandling Directive

### Problems described in previous studies

- 8.20 The 2011 Impact Assessment<sup>147</sup> identified a number of problems linked to the Groundhandling Directive<sup>148</sup>. The more recent support work for the ex-post evaluation of the Directive carried out in 2019 and finalised in 2020 echoed some issues identified then, but also highlighted new ones.
- 8.21 The first problem identified is that the provision of groundhandling services is not efficient enough, implying untapped potential for cost reductions for airlines and for quality improvement. This is driven by:
- **The possibility to restrict competition for certain groundhandling services:** legislation allows a restriction of the freedom to “self-handle” or to “third party handle” for four categories of services (baggage handling, ramp handling, fuel and oil handling, freight and mail). As a consequence, at some airports, airlines are faced with a limited choice between two providers, for each of the “restricted services”, and are not always authorised to self-handle. The criteria used for these restrictions are not transparent and not well justified and decided by Member States which may not give primacy to the quality and price of services provided to passengers and cargo handlers. There is little sign that much change on restrictions can be expected: after the initial opening, limited change has been observed and in a small number of cases restrictions have been reintroduced.
  - **Lack of national consistency on approvals (administrative conditions to access markets):** there is no consistency between the systems of administrative authorisations (including on subcontracting where practices and different rules exist in the national legislation of Member States which contributes to maintaining unclear responsibilities for the provision of groundhandling services and has a negative impact on airport resources and space and on airport operations) used across Europe when groundhandling companies provide similar services. This creates inefficiencies (it increases costs and by extension, prices of multi-national groundhandling service providers), complexities and barriers (by acting as a deterrent for companies to enter a given market) detrimental to the development of a true internal market and which do not seem to add much operational or safety value. The patchwork of approval systems constitutes an impediment to the functioning and efficiency of the internal market.
  - **Lack of clear rules on tenders which still suffer from issues:** in restricted markets, tenders are used to determine which groundhandling companies will be selected to offer services at a specific airport. The importance of effective and fair tenders is a cornerstone of well-functioning markets in all sectors using this mechanism but the Directive provides little guidance in this area. As a result, approaches on tendering vary. The number and frequency of court cases shows that there is still much to be done in this area.
  - **An uneven level playing field between the different categories of service providers (airport operators, airlines and independent handlers) who work under distinct regulatory conditions:** the identified factors influencing negatively the level playing field

---

<sup>147</sup> [https://eur-lex.europa.eu/resource.html?uri=cellar:6c4173b0-0728-4df9-a463-c84f975df568.0001.02/DOC\\_1&format=PDF](https://eur-lex.europa.eu/resource.html?uri=cellar:6c4173b0-0728-4df9-a463-c84f975df568.0001.02/DOC_1&format=PDF)

<sup>148</sup> <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex%3A31996L0067>

include an inappropriate legal framework for the management and charging of centralised infrastructures as well as an inappropriate legal framework as regards monitoring and oversight of accounting separation for airport operators providing groundhandling services. In addition, contrary to airport operators and permitted self-handling airlines that have a guaranteed ongoing market presence, independent suppliers have to undergo the selection process to then operate during a period of seven years maximum. This duration is assessed by independent groundhandling providers as insufficient to allow adequate return on investment, thereby generating a competition disadvantage and further pressure on staff costs.

8.22 The second problem highlighted is that the overall quality of groundhandling services does not keep pace with evolving needs in terms of reliability, resilience, safety, security and environment. This is driven by:

- **An insufficient coordination of groundhandling services at the airport:** the service level agreed with an individual airline is not necessarily compatible with the overall airport efficiency and more generally with the quality of groundhandling services expected by the final users. As there are no reporting obligations for groundhandling undertakings, it remains difficult to monitor and measure performance of groundhandling services. In addition, the Directive does not specify the role airports might have to ensure minimum quality of service standards or a coordination role across the airport activities, which contributes to keeping unclear responsibilities having negative repercussions for the provision of groundhandling services and for the overall airport operations.
- **An unsatisfactory legal framework in relation to staff working conditions:** groundhandling services are highly labour-intensive (in 2019 staff costs normally contributed between 60% and 70% of total operating costs), with the quality of services therefore significantly relying on the performance of staff. Despite the Directive recognising the importance of working conditions for the proper provision of groundhandling services, working conditions in the industry remain at risk from pressures brought about from the market conditions, and standards which are specific to locations. The Directive left Member States the freedom to address (or not) social aspects regarding groundhandling and did not have any specific provisions in relation to the protection and transfer of staff. This leads to uncertainty as regards the measures that Member States are authorised to take for transfer of staff and a lack of protection. Most problematically, transfer of staff issues is fuelled in part by the Directive with the system of tenders which affects staff working conditions and encourages turnover of staff, in spite of the legal protection afforded by Directive 2001/23<sup>149</sup>.
- **An unsatisfactory legal framework in relation to staff training: quality and safety of groundhandling services deeply rely on the performance of staff:** in a labour-intensive sector such as the groundhandling market, continual staff development and training support the provision of high-quality services. The current groundhandling legal framework does not address the question of training of personnel, whilst the pressure exercised on groundhandling companies results in cost-savings practices and, in particular, in a reduction in investment in staff leading to poorly trained staff. However, work on safety and staff training standards is now being developed by EASA.

---

<sup>149</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32001L0023>

### Policy changes introduced during the pandemic: Regulation (EU) 2020/696

- 8.23 The EU adopted a temporary framework on the operation of air services<sup>150</sup> in May 2020 through Regulation (EU) 696/2020. The amendments to the Air Services Regulation allowed that, in derogation of Article 11(1)(d) of Directive 96/67/EC, contracts of suppliers that have been selected on the basis of the procedure laid down in Article 11(1) of Directive 96/67/EC and which expire between the date of entry into force of the proposed Regulation and 31 December 2020, may be prolonged until 31 December 2022.
- 8.24 In addition, airports were temporarily allowed to choose directly a groundhandling service provider in case a supplier of groundhandling services ceased its activity before the end of the period for which it has been selected, for a maximum period of six months without having to adhere to the normal selection procedure as per Article 11(1) (e) of Directive 96/67/EC.

### Impact of Regulation (EU) 2020/696 on groundhandling legislation

How many airports/groundhandling companies took use of the temporary measures introduced by Regulation 2020/696 and what were the problems encountered with the application of the rules (if any)? What was the necessary time for airports concerned to replace a groundhandling company under the direct selection procedure introduced by Regulation 2020/696 and what was the level of interest in the participation from groundhandling companies? Are there any examples that an airport was not able to find a substitute, and if so, what were the reasons for that?

- 8.25 From the information collected, it looks like only Brussels airport made use of the temporary measures for groundhandling, following the bankruptcy of Swissport Belgium, by replacing it with Alyzia based on a temporary licence until the end of 2020. In December 2020, Alyzia was permanently awarded the second licence of Brussels airport until 2025. According to ACI-Europe (Brussels airport did not participate to the consultation), the airport stated that the necessary time for organising and finalising the call had been two weeks.
- 8.26 More than two groundhandling companies expressed interest for the call, but only two suppliers submitted a final offer for the temporary licence: the duration of the temporary licence (until the end of 2020) was too short according to ACI-Europe and other stakeholders creating legal and operational risk for the airport and the airlines. It was noted by some stakeholders (airports and Member States) that a full selection procedure to appoint a new groundhandling company usually takes longer than six months.
- 8.27 In Spain, AENA reported that the direct selection procedure introduced by Regulation (EC) 2020/696 did not need to be applied. However one airline was not able to find a satisfactory solution for a groundhandling company to serve it. Finally, this airline was allowed to engage in self-handling.
- 8.28 Stakeholders stated that they valued in principle the possibility to directly appoint a groundhandling company in the case of the failure of a supplier. However, stakeholders also highlighted that the period (of a maximum of six months allowed to the groundhandling company to provide its services following their appointment through the fast-track (or direct selection) procedure: was too short. [VDF described the example of Brussels airport, which

---

<sup>150</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32020R0696>



was able to appoint a replacement in a very short time as “extra-ordinary” and not representative of the wider market.

8.29 The following airports extended its groundhandling licences:

- France: Nice airport extended its licences which were meant to be released in December 2020 until 2022. By contrast, Paris-CDG and Paris-Orly decided not to extend their licences and launched the renewal procedure in February 2021 for an operational start in March 2022 (four years licences at CDG and seven years at Orly);
- Germany:
  - Hamburg airport reported that the licences were extended under the temporary measures 2020/696;
  - Airlines mentioned that they requested the application of the procedure at Cologne-Bohn airport, but that the local authority was not willing to do so;
- Hungary: the airport reported that the temporary measures of 2020/696 were used for licence extension;
- Switzerland: Zurich airport reported that the temporary measures of 2020/696 were used to extend the licences.

8.30 The temporary rules on groundhandling services were not extended by the Commission in the subsequent delegated act to cover one or two additional years, as proposed by ASA and a few Member States. In this regard, VDF emphasised a number of key points:

- The setup of a new station, where groundhandling service provider would have ceased its activity before the end of the period for which it was selected would take six months to have the personnel available: staff needs to be hired, receive an airport pass (which takes two months), have the necessary security training according to EU-standards (apron driver’s licence, dangerous goods training and other training focusing on the special activities). This necessary set-up cost and time have to be somehow remunerated, which is very unlikely where there is only a short licence period;
- Where an airline has lost its service provider, it needs groundhandling services to provide continuity of supply, and will not have the luxury to wait until a new groundhandling provider starts. The airline will liaise with the remaining service provider and will not necessarily move to the new service provider if a time gap in service provision results. [

8.31 VDF also mentioned that periodical prolongation of the duration of a licence may be helpful in principle, but that it was also linked with some specific issues such as:

- It creates problems on how to arrange employment agreements (for example in Germany it is not possible to extend employment agreements from time to time as an unlimited agreement would be the result or the service providers have to fire personnel being at the limit and hire new personnel – with all the problems of losing experienced personnel and training of new personnel). Limited employment agreement creates a limited interest, so problems may arise to find personnel being interested to work under such conditions;
- Planning is more complex as it is unknown how things will evolve (a further prolongation or the end of the licence).

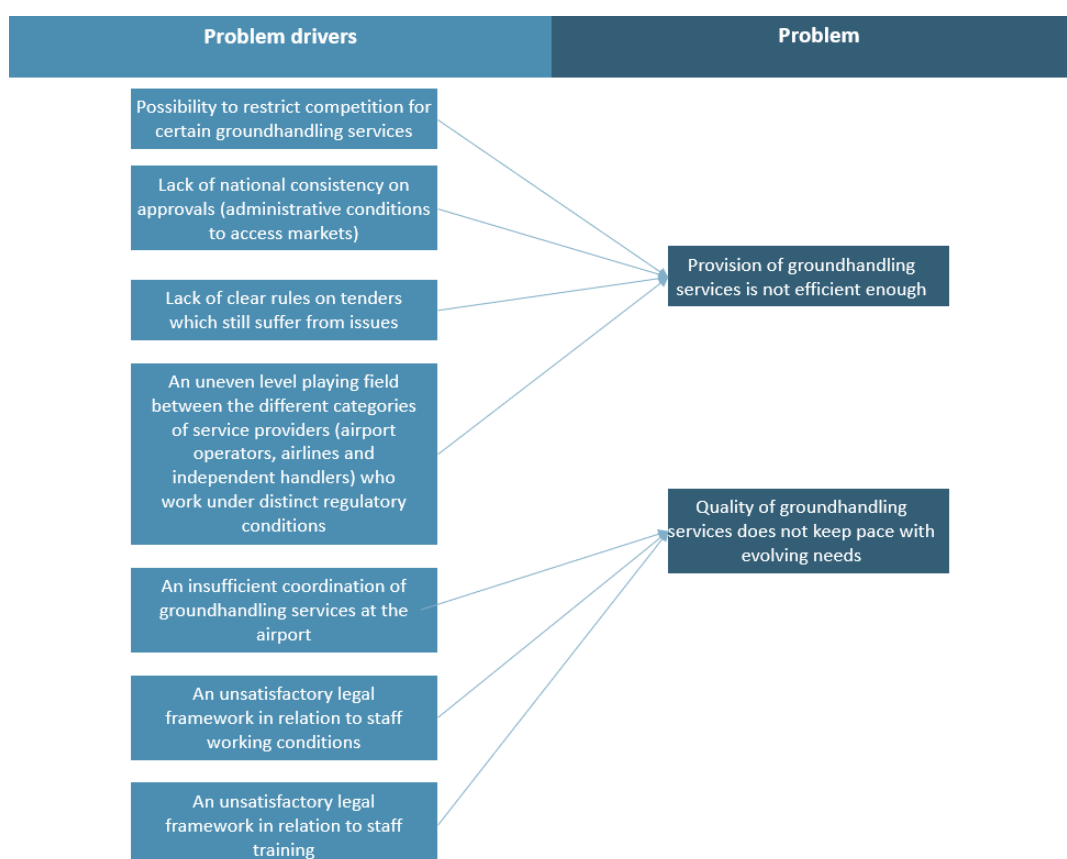
8.32 ASA, VDF and some other stakeholders stated that whilst Regulation (EC) 2020/696 was in principle welcomed by the groundhandling community, it clearly fell short of its original expectations, mostly because of a too short period of prolongation of a licence or a duration of a direct award contract.



**Whether the problems and problem drivers described in previous studies remain valid or whether additional factors have emerged since the pandemic**

8.33 Problems and drivers identified in previous studies included low traffic thresholds, no clear improvement in the quality of service as a consequence of the gradual market opening introduced through the Groundhandling Directive, no further changes expected in market liberalisation/restrictions at national level in Europe, a lack of clarity on self-handling, a complex landscape of approvals, tender requirements or licensing criteria across Europe, strong price competition (especially acute in liberalised markets), limited requirement and involvement of Member States in oversight of the industry, lack of data, minimal social safeguards, no industry-wide skill/training recognition. The problem tree looked as below.

**Figure 8.1: Groundhandling policy intervention problem tree (pre-pandemic)**



Source: Steer analysis

8.34 We start by considering some new factors that have emerged and then assess afterwards the problems and problem drivers identified in previous studies to consider whether they have changed, and if so, how.

*Impact on the selection of third-party groundhandling companies in the tenders*

What has been the impact on the selection of third-party groundhandling companies in the tenders?

8.35 On the question of the selection of third-party groundhandling companies in the tenders during the pandemic, airports did not report issues related to that: either they did not respond, or they mentioned that there had been no impact. Airlines also did not report having seen changes in tenders or tender procedures, although one shared its views that relevant

authorities have chosen to restrict the number of handling licences or delayed issuing licence tenders since 2020. This has prevented new entrants accessing markets, protected inefficient handlers and led to existing contracts being extended rather than tendered distorting the market.

8.36 Groundhandling companies did not comment either apart from VDF who clarified that there had been no impact as there had been no tenders in Germany during the period. This was also the case for the large Spanish market where tenders did not need renewing during the pandemic.

8.37 Some airports also used the possibility granted by Article 24a(1) of the Regulation 2020/696 to extend licences to avoid running tenders during the heart of the pandemic. However, licences were renewed in 2021 at Aéroports de Paris. No specific feedback was obtained from the Member State (who was interviewed), the airport or the groundhandling companies (which did not participate in the consultation). We note that:

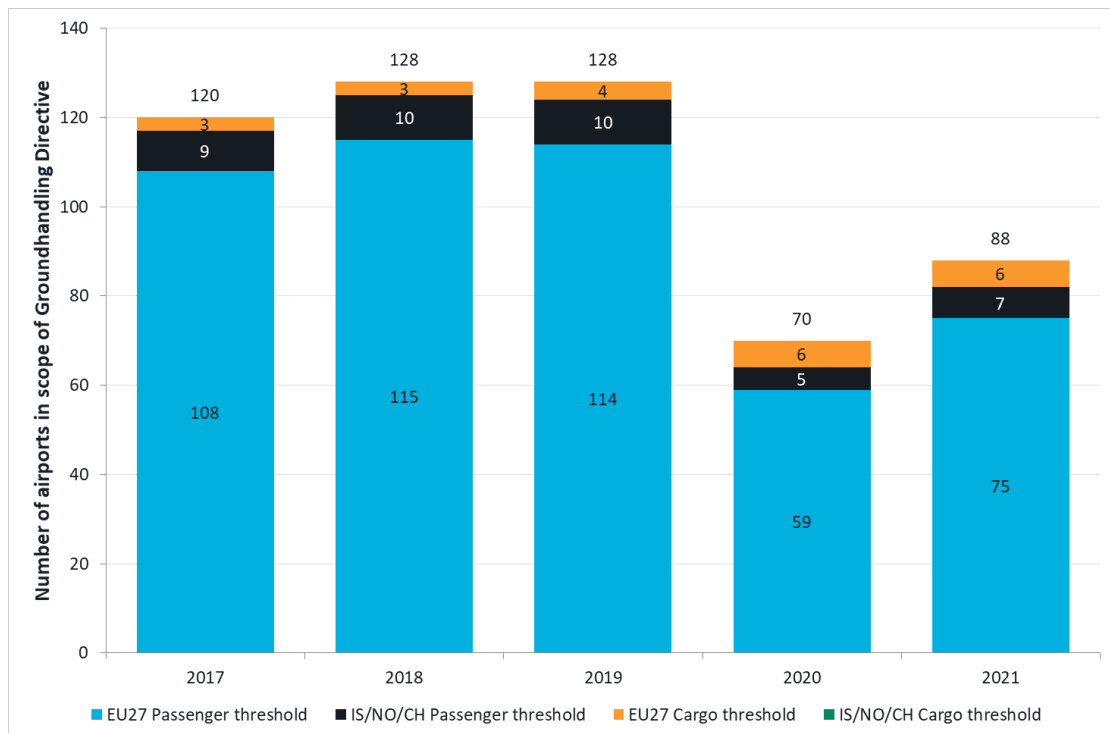
- At Paris-Orly, four handlers were selected: Air France, Alyzia, Aviapartner and Groupe Europe for a seven-year tender;
- At Paris-CDG, three were selected for each of T1, T2 and T3: Air France, Alyzia and Groupe Europe Handling for a four-year tender.

*Airports falling under the Groundhandling Directive threshold*

What was the impact of the COVID-19 pandemic on the number of airports that fall within the scope of the Groundhandling Directive? How is this expected to change in the coming years?

8.38 Airports in scope of the Groundhandling Directive are the airports handling more than two million passengers annually or 50,000 tonnes of cargo. Figure 8.2 shows that airports in scope of the Groundhandling Directive decreased from 128 in 2019 to 70 in 2020, and increased to 88 in 2021.

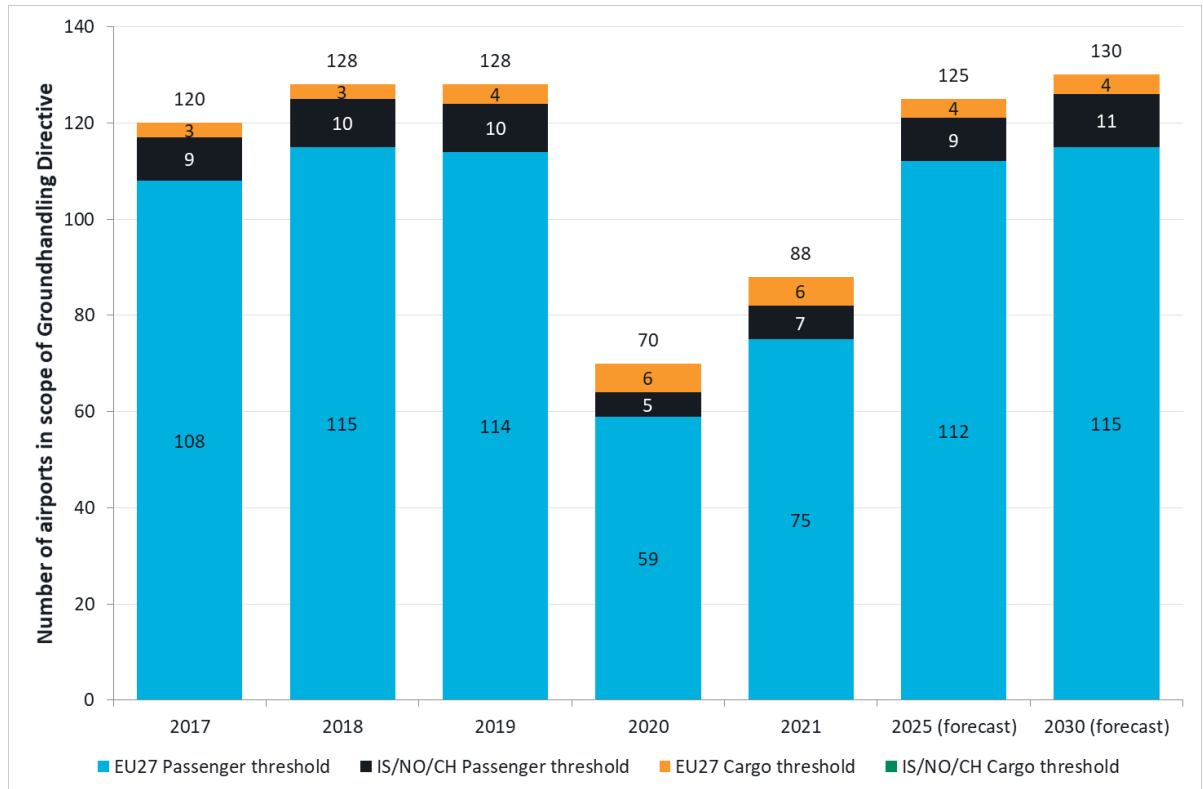
**Figure 8.2: Airports in scope of the GH Directive**



Source: Steer analysis of Eurostat data

8.39 Based on forecasting for the years of 2025 and 2030, we estimate that the number of airports in the EU27 in scope of the Groundhandling Directive will increase to 121 by 2025 and further increase to 126 by 2030. Overall, from the modelling done so far, by 2025 it is expected that the number of EU27 Member States in scope of the Groundhandling directive meeting the passenger threshold of two mppa will surpass 2017 levels. By 2030, it is expected that this will surpass all previous levels of airports in scope in EU27 Member States meeting the passenger threshold.

Figure 8.3: Expected future trends in Groundhandling Directive



Source: Steer analysis of Eurostat data. Note that the modelling has only covered the passenger threshold for the Directive, as cargo tonnes have not been modelled. The forecasted airports in scope of the Groundhandling Directive for 2025 and 2030 are assumed the same as airports in scope pre-crisis in 2019.

What was the approach taken by Member States/airports in case of airports that fell outside the scope of the Groundhandling Directive (2 million passengers annually/50,000 tonnes of freight) because of the impact of the COVID-19 pandemic?

8.40 Stakeholder responses from Member States and ISAs indicate that there had been no change in how the Groundhandling Directive was applied to airports if they fell outside of the designated thresholds of two million passengers annually/50,000 tonnes of freight. Table 8.2 outlines the responses received from relevant stakeholders and shows that either there were no such airports falling below the threshold, or that where airports fell below the threshold they continued to be regulated as per Groundhandling Directive requirements with the authorities considering the drop in traffic as an “external incident” or an “extraordinary circumstance”.

**Table 8.2: National approaches to airports falling out of scope of Groundhandling Directive**

MS	Approach taken in case of airports that fell below the Groundhandling Directive threshold
AT	No change: in Austria no airports fell below the threshold of two million passengers annually/50,000 tonnes of freight annually during or because of the pandemic.
CZ	No change: the same approach was taken as before the pandemic.
DE	No change: the rules were fully applied regardless of the fact that traffic fell under the threshold. The partial decline was taken as an external incident.
HU	No change: the airport did not fall under the threshold.
IE	No change. Ireland's national legislation (S.I. No. 505 of 1998) which implements Council Directive 96/67/EC into Irish law is applicable to any airport open to commercial traffic and thresholds apply in cases where there are limitations in place. There are currently no limitations on the number of self-handlers/suppliers of groundhandling services in place at Irish airports and we continue to apply the relevant provisions of the Directive under our national legislation. Ireland's national legislation provides that when an airport reaches the passenger or freight thresholds set out in the Regulations, the appropriate provisions shall apply to that airport from the end of the following year. The same would apply in reverse where airports fall below the thresholds. Ireland continues to apply the provisions of the Groundhandling Directive where relevant at Dublin, Cork and Shannon Airports with no limitations on the number of self-handlers/suppliers of groundhandling services.
IT	No approach has been adopted
PL	No change: The number of passengers served by airport was irrelevant to the approach to the airport in any supervisory scope by the Polish aviation authorities.
PT (ANAC)	No change: In Portugal only one airport with restricted categories fell below the threshold, and so far, the national legislation that establishes the airports with restricted categories has not been changed, in the assumption that it was an extraordinary circumstance.

Source: Steer analysis of stakeholder consultation responses

#### *Weaker financial sustainability of groundhandling companies and price competition*

- 8.41 As detailed in Chapter 6 in paragraphs 6.1 to 6.6, the degradation of the financial situation of groundhandling companies coupled with the restricted length of licences (up to seven years) is lowering even further their opportunities for investment, which is especially a problem for the pressing need for renewal of ground support equipment with more carbon-neutral properties required to reach net zero objectives.
- 8.42 We have reported in Chapter 6 (between paragraph 6.16 and 6.28) that price competition is now even more acute post-pandemic than it was pre-pandemic, as all stakeholders involved have weaker financial positions.

#### *Issues on self-handling definition and the low threshold*

- 8.43 The rules on self-handling and on the threshold are defined in the Directive. Since there has been no change in this area in Regulation (EU) 2020/696, we do not report any new factors in these areas.

#### *A complex landscape of approvals, tender requirements or licensing criteria across Europe and a limited requirement and involvement of Member States in oversight of the industry*

- 8.44 There is no consistency between the systems of administrative authorisations (including on subcontracting) used across Europe when groundhandlers provide similar services. Apart from the temporary changes brought by Regulation (EU) 2020/696, we are not aware of changes that took place in this area during the pandemic.

8.45 Pre-pandemic the Directive provided little guidance on how tenders should be organised, how decisions should be taken, what rules should be followed, who should have a say, what selection criteria should be used, how price of offers should be considered, how much notice should be given, etc. This resulted in a frequent number of court cases to appeal tender outcome. We note that there has only been limited tender activity during the pandemic and also that all entities may have been reluctant to engage into costly legal disputes. However, it should not be concluded from this that this problem has been resolved since the start of the pandemic. In fact, inefficiencies, complexities and barriers detrimental to the development of a true internal market remain as pre-pandemic.

*No further changes expected in market liberalisation/restrictions at national level in Europe*

8.46 The restrictions on the number of providers allowed by the Directive of essential groundhandling services meant pre-pandemic that at some airports, airlines were faced with a limited choice for each of the restricted services and were not always be authorised to self-handle. The criteria used for these restrictions were not all transparent and not well justified. We have not been reported that there were changes on these restriction criteria and/or levels post-pandemic.

*No clear improvement in the quality of service as a consequence of the gradual market opening introduced through the Groundhandling Directive*

8.47 We have reported on changes to quality of service in Chapter 6. Beyond this as we have noted above that there have not been changes to the market structure (openings or closing of markets) during the pandemic, we do not report any changes in quality of service as a consequence of market changes.

*The role of airports lacks clarity*

8.48 The Directive has clarified a number of points related to the provision of groundhandling services by airports, but it left some loopholes, and it did not specify the role airports might have to ensure minimum quality of service standards or a coordination role across the airport activities. Since there has been no change in this area in Regulation (EU) 2020/696, we do not report any new factors in this area.

*Minimal social safeguards, no industry-wide skill/training recognition*

8.49 The Directive left it to Member States to address social issues “subject to other provisions of Community law”. We are not aware that Member States have changed their national approaches on groundhandling employment, working conditions or training. There has clearly been some social support provided during the pandemic but through the general employee protection schemes available rather than through changes to national social legislation.

8.50 With Regulation (EU) 2018/1139 (the “Basic Regulation”), groundhandling services are now included among the aviation domains with a significant safety relevance that are regulated at European Union level. Annex VII to the Basic Regulation establishes the essential requirements for groundhandling service providers. EASA, in order to address the requirements stemming from the Basic Regulation, has established a roadmap including factfinding, definition of the scope of the roadmap, and implementation of actions. EASA’s work on groundhandling safety has not been concluded either during the pandemic, meaning that there has been no change at European or national level. As a result, a non-harmonised legal framework in relation to safety remains in place across most of Europe with potential implications on working conditions.

8.51 As described further in Chapter 6 and 7 is the recruitment difficulties faced by the sector. This is not new but is now far more acute and is already impacting the quality of service being delivered to passengers including PRMs, their luggage, aircraft handled, airports and airlines.

**Whether the objectives of the intervention remain valid**

8.52 The general objective of the Directive was to enhance the efficiency and overall quality of groundhandling services for users (airlines) and end-users (passengers and freight forwarders) at EU airports. It had five specific objectives:

- SO1: Ensure that airlines have an increased choice of groundhandling solutions at EU airports. Airlines should have a real choice between self-handling and/or selecting groundhandling agents amongst a pool of competing potential providers, so that the end user (passenger, freight forwarders) will benefit from conditions and cost-efficient prices negotiated by airlines.
- SO2: Harmonise and clarify national administrative conditions on market entry (approvals). Divergences and duplication among Member States' approval requirements governing market entry should be reduced.
- SO3: Ensure a level playing field at airport level between groundhandling companies operating under different regulatory regimes. Market entry should not be hampered by unfair competition from the airport operator or by unfair management of centralised infrastructures.
- SO4: Increase coordination between groundhandling providers at the airport. Regardless of the number of groundhandling providers, operations at the airport should remain effective and coordinated (in particular in terms of reliability, resilience, safety and security, environment protection).
- SO5: Clarify the legal framework in relation to personnel training and transfer.

8.53 We see that these objectives fall into two main groups: enhance the efficient provision of groundhandling services and improve the overall quality of groundhandling services at airports. We note that these specific objectives are focussed on market organisation for the first part, but also include consideration of social objectives (personal training and staff transfer) as well as consideration of satisfaction with coordination at the airport (in particular in terms of safety, reliability, resilience, security, and environment protection).

8.54 On the market objectives, it seems reasonable to maintain the objective to a level playing field for all parties concerned, whether third-party groundhandling companies, airlines or airports. This includes the administrative processes linked to approvals, licences and tenders as these may sometimes act as barriers to entry.

8.55 We also note that in the context of some airports (in NL, IE) being already fully open to competition that an objective being “increased choice of groundhandling companies” may not achieve much there and that maybe instead, the assessment could consider “an improved choice of groundhandling solutions” but this may need to be considered as part of an Impact Assessment.

8.56 On social objectives, firstly we note that there were no specific objectives related to staff protection. This report illustrates some of the issues that groundhandling staff has faced during the pandemic and noting that this is not a new issue. The 1996 objective of opening has not come with back-stop mechanisms to protect staff against the forces of market liberalisation. However, as there is EASA work happening in parallel on the grounds of safety, it may be that some of the social protection ambitions are covered by what EASA will require

as far as safety is concerned: this will be likely to include training requirements and licensing of staff.

- 8.57 On the coordination objective, there is indeed a security, resilience and reliability need. Whether it is best addressed through a separate specific objective should be considered in a specific Impact Assessment. On safety, the future work of EASA should ensure this more directly.
- 8.58 In terms of environmental objectives, there is a clear need for groundhandling companies to decarbonise and support the green transition: to do so, there needs to be a concerted action by airports who provide the ground infrastructure and by groundhandling companies to make investments in green technologies. The need to decarbonise groundhandling fits well with some of the objectives of the Fit for 55 proposals, such as with the ETS General Objective: “ensure achievement of increased EU climate targets for 2030 and 2050 and fulfil international commitments under the Paris Agreement”.
- 8.59 As to whether or not it requires a separate environmental objective is probably open for discussion: in a normally functioning and profitable industry, companies make investments were they will make a gain out of it and ensure better competitive positioning.

**Summary of findings on the Groundhandling Directive regulatory acquis**

- 8.60 Overall, we find that the pre-pandemic trends/issues on groundhandling remain. We note that the structure of groundhandling has not changed during the pandemic, and that there have been few market exits, of smaller groundhandling companies. Stakeholders consulted have also confirmed that this is the case.
- 8.61 No brand-new problems or no new drivers have been identified as having emerged since the pandemic, even considering the European policy changes that have been introduced as the impact of these has been particularly limited (in number and in time). What we see actually is that the financial and social difficulties faced by the sector and its staff are now very acute and will not be solved quickly or simply.
- 8.62 As always there remains some different views across the board on what to do to improve the situation and the legislative text. CLECAT for instance would support the further opening of the groundhandling market, as well as the imposition of a minimum level of quality standards (through KPI at European level), which should be conditional for granting licences to GHAs. Harmonised criteria and corresponding KPIs to measure performance should be determined in cooperation with the industry. Other views of stakeholders are summarised below.

**Table 8.3: Stakeholder views on whether Directive 96/67 need addressing**

Stakeholder	Views
Groundhandling companies	Needs a profound review
Staff representatives	Urgent need to address social issues
Airlines	Appetite for review
Freight forwarders	Appetite for review
Airports	Unclear/Probably no need for review
Member States	Unclear

Source: Steer analysis of stakeholder consultation



- 8.63 One of the most interesting developments, but which must be confirmed due to limited groundhandling companies participation in consultation (meaning that their views might not be fully representative) is the change of groundhandling views from “keep as is” pre-pandemic to “consider addressing” now.

## Slots Regulation

### Problems described in previous studies

- 8.64 The 2011 study<sup>151</sup> identified a number of problems linked to the Slots Regulation<sup>152</sup>. The more recent work carried out for DG MOVE in 2019 and finalised in 2020 echoed some issues identified then, but also highlighted new ones. The problems highlighted predominantly relate to the design of the slot allocation rules and how these are being used in practice. Issues with the enforcement of the existing rules emerged in the case of the adequate declaration of capacity and the designation of airports.
- 8.65 More precisely, the first problem identified is that the current administrative system for slots is neither complete nor fully implemented. This is driven by:
- **The definition of key concepts:** although a definition is provided in the Slots Regulation (and is indeed aligned with that used by the Worldwide Slot Guidelines), in practice what a slot is and who “owns” it remains ambiguous. The increasing use by airlines of slots as assets has brought these questions under further scrutiny (see below). Other key concepts, including “efficient” or “optimal” use, are also not well specified. The level at which efficiency should be assessed (passenger throughput, revenue, wider economic benefits, environmental benefits) and the extent to which it is the responsibility of the coordinator is not clear. Definitions of other terms (e.g. art. 8a “partial take-over”), as well as what constitutes an “air carrier” from the perspective of slot allocation, are also required to support better implementation.
  - **The adequate declaration of capacity:** the Regulation requires that coordination parameters are declared before each scheduling season, however the frequency with which and the extent to which the capacity declaration of airports (including associated processes e.g. Air Traffic Management) is reviewed/assessed is not specified. Furthermore, adherence to the processes for designating an airport as coordinated is frequently poor.
  - **The operation of slot coordination:** although most stakeholders assessed coordinators as sufficiently independent in practice, there are significant differences between the organisation and operation of different slot coordinators. In some cases, there are concerns that they are insufficiently independent and/or lack the capability to monitor and enforce slot allocation and availability effectively. The effective independence of coordinators is also potentially compromised by the threat of legal challenge (and risk of incurring very high legal costs) that they face in response to their decisions. The transparency of the information made available by coordinators is assessed to have improved, but detailed historical information is not sufficiently readily available, while the priorities applied by coordinators when dealing with competing slot requests are not always clear.

<sup>151</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52011SC1443>

<sup>152</sup> Council Regulation (EEC) No 95/93 of 18 January 1993 on common rules for the allocation of slots at Community airports, <https://eur-lex.europa.eu/legal-content/GA/TXT/?uri=CELEX:31993R0095>

- **Efficient use of existing capacity:** the current administrative arrangements, even with some countries permitting secondary trading, leads to limited mobility in the use of slots at congested airports. This is likely to mean that these slots are not being used in the most “efficient” way, as there are no signals from airlines and passengers in the allocation of these scarce resources. This may take the form of use of slots with small aircraft, to a limited network of routes and hoarding of slots (see below).
- **Hoarding or underutilisation of scarce slot resources:** airlines must operate 80% of their allocated slots in order to assume their use in the next season. If an airline can demonstrate that it has achieved this, it is granted priority for their allocation in the next season. The interpretation of the slot handback and cancellation rules means that in some cases airlines can operate 64% of their allocated slots in a season and retain historic rights, as it is possible to hand back 20% of the slots back before the seasons starts, and then operate 80% of the remaining slots in the season ( $80\% \times 80\% = 64\%$ ).
- **Late handback of slots is not sufficiently discouraged:** once slots have been allocated, airlines are able to surrender 20% of their allocated slots, however in some cases this has raised complaints as the timeframe between airlines returning slots to the coordinator and the season beginning does not facilitate other carriers being able to utilise the slots.
- **Misuse of slots is not sufficiently discouraged:** the system of enforcement has not changed materially since 2011. Although the tools for monitoring slot performance may have evolved, enforcement and the application of sanctions continue to present a high administrative burden, while approaches to both monitoring and enforcement still vary between Member States.
- **Single European Sky:** the Slot Regulation continues to not be aligned with the intent of the SES, while some terms in Article 14 (e.g., “the competent Air Traffic Management authorities”) are not sufficiently defined. The current provisions do not support the management of the network by preventing misuse on the day of operation as assessments are mostly done ex-post. There remains an incompatibility between the planning tools used for slot coordination and the operational tools used for network functions that hampers the effective exchange of information. To the extent that slot coordination can support the operation of the Single European Sky (SES), it may contribute to the benefits envisaged for the reform of the SES and associated reduction in aviation emissions.

8.66 The second problem highlighted is that the legal framework pre-pandemic was no longer adapted to the evolution of the aviation market. This is driven by:

- **A lack of transparency of secondary trading:** where secondary trading of slots exists, there is limited transparency on the exchange of slots. Greater transparency may encourage a better functioning and more liquid market.
- **Issues with the new entrant definition:** although new entrants are given priority for 50% of the available slots through the pool, the definition of new entrant used in the Regulation is so narrow that it has not been successful in bringing in new airlines to enable competition.
- **Use of multiple operating licences as a way to benefit from the new entrant rule is a new driver highlighted before the pandemic:** although the prevalence of this was found to be low, with many airlines now operating multiple operating licences, this may increase. A similar principle will also apply to joint venture groups (see below).
- **Mergers, acquisitions and joint ventures:** a number of airlines have significantly increased their portfolio of slots at congested airports by undertaking mergers, acquisitions and

joint ventures. The ability to transfer slots through joint operations means that there is transferability of slots between joint venture partners and, depending on different coordinators' interpretation of "joint operations", even between carriers with less integrated commercial arrangements.

- **Slot ownership and use of scarcity rents:** the definition of slots and ownership rights has come under increasing scrutiny as airports have started to take more of an interest in slot usage and allocation. The ownership of slots needs to be clearer and that currently this ownership has been assumed by the airlines, who receive proceeds of exchanges/trades and also include slot portfolios as assets on their balance sheets, despite the capacity being provided by the airport. Non-airline stakeholders identify airlines as benefitting from scarcity rents (through higher air fares and potentially higher route profitability) resulting from scarce airport capacity.
- **Use of new capacity:** a number of stakeholders have remarked that the current Regulation, including the current new entrant rules, mean that it is difficult to manage a transition when a new runway or other piece of infrastructure that leads to a step change in slot availability occurs. Additionally, given the step change in available capacity, alternative timelines for an earlier slot allocation process have been put forward by stakeholders, which would allow sufficient time for airlines to adapt their schedules and ensure they have the aircraft, staff and other resources available to utilise the new capacity effectively.
- **Airline bankruptcies:** the reservation of slots for airlines that are winding down or have ceased operations, but retain an operating licence (even if suspended), leads to inefficiencies in the allocation of slots and the use of the associated capacity at both ends of the routes which were previously operated by the bankrupt airline. The issue is exacerbated by the fact that airline bankruptcies have tended to coincide with the coordination process for the following equivalent season, while it is also related to the issues of slot ownership, use of slots as an asset and secondary trading.
- **Environmental pressures on making best use of capacity:** as the pressure on the environment continues, ensuring that capacity is allocated in such a way so as to facilitate better (i.e. lower) CO<sub>2</sub> and NO<sub>x</sub> emissions per passenger.

### Policy changes on slots introduced during the pandemic

- 8.67 At European level, there have been a number of important policy changes made to slot legislation. Firstly, whilst Article 10(4) of the Slot Regulation allows slot coordinators to disregard non-operation of airport slots for periods during which the air carrier is unable to operate planned air services due to unforeseeable situations, such as closure of airports or an airspace, it did not address the novel situation of the COVID-19 outbreak. As a result, European authorities enacted Regulation 2020/459<sup>153</sup> amending the Slot Regulation which suspended the application of the 80/20 rule<sup>154</sup> until the end of the summer season 2020. Suspension of the use-it-or-lose-it rule is not unprecedented, as it was suspended following 11 September 2001, the Iraq war and the SARS epidemic in 2003 and after the global financial crisis in 2009.

<sup>153</sup> [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L\\_.2020.099.01.0001.01.ENG&toc=OJ:L:2020:099:TOC](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2020.099.01.0001.01.ENG&toc=OJ:L:2020:099:TOC)

<sup>154</sup> 80/20 rule or "use it or lose it" rule refers to the principle that an airline must operate the allocated series of slots for at least 80% of the time during the season for which it has been allocated

- 8.68 On 14 October 2020, in light of the persisting impact of the crisis in the sector, the EU extended the temporary slot waiver until the end of the winter 2020/2021 scheduling season on 27 March 2021. Due to negative impacts on competition of the full waiver introduced by the Regulation mentioned above, Regulation 2021/250<sup>155</sup> amending the Slot Regulation was adopted to strike a more adequate balance between providing relief to airlines during the COVID-19 crisis and promoting competition. To give more clarity on how slots will be used in the future, Regulation 2021/250 sets out a plan on how to return to a normal application of the "use it or lose it" rule. Airlines were able to obtain a full slot series waiver for up to 50% of slot series held at an airport, provided these were handed back before 28 February 2021. They then had to use 50% of their planned take-off and landing slots for the Summer 2021 season in order to keep them in the following season. In addition, the Commission is empowered to adopt delegated acts for one year to cover the following two seasons. With such acts, the Commission may change the minimum utilisation rate to between 30% and 70% in order to respond flexibly to different air traffic levels.
- 8.69 On 15 December 2021, the Commission adopted an extension to the slot relief rules of the 2022 summer scheduling season, running from 28 March 2022 to 29 October 2022. Instead of the normal requirement to use at least 80% of a given slot series, airlines will have to use 64% to retain historic rights in those slots.
- 8.70 At national level, we are not aware of legislative changes introduced by Member State concerning slot topics. We note that slots are regulated by a Regulation at EU level, meaning that Member States would not be expected to legislate in this area by themselves.

#### **Factors that have emerged in relation to the temporary policy changes**

- 8.71 There are three areas that have been highlighted by stakeholders as key in relation to the policy changes introduced during the pandemic, and particularly in the context of recovering traffic:
- Justified non-use of slots (JNUS) is an important provision that has been used extensively by airlines to manage their schedules in the evolving pandemic situation (e.g. the emergence of the Omicron variant in December 2021). However, both airlines and coordinators noted that this provision has been interpreted differently by different coordinators, resulting in inconsistent implementation across the EU (see *Issues related to the independence of slot coordinators*). The inconsistency of interpretation of certain provisions of the Slots Regulation is not a new issue, however, with a number of other differences also observed in the past (e.g. on the length of slot series eligible for historic, secondary trading).
  - Airlines and coordinators stated that the uniform application of slot utilisation thresholds (e.g. 50% in Winter 2021/2022) does not sufficiently recognise the different paces of recovery across different markets, particularly the difference between long-haul and short-haul markets, and network effects of connecting flows. Airlines noted that this has resulted in the fragmentation of schedules, as they attempt to meet the utilisation threshold on each slot series, which may not correspond well to changing passenger demand. One coordinator (DE) pointed out that it potentially strengthens the position of alliances at their hubs, which can benefit (to the extent available in the low demand context) from connecting flows to support sufficient demand for meeting the slot

---

<sup>155</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021R0250>

utilisation thresholds with sensible load factors, as compared to incumbent non-alliance competitors which operate on a point-to-point basis at these hubs.

- There is a lack of clarity around the approach for transferring ad-hoc operated slots to historic rights for the ad-hoc operator, where the slots allocated as ad-hoc are not retained by the airline that originally held the historic rights (i.e. returns them to the pool). IATA and member airlines view that newly built services ought to be given priority for historic slots.

*Impacts on slot portfolios and new entrants*

What impact has Regulation 2021/250 (slot relief) had on airlines' slot portfolios and competition at coordinated airports? Has the new entrant definition of the slot relief amendment led to new entrants at coordinated airports?

8.72 Council Regulation (EEC) 95/93 (the Slot Regulation) governs slot allocation at Community airports. Under Article 8(2) of the Slot Regulation in conjunction with Article 10(2), air carriers are required to use 80% of a slot series allocated to them to retain historical precedence of the slot series for the next equivalent season (the "use-it-or-lose-it rule"). These usage rules were suspended during the pandemic. Table 8.4 provides a summary of the changes since the Summer 2020 season.

**Table 8.4: European changes on Slot Regulation usage rules**

Season	Changes to the Slot Regulation usage rules
Summer 2020	Following the outbreak of COVID-19, Regulation (EU) 2020/459 was adopted to amend the Slot Regulation. This waived the use-it-or-lose-it rule until 24 October 2020 (end of the Summer 2020 season) and was subsequently extended until 27 March 2021 by Commission Delegated Regulation 2020/1477. During this period historic precedence gained in the S19 and W19/20 seasons was automatically retained for the S21 and W21/22 seasons.
Winter 2020/2021	
Summer 2021	<p>Regulation 2021/250 was adopted on 16 February 2021 to grant airlines relief for the Summer 2021 Season, however it also contained provisions to promote competition and efficient use of airport capacity. The conditions included were:</p> <ul style="list-style-type: none"> <li>• Airlines were able to obtain a full slot series waiver for up to 50% of slot series held at an airport, provided these were handed back before 28 February 2021;</li> <li>• Carriers with fewer than 29 slots per week on average (&lt;899 for S21), were eligible to return all series and retain historic rights;</li> <li>• Airlines were required to operate their remaining slots at a 50% utilisation rate to retain historic rights on these;</li> <li>• Carriers should return slots not planned for use at least three weeks prior to operation;</li> <li>• The "justified non-use-of slots" (JNUS) was permitted under Article 10(4)(e), which allowed airlines to justify the non-use of slots without losing rights if non-use resulted from measures adopted by public authorities to stop the spread of COVID-19 and if they lead to: <ul style="list-style-type: none"> <li>– A severe impediment to travel; and</li> <li>– Air carriers were not aware of these at the time slots were allocated.</li> </ul> </li> </ul> <p>At the start of the Summer 2021 season, the coordinated exemption from slot use entirely protected historic slots they could not use in the months of April and May 2021. As a result of using the force majeure clause, the 50% slot use rate applicable in Summer 2021, effectively only started to become applicable from June 2021<sup>156</sup>. Iceland, Norway and Switzerland also adopted 2021/250, whilst the United Kingdom maintained an unconditional slot waiver for Summer 21.</p>

<sup>156</sup> Commission Delegated Regulation (EU) 2021/1889, Explanatory Memorandum, 23 July 2021

Season	Changes to the Slot Regulation usage rules
	When slots were handed back to coordinators, it was possible for these slots to be used by other carriers on an ad-hoc basis. In some cases, this allowed carriers to gain access at airports where previously there were no slots available in the pool. Given the priority inbuilt in the slot relief measures for these operators in future seasons, this could permit these slots to become permanent features of their network, however at very constrained airports this would still require the S19 and W19/20 season slot holders to return these slots permanently to the pool.
Winter 2021/2022	Commission Delegated Regulation (EU) 2021/1889 noted the persistent reduction in traffic for the Winter 2021/2022 season and introduced rules governing slot retention for this season, including: <ul style="list-style-type: none"> <li>• All slots held at the hand-back date (HBD) being subject to a 50% usage requirement;</li> <li>• All slots not planned for use to be returned at least three weeks prior to operation; and</li> <li>• Retention of “justified non-use of slots” exception (JNUS).</li> </ul> Switzerland also adopted the Delegated Act. No information was available for Norway and Iceland <sup>157</sup> . The United Kingdom adopted alleviation in line with the Worldwide Airport Slot Board <sup>158</sup> (WASB).
Summer 2022	For Summer 2022, the European Commission has confirmed that the usage requirement to retain historic rights will be set at 64% <sup>159</sup> . The “justified non-use of slots” exception (JNUS), protecting airlines’ historic rights to slots when state-imposed COVID-19-related measures severely impede passengers’ ability to travel, will also be extended.

Source: Steer analysis

8.73 On the new entrant rule, most coordinators who responded stated that it was not used (Austria, Czechia, Germany, Netherlands, Norway, Portugal, Switzerland), not used until S22 (Belgium), or were unable to provide a response (ACL, Finland) – in general agreeing that this was the result of very low levels of passenger demand. Only the coordinator of Italy stated that it had been used “in a few cases” (without specifying a number), whilst the Spanish coordinator explained that “amongst these new entrant requests, only very few benefitted from the amended definition of new entrant in Regulation 2021/250”. The Dutch coordinator noted the new entrant rule had not been used because it came too late. Airline responses also indicated that the amended new entrant rule had only been used in a very limited cases to gain permanent (as opposed to ad-hoc) access to some highly congested airports – although in the case of some of the Greek island airports, airlines were able to obtain slots as a result of increased availability following the completion of capacity expansion works, rather than because they became eligible under the amended new entrant rule (where they previously would not have been).

<sup>157</sup> <https://www.iata.org/contentassets/4820c05b19f148e2855db91f2a579369/global-slot-use-relief-status-northern-winter-2021-level-3.pdf>

<sup>158</sup> WASB W21/22: i) 50% slot usage rate, ii) Complete slot series returned before 7 September 2021 are alleviated from use, this can include slots exchanged and transferred before 31 August 2021. iii) Justified non-utilisation will be taken into account. iv) the point at which the slot coordinator can withdraw the remaining slots of that series have been used is increased from 20% to 50%.

<sup>159</sup> [https://transport.ec.europa.eu/news/aviation-slot-relief-rules-airlines-extended-2021-12-15\\_en](https://transport.ec.europa.eu/news/aviation-slot-relief-rules-airlines-extended-2021-12-15_en), 16 Dec 2021



- 8.74 On the question of whether airlines returned slots they knew they were not going to operate, coordinators (EUACA) stated that generally airlines were encouraged to and did return their unused slots in a timely manner. This was particularly the case with respect to full series return solution for S21, but also applied to in-season returns within the 50% threshold. Some coordinators (including BE, CZ, PT) did not support this general view and noted that airlines had to be encouraged to return slots at least three weeks in advance from planned operations. Airports, which view the three-week threshold as the absolute minimum for planning, considered that many airlines (even if meeting this three-week window) could have provided better visibility of operations earlier – although this is countered by the airlines’ position that they did not have sufficient visibility much further in advance given the continuously evolving situation across many markets.
- 8.75 Some coordinators were able to quantify in their responses the proportion of slots handed back pre-season (in the context of the possibility to hand back 50%): 38.3% in Italy, 47% according to Austria, Czechia, and Finland.
- 8.76 On the ad-hoc utilisation of slots by carriers and whether it allowed permanent bases to be created, the French coordinator observed that ad-hoc usage of slots made available by early release have been limited as few operators succeeded in building new historic rights at airports where they had limited presence. It believes that such a development was limited due to lack of demand, and not by slots scarcity. A coordinator also stated that it had not received enquiries or interest from new operators during the pandemic. This was also the view of the Swiss coordinator. The Spanish coordinator agreed with this but also explained that this was due to these slots being allocated on an ad-hoc basis only (i.e. without historic rights granted).
- 8.77 In the case of France, some new operators have gained slots at Orly airport, but this was as a result of Air France being required to stop operating domestic routes with rail alternatives, or from slot releases resulting from state-aid competition remedies, rather than from slots otherwise becoming available in the pool.
- 8.78 On the overall impact of the pandemic on slot mobility, it seems that two trends emerged:
- Short-term, due to the partial removal of the historic rules, there have been more slots available to the pool which has allowed greater slot mobility than what has been observed pre-pandemic. This has allowed for greater short-term schedule optimisation and the ability to react to changing market demand, which has supported airlines in their actions on pandemic mitigation, although airlines would have welcomed more flexibility in differentiating between domestic/EU/short-haul, non-EU/longer-haul and connecting markets (or more certainty in the application of the justified non-use of slots provision). The adapted rules also allowed general and business aviation to operate more slots than previously, or cargo operators to operate more night slots for instance. Generally, there has not been significant overall expansion in airlines’ slot portfolios on a permanent basis, as airlines primarily responded to market conditions and severely depressed demand rather than making more strategic moves to establish new slot holdings for the long term.
  - Longer-term, it is expected that when the partial waiver measures are lifted slot mobility will become rigid again and return to “normal”, although this will also be influenced by the impact of the pandemic on each carrier and the overall level of demand supporting return to 2019 levels of activity at capacity constrained airports. In general, coordinators observed that as traffic recovers, the peak times during the day (particularly during seasonal peaks) continue to look the same as the pre-pandemic situation, but that demand is softening in the shoulders and off-peak times for which some slots are



expected to become available for reallocation in future seasons (but during which some capacity was in any case available). There remains a question about how the transition from the short-term to the more stable long-term situation will proceed with respect to priority for historic slots that were allocated ad-hoc during the pandemic on the one hand, and on the other hand the degree to which airlines which have restructured during this period will be able to effectively implement their new strategies across their networks (i.e. at both ends of their routes) when traffic recovers.

*Impacts on slot mobility and barriers to entry/expansion of airlines?*

How has the impact of COVID-19 affected slot mobility and barriers to entry/expansion of airlines?

8.79 See section above.

*Impacts on “ghost flights”*

8.80 As airlines want to maintain their slots and need to operate enough flights to do so, there has been some speculation in the press on “ghost flights”, i.e. flights operated without (many) passengers on board, flown with the sole purpose of meeting slot utilisation thresholds. The situation is complex and the definition of a “ghost flight” is not clear. In the way they have covered in press reports, ghost flights may include those without any paying passengers, but also those with very low passenger load-factors. In this context, some airlines have referred in their responses to “unnecessary flights” as those which are loss-making – although we note that route economics would normally take into account outbound and return legs, as well as seasonality<sup>160</sup>. Aspects to consider which help towards understanding the situation include:

- Airlines make money when they have revenue passengers on-board a flight, and there is no doubt that all airlines have developed sophisticated revenue management systems to maximise the number of passengers they fly. However, some airlines noted that having to operate at least 50% of retained series (i.e. not covered by full series utilisation relief) in summer 2021 and winter 2021 has meant that they have not been able to optimise schedules to match demand (primarily with respect to destination, given evolving restrictions), while different application of JNUS rules between coordinators has also contributed to this. During an interview, one airline stated that a number of flights during the pandemic may also not have been operated, had it not been for the obligations then generated by the application of Regulation 261/2004 establishing common rules on compensation and assistance to passengers in the event of denied boarding and of cancellation or long delay of flights. We note however that when invited to provide evidence to the EC on the number of empty flights being operated, airlines did not present relevant information<sup>161</sup>;
- With national border closures and in some cases stringent quarantine requirements (such as in China, Hong Kong, Australia, New Zealand, etc.), there will have been examples of flights with very low load factors as many passengers would have been put off by these particularly constraining measures (while these long-haul flights can only be operated by

<sup>160</sup> Based on 2019 pricing structures for a sample of 122 airlines, **IATA estimated** that the average EBIT break-even load factor was 77%.

<sup>161</sup> <https://www.reuters.com/world/europe/no-issue-with-eu-airport-slot-rule-no-sign-ghost-flights-eu-says-2022-01-13/>

larger aircraft). However, flights operated ensured that a degree of connectivity was maintained and that a public transport option was provided for those who needed to travel. It should be noted that on routes to the above-mentioned long-haul markets no obligation to use slots existed during the entire or most of the pandemic – either because of full waivers, or JNUS;

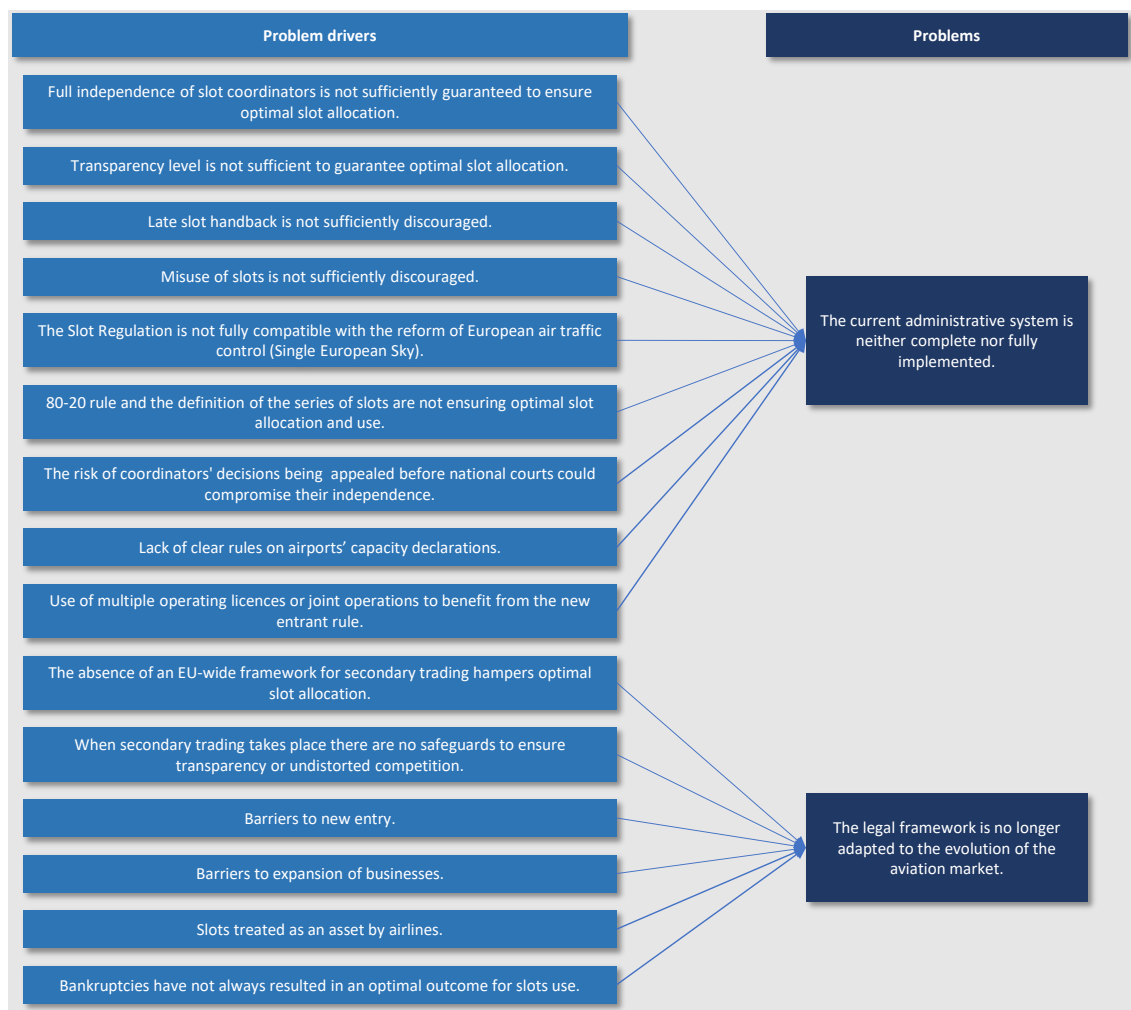
- A flight without passengers may in fact have had a high air freight load factor (including on the passenger deck as was the case at times during the pandemic). The Commission clarified early in the pandemic the role of air freight and published guidelines to ensure its smooth operation, so it would seem incoherent to decide after the peak of the crisis that these flights brought more externalities than benefits; and

Some flights may have operated empty or with low load factors for a number of operational reasons, some of which will have applied under normal circumstances too (e.g. positioning, maintenance, training/maintaining crew recency). For example, some airlines have operated longer-haul aircraft on short sectors for brief periods (e.g. around the resumption of transatlantic routes in November 2021 following the lifting of US travel restrictions) as way of re-familiarising crew with these aircraft types.

**Whether the problems and problem drivers described in previous studies remain valid or whether additional factors have emerged since the pandemic**

8.81 Problems and drivers identified in previous studies are presented in the problem tree below.

**Figure 8.4: Slots problem tree (pre-pandemic)**



Source: Fact-finding study on allocation of slots at European airports (2019-20)

- 8.82 The effects of the pandemic have delayed some of the immediate constraints that would have been caused by increased congestion, however in the long-term these structural factors are still be expected to impinge on growth, as long-term drivers for expanded demand remain. The issues analysed in the 2019-20 “Fact-finding study on allocation of slots at European airports” were in many ways aligned to the issues already highlighted at the time of the Slot Proposal in 2011, when traffic was -28% lower than that seen in 2019.

*Capacity constrained airports*

- 8.83 It is worth considering the particular perspective of capacity constrained airports. Capacity constrained airports are likely to face slot-related issues sooner or more strongly than other airports since airlines will seek to protect their slot portfolios at capacity constrained airports before those at airports where constraints are not as severe. Further, capacity constrained airports would not have been expected to grow at as high a rate as the overall market, as they are limited by their constraints, so catching-up with their pre-pandemic expectations for traffic would also be expected to come sooner than for high-growth non-constrained airports.

- 8.84 Even though traffic has not recovered to 2019 overall levels, coordinators stated that at peak times during the day (particularly during seasonal peaks), the situation at congested airports remains the same as pre-pandemic. In fact, at the time of extending the temporary slot waiver to the Winter 2020/2021 season, the Commission acknowledged that it should not obstruct the best use of available capacity even while the COVID-19 crisis persists, and highlighted a number of challenges including the timing for the advanced hand-back of slots; the difficulty for airports and related services providers to plan operations effectively, and the risks that competition is excluded from airports – all of which mirror closely the challenges with the application of the Slot Regulation more generally, as originally shown in 2010 and confirmed by the 2019/20 study. Stakeholders’ (airlines, airports and coordinators) positions with respect to the long-term issues highlighted in the previous section remain largely unchanged.

*Changes in airports coordination status*

- 8.85 As traffic levels plummeted, we examined which airports changed coordination status as a result. Between Summer 2019 and Summer 2022 seasons, 16 airports across Europe recorded a change in coordination status, as presented below in Table 8.5. Other coordinated airports without a change in status are not included in the table.

- 8.86 When examining the table, we see that some airports coordination status has reduced (i.e. moving from level 3 to 2 for instance). This is the case for Preveza, Samos, Skiathos, Thessaloniki and Lyon. Note that a decrease in coordination levels does not automatically reflect lower demand: a number of airports seized the opportunity of lower traffic to undertake runway renovation or expansion which temporarily reduced their capacity. This is the case at these airports, where the completion of works has seen airports reverting to being facilitated (level 2) or level 1 airports.

- 8.87 However, what is perhaps less expected is that the majority of the airports included in the table have actually witnessed an increase in their coordination status. This is not because they have witnessed sustained increases in traffic during the pandemic, but because there had been changes planned before the pandemic in their facilitated/coordination status.

**Table 8.5: Airports changing coordination status**

MS	Airport	IATA airport code	Previous			Current		
			S19	W19	S20	S21	W21	S22
Croatia	Zadar	ZAD			2	2		2
France	Figari	FSC	2		2	2		3
	Lyon	LYS	3	3	3	3	2	2
	Nantes	NTE			2	2	2	2
Greece	Preveza	PVK	3		2			
	Samos	SMI	2		2			
	Skiathos	JSI	3		3	2		2
	Thessaloniki	SKG	3	2	3	2		2
Italy	Bari	BRI			2	2		3
	Brindisi	BDS			2	2		3
Poland	Krakow	KRK			3	3	3	3
Norway	Alta	ALF			2	2	2	2
	Bodø	BOO			2	2	2	2
	Harstad-Narvik	EVE			2	2	2	2
	Kristiansund	KSU			2	2	2	2
	Molde	MOL			2	2	2	2

Source: Steer analysis of IATA data

- 8.88 Despite significant reductions in traffic, we see that no airports have reduced their coordination status officially to reflect reduced traffic encountered due to the pandemic. This is consistent with guidance from the Worldwide Airport Slot Board (WASB) for airports during COVID-19 which recommends that airports maintain their coordination level where possible. Airports are recommended to agree a voluntary reduction with airlines through schedule adjustments, or enforce a capacity reduction by reducing slots by a certain percentage from each airline during any temporary capacity constraint. These slots would be considered as utilised for historic allocation purposes. WASB suggests re-coordination if the temporary capacity of airports is around 15% of declared capacity across a day<sup>162</sup>.
- 8.89 If capacity constrained airports were officially required to reduce coordination status (without a significant increase in capacity being offered to offset the impact) at the present time, this would not be consistent with Regulation 2021/250, which provides slot relief to airlines and has essentially permitted airline slot portfolios from the S19 and W19/20 season to be maintained.
- 8.90 Slot coordinators did not report issues related to capacity declaration or publication of capacity as a result of the pandemic. Almost all (Austria, Belgium, Cyprus, Denmark, Finland, France, Netherlands, Portugal, Spain, ACL) declared that capacity declaration remained unaffected. Two (Finland and Czechia) confirmed that there had not been changes made to the capacity of the airports they coordinate during the pandemic, although some specified what their relevant airports did:

<sup>162</sup> <https://blog.aci.aero/wp-content/uploads/2020/11/WASB-Airport-capacity-declaration-and-temporary-changes-in-capacity-during-COVID-19.pdf>

- Airports have taken the occasion to advance runway work, and manage to close terminals to reduce costs (France);
- Brussels Airport Company and Skeyes were able to adjust their resources to the demand (Belgium); and
- Changes have been made with reference to number of runways in use, closing down parts of terminals etc. Capacity also reduced to take care of sanitary measures and keeping distance between passengers, in particular at arrival level waiting for bags (Norway).

*Lack of clear rules on airport capacity declarations*

Was the declaration of capacity and information on available slots transparent and easily accessible by interested stakeholders (airlines, airports, ANSPs)?

- 8.91 Airport capacity declaration is an important part of the slot allocation system. Standardised processes and methods for determining capacity do not exist across Europe and this is approached differently at airports and across Member States. Notably, despite Article 6(1) of the Slot Regulation stating that Member States are responsible for ensuring capacity parameters are issued to coordinators, they are absent from the process in many Member States, with capacity analysis in practice generally being undertaken by airport operators and declarations being approved by the airport operator itself or the coordination committee or the CAA. There are also no specific requirements on the frequency upon which capacity has to be reviewed. Most, but not all airports declare capacity for the runway but also include information on terminal and apron constraints.
- 8.92 The requirements for demand and capacity analysis were strengthened in WSG 9 (issued January 2019). Under the changes, the airport managing body or other competent body shall now ensure that a thorough demand and capacity analysis is completed in a timely manner to enable an official capacity declaration to be issued for each IATA season. WSG 10 (issued August 2019) added further guidance regarding consulting on results of the analysis with other interested parties, including the Coordination Committee and that any changes should be reviewed by these parties before any changes are implemented.
- 8.93 In relation to the pandemic, we observe that the views of stakeholders on capacity declaration have not changed compared to those stated in the Fact-finding study on allocation of slots at European airports. We find that airports and coordinators remained generally satisfied with the process of capacity declaration. Both stakeholder groups felt that these aspects had worked well during the pandemic and they did not report a significant change compared to the pre-pandemic situation – although we note that the full process of developing capacity declarations was not undertaken during this period. In fact, coordinators (BE, BG, CY, DE, DK, EL, FI, FR, HU, NL, PT, ES, ACL) and airports stated that during COVID-19 capacity declarations were not influenced by cost containment measures and were not changed, even where airports closed terminals/runways. They also reported no change to how capacity declarations are communicated and available for airlines to consider.
- 8.94 Airlines were less positive about capacity declarations, but as for airports and coordinators, this is not a new view either. According to airlines, some of the issues with capacity declarations have been exacerbated by the crisis. An airline highlighted that as sanitary measures changed quickly, there had not been changes in capacity declaration. Issues that airlines highlighted included:
- There is a need for greater transparency in how airports declare capacity and the methodology they use: some airports do not share anything more than a capacity

declaration (no modelling, rationale, or justification for doing so), whilst others fail to even provide this;

- Seasonal capacity declarations are easily accessible on most EU-coordinator websites. However, there is an opportunity to enhance EUACA's effectiveness by hosting a one-stop-shop website where all EU capacity declarations can be found as there is a lack of consistency among coordinators on how they display the available capacity (e.g. different formats);
- Most coordinators are transparent and use systems to present slot availability, such as on the Online Coordination System (OCS) and eAirportslots. The constraints against which airports are coordinated heavily influence how useful these systems can be for airlines. Generally, runway constraints are presented clearly in these systems, however, eAirportslots does not show terminal capacity, stands or baggage lateral limits, and therefore an airline's ability to make reasoned decisions using such models can be limited;
- At least one coordinator (Assoclearance in Italy) does not share their data on either system;
- There is a need for greater consultation with the coordination committee to ensure that the impact on airlines and other airport users is taken into account: With regards to the transparent declaration of capacity, some coordination committees require a vote prior to the setting of capacity, whereas other airport authorities/relevant authorities just use the meeting as an opportunity to share what they're going to do, without real stakeholder consultation;

8.95 Outside Europe, according to airlines, there have been examples of airports (Dubai, Riyadh and Tel-Aviv) that have published revised capacity declarations during the pandemic. Coordinators and airlines indicated that some German airports are in the early stages of reviewing their capacity declarations in light of the latest situation (e.g. with respect to staff availability, in-person check-in requirements etc.) following the actions taken during the pandemic.

#### *Issues related to the independence of slot coordinators*

8.96 Coordinators assessed that the pandemic had not affected their independence. Interestingly however at least one coordinator doubted that this was true for all coordinators across the EU. Airlines were concerned with a possible overlap of coordinators' role as independent and neutral service providers vs. effectively taking policy decisions through different interpretation of the rules (for example on the application of JNUS).

8.97 The crisis required coordinators to increase their levels of co-operation to ensure a high level of harmonisation in the application of the amended rules (even if in some cases no agreement or harmonised approach was reached, mainly "*due to differing pandemic situations/developments of pandemic "waves" as well as diverging rules/restrictions applying in Member States*" according to EUACA. A coordinator highlighted that it felt that in discussions between coordinators that personal opinions may have sometimes affected opinions/decisions, influenced either by the general feeling in their own Member State, sometimes by the general strategy applied by their Member State or sometimes influenced by the power of the dominant airlines in the decisions that their governments took.

#### *Potential funding issues of slot coordinators*

8.98 Table 8.6 shows how European slot coordinators are funded. There is no universal model with nine of the 19 European coordinators funded equally by airlines and airports, although the mechanisms for this vary from a direct slot service fee per movement charged to both airports

and all airlines through airport charges, to equal contributions to the coordinator's budget by coordinated airports and member airlines. The remaining coordinators are funded through different approaches:

- Funded by airlines only (e.g. COHOR in France);
- Funded by airports only (e.g. ACL Intl. Ireland);
- Majority funded by airports, but with contribution from airlines (e.g. ACL in the UK); and
- Funding may also be provided by the CAA (e.g. Iceland).

8.99 Alongside their main coordination activity for which funding is provided by airports and airlines, slot coordinators ACS and ACL also derive revenues from commercial activities.

**Table 8.6: Funding of European slot coordinators**

MS	Coordinator	Funding structure	Charge per movement (W21)	Increase (compared to date stated below)
AT	Slot Coordination Austria (SCA)	Slot fee per coordinated movement operated	€3.70 per rotation	No
BE	Brussels Slot Coordination BSC	Slot fee per coordinated movement operated	€3.80 per movement	€1.95 per movement prior to 01/01/2021
CZ	Slot Coordination Czechia	Funding equally shared between Prague Airport and carriers	CZK30 per movement	CZK16 per movement prior to 01/01/2021
DE	FLUKO	Funded equally by airports and airlines operating German registered aircraft	Unit cost rate per slot determined by Federal Ministry of Transport and Digital Infrastructure	Unknown
DK	Airport Coordination Denmark (ACD)	For CPH equally funded by airport and airlines. For BLL funded by the airport	DKK10.5 per rotation (+DKK3.8 for CPH GO)	Unknown
EL	Hellenic Slot Coordination Authority	Funded equally by airports and airlines	€1.60 per movement	Unknown
ES	AECFA	Funded equally by airports and airlines	Unknown	€0.45 per slot allocated
FI	Airport Coordination Finland (ACD)	Funded equally by airports and airlines	Unknown	Unknown
FR	COHOR	Funded equally by airports and airlines	€5.00 per landing	€3.96 per landing prior to 01/04/2021
IE	ACL Ireland	Funded directly by the airport	Unknown	-
IT	AssoClearance	Funded equally by airports and airlines	€0.54 per slot	€0.44 per slot (2021)
NL	ACNL	Shift to tariff system in April 2020. Funded equally by airports and airlines	€2.46 per movement	€1.58 per movement prior to 01/04/2021



MS	Coordinator	Funding structure	Charge per movement (W21)	Increase (compared to date stated below)
PL	ACL Poland	Funded equally between airports and all operating airlines on a cost per slot basis	Unknown	Unknown
PT	NAV Portugal	Funded equally by airports and airlines	€2.64 per slot (calculated based on outlook for the next 2 IATA seasons)	Unknown but likely based on calculation method
SE	Airport Coordination Sweden (ACS)	Slot coordination charge (slot fee) at the three coordinated airports and consultant activities	SEK20 per departure	SEK16 prior to 01/07/2021
IS	ACD Iceland	For KEF funded by CAA Iceland	No	-
NO	Airport Coordination Norway (ACN)	Funded equally by airports and airlines	NOK4.34 per movement	Unknown
CH	Slot Coordination Switzerland (SCS)	Funded equally by airports and airlines	CHF3.80 per rotation	Unknown
UK	Airport Coordination Limited (ACL)	Cost recovery basis: Level 3 and Level 2 airports contribute 75% and UK board member airlines contribute the remaining 25% of cost	No	-

Source: Coordinator websites, EUACA, Steer Analysis. To be further developed with Stakeholder responses

8.100 Asked about any issues related to their funding during the pandemic, slot coordinators have explained that:

- Where they are funded through a slot fee, the pandemic has affected their level of income significantly (in Austria, Belgium, Czechia, Denmark, Finland, Portugal, Spain, Switzerland). As a result, most coordinators had to raise their fee at the next possible opportunity as well as lower their costs where possible (such as deferring or cancelling investments in slot allocation software or not attending slot conferences for instance). However, a coordinator (ACL) also highlighted that their workload did not reduce during the pandemic, lowering further opportunities for cost reduction. As a result, most of the coordinators funded through a slot fee explained that they used cash reserves that they had from pre-pandemic (Belgium, Finland, Spain), although some used different solutions: in Czechia, the airport operator ensured the compensation of the planned costs of the coordination, in Norway funding was provided through COVID-government support
- Other models of funding are less exposed to traffic variations such as in Slovakia slot coordination at BTS is the part of BTS operator company. The French coordinator reflected that funding issues experienced by some other coordinators might expose them to independence issues.

#### *Issues related with late handback of slots*

8.101 On the issue of late slot handback, during the pandemic, the return handback deadline was shortened to three weeks. ACI-Europe clarified that three weeks is the absolute minimum for airport planning and should not be considered the norm. Some airports (Aena, Amsterdam,

Berlin, Dublin) reported in consultation that handbacks came on deadline or close to the deadline which in their opinion was too late. Others stated that airlines had returned slots within an adequate period (Munich, Malta). Airports indicated that they closely monitored the slots being returned and where possible worked with their coordinator to encourage airlines to return these as early as possible.

- 8.102 One coordinator (Czech Republic) reported that they did not meet the deadline set. However, other coordinators (Greece, Netherlands, Norway, Spain, Switzerland) disagreed with this view and EUACA stated that “in general, airlines have been encouraged to and have returned their unused slots in a timely manner”. On whether airlines were sufficiently encouraged to return their slots, coordinators disagreed with some supporting the view (Italy, Netherlands, Norway, Spain) and others not (Belgium).

#### *Other issues*

- 8.103 No stakeholder reported views on the appeal of coordinators decisions, the lack of consistency with the SES, multiple operating licence or secondary trading. On bankruptcies, in consultation ACI-Europe made the point that there can be an impact of airline bankruptcies on slots where some pockets of capacity at airports can be blocked through the bankruptcy process. Beyond this, no other view was expressed.

#### *Summary*

- 8.104 Table 8.7 below provides a summary of all the problem drivers previously identified with respect to the Slots Regulation and describes whether they remain valid, based on the evidence presented above.

**Table 8.7: Summary of problem drivers and whether they remain valid**

Problem	Problem driver	Does the driver remain valid?
The current administrative system for slots is neither complete nor fully implemented	The definition of key concepts	This driver was unaffected by the pandemic. The definition of key concepts will remain a valid driver.
	The adequate declaration of capacity	Issues that emerged during the pandemic were consistent with those previously highlighted. The adequate declaration of capacity will remain a valid driver.
	The operation of slot coordination	Issues that emerged during the pandemic in relation to the independence and funding of slot coordinators, along with the consistency of their interpretation or decision-making were consistent with those previously highlighted. The operation of slot coordination will remain a valid driver.
	Efficient use of existing capacity	Although amended rules were in place during the pandemic, the effective “freezing” of the pre-pandemic situation facilitated by the waivers means that this driver is also effectively unaffected by the pandemic. The efficient use of existing capacity will remain a valid driver following the recovery.
	Hoarding or underutilisation of scarce slot resources	As above
	Late handback of slots is not sufficiently discouraged	Issues relating to the late handback of slots persisted, even under the amended rules during the pandemic. Coordinators’ powers in relation to this also remain unchanged. It can be expected that this driver will also remain valid following the recovery – and particularly in a context of greater uncertainty.

Problem	Problem driver	Does the driver remain valid?
	Misuse of slots is not sufficiently discouraged	This driver was unaffected by the pandemic, as the system of enforcement has not changed, and will remain valid.
	Alignment with the Single European Sky	This driver was unaffected by the pandemic and will remain valid.
The legal framework is no longer adapted to the evolution of the aviation market	A lack of transparency of secondary trading	This driver was unaffected by the pandemic and will remain valid.
	Issues with the new entrant definition	Although amended rules were in place during the pandemic, the new entrant rule continued to only be used rarely and did not provide an effective counter to barriers to entry. It can be expected that this driver will also remain valid following the recovery.
	Use of multiple operating licences as a way to benefit from the new entrant rule	This driver was unaffected by the pandemic and will remain valid.
	Mergers, acquisitions and joint-ventures	This driver was unaffected by the pandemic and will remain valid.
	Slot ownership and use of scarcity rents	This driver was unaffected by the pandemic and will remain valid.
	Use of new capacity	This driver was unaffected by the pandemic and will remain valid.
	Airline bankruptcies	This driver was unaffected by the pandemic and will remain valid.
	Environmental pressures on making best use of capacity	This driver was unaffected by the pandemic and will remain valid. See below for a review of the objectives of the Slots Regulation and the Fit for 55 legislative proposals.

Source: Steer analysis

### Whether the objectives described in previous studies remain valid

8.105 The objectives of the of the Slots Regulation, as inferred from the recital of Regulation 95/93, are assumed to have been that:

- The allocation of slots at congested airports should be based on neutral, transparent and non-discriminatory rules;
- Situations should be avoided where, owing to lack of available slots, the benefits of liberalisation are unevenly spread and competition is distorted; and
- Airport capacity should be used efficiently by making best use of available slots.

8.106 The Commission’s 2011 Slot Proposal subsequently specified general, specific and operational objectives for the Slots Regulation. These were:

- General objective: Ensure an optimal allocation and use of airport slots in congested airports.
- Specific objectives:
  - Ensure a strengthened and effectively implemented slot allocation and use; and
  - Enhance fair competition and competitiveness of operators.
- Operational objectives:
  - Reduce late handback;
  - Increase slot utilisation;
  - Reduce slot misuse;
  - Increase number of competitors with a stable slot portfolio;
  - Increase number of passengers transported and number of flights operated within the same airport capacity; and
  - Enlarge the slot pool.

8.107 An additional specific objective on connectivity emerged from the amendments to the Slot Proposal introduced by the co-legislators (as analysed in the 2019-20 “Fact-finding study on allocation of slots at European airports”).

8.108 As noted above, stakeholders’ views on the long-term issues affecting slot allocation are largely unchanged as a result of the pandemic, while some of these issues (e.g. timely handback of slots, consistent interpretation and application between different coordinators) were also observed during the pandemic, albeit in the context of the temporary rules. As such the objectives of the Slots Regulation and the proposal for its recast are considered to remain valid. We note however that in the context of recovering traffic, some transitional measures may need to be considered to ensure fairness.

*A need for environmental objectives?*

8.109 The European Green Deal and the prominence of environmentally sustainable transport as an issue for the industry means that the subject of “green slots” has been raised by some stakeholders. Under the changes to the additional criteria for initial slot allocation in the WASG 1 (i.e. WSG 11 introduced in June 2020), environmental factors are a secondary criterion that coordinators can take into consideration when allocating slots. The precise approach for how this should be done is left to individual coordinators, while this is just one of a long list of secondary criteria specified in the WSG.

8.110 ACI Europe, in its Q&A accompanying its position paper on Airport Slot Allocation, recognised and supported the concept prioritising more environmentally friendly aircraft in the allocation of slots. However, it noted that European airports can, and do, use other instruments to encourage greener aircraft, for example modulation of airport charges (mainly for noise and pollutants), operational procedures and noise quotas.

8.111 IATA also acknowledged the prominence of green issues and the need for the airline industry to address the challenges presented by these, however, it too considered that slot allocation is not the most suitable mechanism for doing so.

8.112 Steer considers this subject could be the focus of a study in itself, but even from its initial thinking recognises that any implementation of the concept needs to be thought through very

carefully so as to avoid unintended consequences. Some of the potential challenges and steps that would be needed are:

- An agreement of what problem or objective “green slots” would be trying to address and ensuring that the Slot Regulation is best intervention for addressing it.
- Designing the scope of the intervention, which would need to clarify:
  - The criteria for defining the “more environmentally friendly aircraft”: global impacts (e.g. CO<sub>2</sub> and greenhouse emissions), local impacts (e.g. NO<sub>x</sub>, noise), or all of these;
  - The scope of capacity related to “green slots”: slot pool, new entrants, historic, secondary traded slots (in countries where this is practiced);
  - Whether the criteria for “green slot” allocation were provided through a regulatory provision or the use of local rule; and
  - If the application of such criteria was mandated or at the discretion of individual coordinators.

8.113 Some of the potential unintended consequences of applying relevant criteria may include:

- Preference for shorter rather than longer flights.
  - This would contradict the Commission policy to encourage short haul travel by rail if practical.
- Preference for newer rather than older aircraft.
  - Based on current fleets this will favour low-cost carriers with newer fleets compared to network carriers with a mixed fleet and a mix of long-haul and short-haul passengers.

8.114 Steer assesses that designing a system of “green slots” which would avoid the potential unintended consequences described above would prove challenging, while alternative instruments, i.e. the Fit for 55 legislative proposals, address environmental issues more directly.

8.115 The Fit for 55 legislative proposals cover a wide range of policy areas including climate, energy, transport and taxation, setting out the ways in which the Commission will reach its updated 2030 target in real terms. The overall objectives of the proposals are to:

- Reduce net EU greenhouse gas emissions to 55% below 1990 levels by 2030;
- Contribute to the European Green Deal<sup>163</sup> objective of EU-wide climate neutrality by 2050;
- Stimulate the creation of green jobs and maintain the EU’s record of cutting greenhouse gas emissions while growing its economy; and
- Ensure that the transition is fair and leaves no-one behind.

8.116 Three of the proposals are most relevant in the context of aviation. These combine:

- A tightening of the existing EU Emissions Trading System (ETS) – phasing out free emission allowances for aviation, intra-European application of the EU emissions trading scheme (ETS) while applying the global Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) to extra-European flights;
- The ReFuelEU Aviation Initiative that will oblige fuel suppliers and airline operators to blend increasing levels of sustainable aviation fuels in jet fuel taken on-board at EU airports, including synthetic low carbon fuels, known as e-fuels; and

---

<sup>163</sup> [https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal\\_en](https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en)

- A revision of the Energy Taxation Directive (ETD) which proposes to align the taxation of energy products with EU energy and climate policies, promoting clean technologies and removing outdated exemptions and reduced rates that currently encourage the use of fossil fuels.

8.117 With respect to environmental objectives, Table 8.8 summarises the legislative objectives that are specified in each of the three Fit for 55 proposals identified in the previous section and reviews their interaction with the objectives of the Slots Regulation, based on the Commission's 2011 Slot Proposal and including the additional specific objective on connectivity. It shows that the Fit for 55 objectives and Slots Regulation objectives interact mostly around competition matters, passenger demand and outermost region connectivity. Some of the competition impacts of the Fit for 55 proposals could perhaps be seen as conflicting with the Slots Regulation objective of "enhancing fair competition and competitiveness of operators" (SO2). However if accepting the primacy of the Fit for 55 objectives and their resulting impacts on the market, the Slots Regulation objectives remain valid in terms of an airport capacity allocation mechanism in this context.

**Table 8.8: Fit for 55 proposal objectives, additional factors emerging since the pandemic and the Slots Regulation objectives**

Slots Regulation	GO: Ensure an optimal allocation and use of airport slots in congested airports.						
	SO1: Ensure a strengthened and effectively implemented slot allocation and use.			SO2: Enhance fair competition and competitiveness of operators.		SO3: Ensure regional connectivity within the EU.	
	OO1: Reduce late handback.	OO2: Increase slot utilisation.	OO3: Reduce slot misuse.	OO4: Increase number of competitors with a stable slot portfolio.	OO5: Increase number of passengers transported and number of flights operated within the same airport capacity.	OO6: Enlarge the slot pool.	OO7: Ensure that remote, outermost and island airports are linked to major European hubs and hence to the worldwide air traffic network.
<b>Emissions Trading System</b> – GO: Ensure achievement of increased EU climate targets for 2030 and 2050 and fulfil international commitments under the Paris Agreement.							
SO1: Lead international efforts, build alliances with the like-minded and maintain competitiveness.	-	-	-	The carbon costs apply uniformly to all airlines so do not create direct distortions. They are also unlikely to lead to significant competition distortion between airports as passenger hubs or freight hubs.	The impact of the carbon price on fares is negligible compared to differences in other sources of airline costs (e.g. fuel).	-	-
SO2: Increase carbon price signal, while avoiding carbon leakage and ensuring a level playing field and fairness.	-	-	-			-	The impact of the carbon price on fares is negligible compared to differences in other sources of airline costs (e.g. fuel).
<b>ReFuelEU</b> – GO: Reduce aviation CO <sub>2</sub> emissions in line with the 2030 and 2050 climate objectives of the EU, by transitioning away from fossil jet fuel and tap into the high decarbonisation potential of sustainable aviation fuels by establishing a competitive SAF market, while at the same time ensuring a level playing field on the aviation market.							
SO1: Achieve large-scale production and supply of SAF in the EU with high decarbonisation potential, at competitive costs.	-	-	-	-	-	-	-



Slots Regulation	GO: Ensure an optimal allocation and use of airport slots in congested airports.						
	SO1: Ensure a strengthened and effectively implemented slot allocation and use.			SO2: Enhance fair competition and competitiveness of operators.		SO3: Ensure regional connectivity within the EU.	
	OO1: Reduce late handback.	OO2: Increase slot utilisation.	OO3: Reduce slot misuse.	OO4: Increase number of competitors with a stable slot portfolio.	OO5: Increase number of passengers transported and number of flights operated within the same airport capacity.	OO6: Enlarge the slot pool.	OO7: Ensure that remote, outermost and island airports are linked to major European hubs and hence to the worldwide air traffic network.
SO2: Ensure a level playing field in the aviation market and achieve a gradual and continuous uptake of SAF with high decarbonisation potential at competitive prices.	-	The risk of loss of competitiveness for EU hub airports with intercontinental traffic due to airlines' re-routing is low.	-	All airlines expected to be treated equally by fuel suppliers. Moderate risk of competitive disadvantage with non-EU airlines on some international routes.	Low ticket price increase (+8% by 2050 resulting in a lower level of passenger activity on intra and extra-EU flights of up to -5.9% in 2050 compared to the baseline).	-	-
<b>Energy Taxation Directive</b>							
Contribute to the EU 2030 targets and climate neutrality by 2050 in the context of the European Green Deal. This would align taxation of energy products and electricity with EU energy and climate policies and contribute to the EU efforts to reduce emissions.	-	-	-	Some possible impacts on the competitiveness of EEA passenger carriers as they compete with non-EEA carriers that are not impacted in the same way on the totality of their route network.	Risk of up to 2.3% of intra-EEA demand switching to extra-EEA destination by 2050	-	Exemptions for flights operated under public service obligations.  Exemptions for flights to and from EU outermost regions.
Preserve and improve the EU internal market by updating the scope and the structure of rates as well as by rationalising the use of tax exemptions and reductions by Member States.	-	-	-			-	

Slots Regulation	GO: Ensure an optimal allocation and use of airport slots in congested airports.						
	SO1: Ensure a strengthened and effectively implemented slot allocation and use.			SO2: Enhance fair competition and competitiveness of operators.		SO3: Ensure regional connectivity within the EU.	
	OO1: Reduce late handback.	OO2: Increase slot utilisation.	OO3: Reduce slot misuse.	OO4: Increase number of competitors with a stable slot portfolio.	OO5: Increase number of passengers transported and number of flights operated within the same airport capacity.	OO6: Enlarge the slot pool.	OO7: Ensure that remote, outermost and island airports are linked to major European hubs and hence to the worldwide air traffic network.
Preserve the capacity of the ETD to generate revenues for the budgets of the Member States.	-	-	-			-	

Source: EC Staff Working Documents (SWD(2021) 603, SWD(2021) 633, SWD(2021) 642), Fact-finding study on the allocation of slots at EU airports (2019-20), Study on the taxation of the air transport sector (2021), Steer analysis | GO = General objective, SO = Specific objective, OO: Operational objective

### Summary of findings on the Slot Regulation regulatory acquis

- 8.118 Given stakeholders' views on the long-term issues affecting slot allocation are largely unchanged as a result of the pandemic and that the objectives of the Slots Regulation and the proposal for its recast are considered to remain valid, including in the context of the Fit for 55 proposals, we consider that the problems and updated problem drivers from the 2019-20 study, also remain valid.
- 8.119 Even in the context of recovering traffic, the factors that have emerged (interpretation of JNUS; uniform application of slot utilisation thresholds to all markets; and transition of ad-hoc to historic) align with the problem drivers previously identified in relation to the independence and transparency of slot coordinators; the slot utilisation allocation rules not ensuring optimal slot use; and barriers to new entry and expansion of businesses.

### Airport Charges Directive

#### Problems described in previous studies

- 8.120 The evidence from the ex-post evaluation of the Airport Charges Directive demonstrated that it did not adequately address the central problem of the airport charging process leading to economically inefficient pricing and investment. This was because the original formulation of the problem on which the Directive was based, did not fully capture the various factors influencing market outcomes.
- 8.121 A revised definition of the problem, developed in discussion with the Commission and informed by the views of stakeholders during the support study for an Impact Assessment of the Airport charges Directive highlighted a number of elements to the core problem, some of which covered lack of clarity in the provisions of the Directive and some more fundamental issues that were not identified when the Directive was drafted and implemented.
- 8.122 More precisely, the problems highlighted were:
- **Measures on non-discrimination:** the fact that disputes over discrimination in airport charging continue to arise indicates deficiencies in both the drafting of the Directive and its implementation. The lack of detail in the provisions relating to transparency and discrimination, especially related to discounts and incentives, bilateral agreements, as well as investment, are likely to strengthen a dominant airline's ability to influence charge setting and airport capacity unduly.
  - **Measures on transparency and consultation:** within the framework of existing EU legislation, which already provides for independent regulation of airports, the risk of misuse of airport market power arises partly from the ability of airports with a strong market position to establish and exploit information asymmetries, notwithstanding the measures intended to improve transparency within the Directive. In addition, the scope for alternative interpretations of the requirements of the Directive on transparency and consultation gives rise to confusion and contributes to the lack of consistency of information provision supporting charge setting observed across the EU.
  - **Airlines' ability to influence investment:** the risk of airports misusing market power may be mitigated or even eliminated where an individual airline accounts for a high proportion of an airport's total traffic, such that they enjoy strong bargaining power when negotiating airport charges and the level of service provision. However, airline bargaining power can itself give rise to sub-optimal outcomes in specific circumstances (higher airline fares and/or cargo rates and a narrower range of services for passengers and freight

customers than would otherwise be the case). Concerns of this kind may be exacerbated where the process for setting charges lacks consistency or transparency.

- **Failure to ensure strong regulatory supervision and enforcement:** the evaluation of the Directive also highlighted significant shortcomings in the effectiveness of ISAs, which are charged with overseeing the process of airport charge setting in accordance with the requirements of the Directive. Where ISAs are not equipped to carry out their role, whether due to shortcomings in national legislation or inadequate funding, this may contribute directly to a misuse of market power not being adequately addressed.
- **Compatibility of additional national regulatory measures unclear:** it is unclear whether the national regulatory framework in some Member States is compatible with the Directive and, while in principle this could be determined through legal challenge, the process of legal examination of the issues could be expected to be both protracted and costly.
- **Poor correlation between scope of Directive and incidence of market power:** the threshold of the ACD is poorly correlated with the incidence of market power, since the latter depends on many factors such as share of catchment and the possibility of substitutability between airports located in the same area with available capacity. This element of the problem can be compounded where regulators lack the skills and resources needed to investigate the extent of market power, since establishing SMP can require a substantial investigative effort over an extended time period.

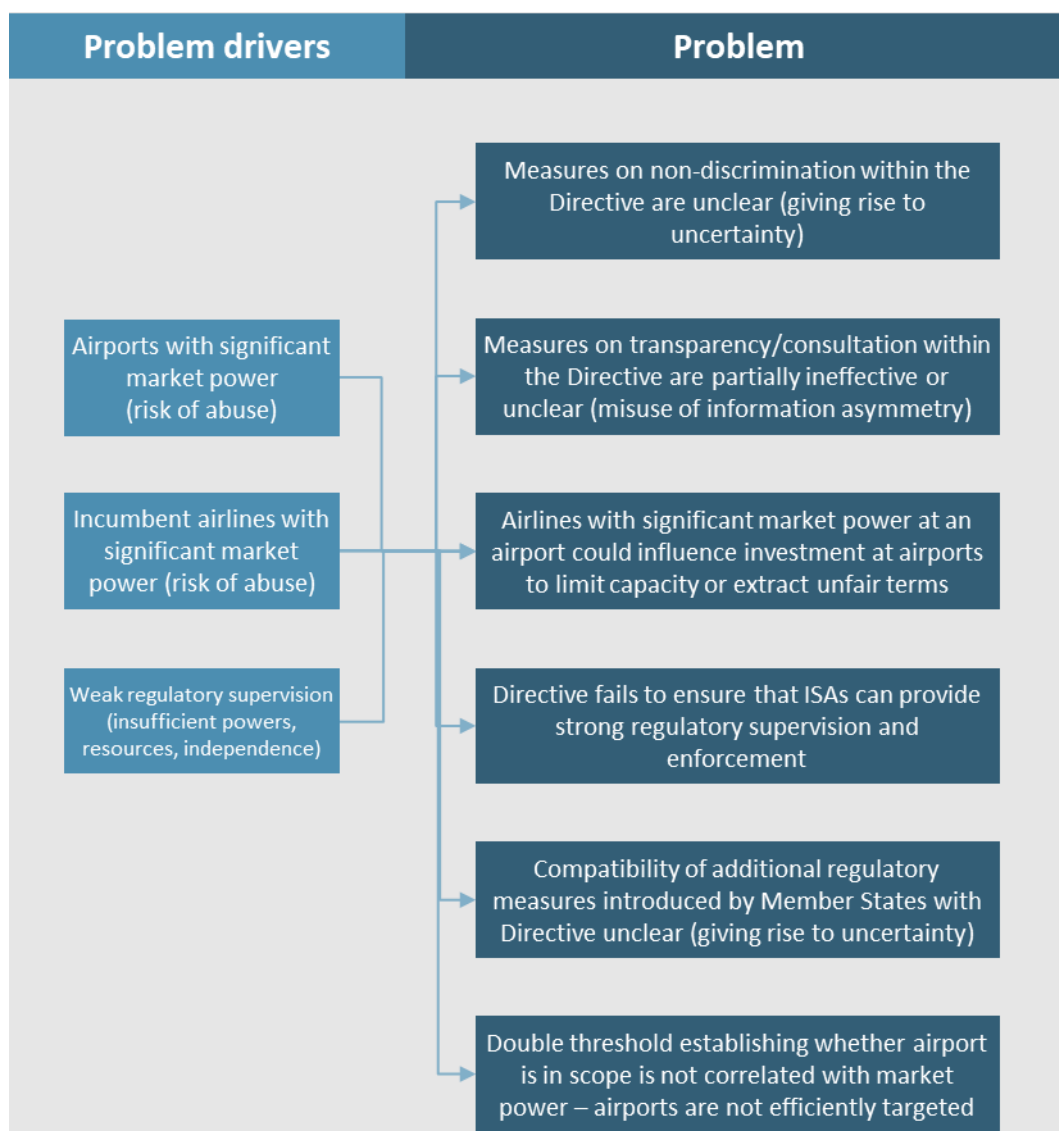
#### **Policy changes introduced during the pandemic**

- 8.123 The European Commission has not introduced changes to the Airport Charges Directive during the pandemic. At Member State level, related to the Airport Charges there were some instances of changes at Amsterdam and Dublin.
- 8.124 ISAs who participated did not report issues with the implementation of the Directive or their funding during the pandemic. There was also a change of ISA in France some months before the pandemic, linked to a national change in legislation.

#### **Whether the problems and problem drivers described in previous studies remain valid or whether additional factors have emerged since the pandemic**

- 8.125 Problems and drivers identified in previous studies are presented as part of the problem tree below.

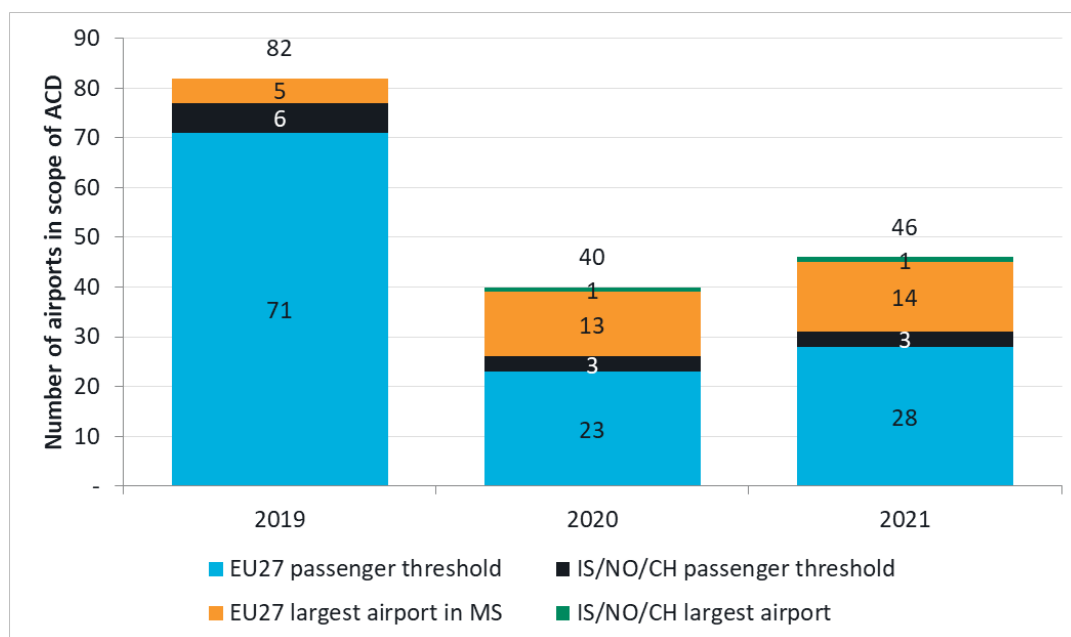
Figure 8.5: Airport charges policy intervention problem tree (pre-pandemic)



Source: Steer analysis

### *Airports falling under the Airport Charges Directive threshold*

- 8.126 Airports in scope of the Airport Charges Directive are the largest national airports in each of the European Union (EU) Member States plus Iceland, Norway and Switzerland, and those handling more than five million passengers annually. The number of airports in scope of the Directive was steadily increasing pre-pandemic in line with the traffic increase to just under 100 airports. In 2019, the airports in scope of the ACD under the largest airport in Member State criteria were limited to those of Luxembourg, Croatia (Zagreb), Estonia (Tallinn), Slovakia (Bratislava) and Slovenia (Ljubljana) with Lithuania (Vilnius) having just reached five million passengers by 2019.
- 8.127 In 2020, 26 European airports managed to attract more than five million passengers, with 14 still in scope of the ACD as being the largest airport in their Member State. Data for 2021 indicate that a total of 46 airports fall in scope of the ACD, of which 31 are EU27+3 and meet the passenger threshold, and 15 are from the EU27+3 and are the largest airport in their Member State but do not have passengers over five million in 2021.

**Figure 8.6: Airports in scope of the ACD (2019-2021)**

Source: Steer analysis of Eurostat data

- 8.128 The table below shows for each Member State what happened in terms of airports in scope of ACD (in blue for airports in scope with traffic above five mppa and in black for airports in scope as being the largest in their Member State).
- 8.129 In 2020, for the airports that were previously in scope, we see that most capital city airports remain above the traffic threshold, apart from Prague, Budapest and Bucharest as well as island capital cities of Malta, Cyprus and Reykjavik. In 2021, we see a rebound with additional airports now in scope.
- 8.130 Croatia is the only Member State where the largest airport is not that of the capital city and it is also the only country where there is a change in traffic levels between 2020 and 2021 affecting the national ranking (in 2021 Split overtook Zagreb airport).

**Table 8.9: Airports in scope of the ACD by Member State, EU27+3**

MS	2017	2018	2019	2020	2021
BE	BRU, CRL	BRU, CRL	BRU, CRL	BRU	BRU
BG	SOF	SOF	SOF	SOF	SOF
CZ	PRG	PRG	PRG	PRG	PRG
DK	CPH	CPH	CPH	CPH	CPH
DE	FRA, MUC, DUS, TXL, HAM, CGN, HAJ, STR, SXF	FRA, MUC, DUS, TXL, HAM, CGN, HAJ, STR, SXF	FRA, MUC, DUS, TXL, HAM, CGN, HAJ, STR, SXF	FRA, MUC, DUS, TXL	FRA, DUS, MUC, BER, HAM
EE	TLL	TLL	TLL	TLL	TLL
IE	DUB	DUB	DUB	DUB	DUB
EL	ATH, HER, SKG, RHO	ATH, HER, SKG, RHO	ATH, HER, SKG, RHO	ATH	ATH
ES	MAD, BCN, AGP, PMI, LPA, SVQ,	MAD, BCN, AGP, PMI, LPA, SVQ,	MAD, BCN, AGP, PMI, LPA, SVQ,	MAD, BCN, AGP, PMI, LPA	MAD, BCN, PMI, LPA, AGP, ALC

MS	2017	2018	2019	2020	2021
	VLC, ALC, TFS, ACE, FUE, IBZ	VLC, ALC, TFN, TFS, ACE, FUE, IBZ, BIO	VLC, ALC, TFN, TFS, ACE, FUE, IBZ, BIO		
FR	CDG, ORY, NCE, MRS, LYS, TLS, BOD, NTE	CDG, ORY, NCE, MRS, LYS, TLS, BOD, NTE	CDG, ORY, NCE, MRS, LYS, TLS, BOD, NTE	CDG, ORY	CDG, ORY, NCE
HR	ZAG	ZAG	ZAG	ZAG	SPU
IT	FCO, MPX, LIN, VCE, BGY, CIA, NAP, BLQ, PMO, CTA, PSA	FCO, MPX, LIN, VCE, BGY, CIA, NAP, BLQ, PMO, CTA, PSA, BRI	FCO, MPX, LIN, VCE, BGY, CIA, NAP, BLQ, PMO, CTA, PSA, BRI	FCO, MPX	FCO, MXP, CTA, BGY
CY	LCA	LCA	LCA	LCA	LCA
LV	RIX	RIX	RIX	RIX	RIX
LT	VNO	VNO	VNO	VNO	VNO
LU	LUX	LUX	LUX	LUX	LUX
HU	BUD	BUD	BUD	BUD	BUD
MT	MLA	MLA	MLA	MLA	MLA
NL	AMS, EIN	AMS, EIN	AMS, EIN	AMS	AMS
AT	VIE	VIE	VIE	VIE	VIE
PL	WAW, KRK	WAW, KRK	WAW, KRK, GDN	WAW	WAW
PT	LIS, OPO, FAO	LIS, OPO, FAO	LIS, OPO, FAO	LIS	LIS, OPO
RO	OTP	OTP	OTP	OTP	OTP
SI	LJU	LJU	LJU	LJU	LJU
SK	BRS	BRS	BRS	BRS	BRS
FI	HEL	HEL	HEL	HEL	HEL
SE	ARN, GSE	ARN, GSE	ARN, GSE	ARN	ARN
IS	KEF	KEF	KEF	KEF	KEF
NO	OSL, BGO	OSL, BGO	OSL, BGO	OSL	OSL
CH	ZRH, GVA, BSL	ZRH, GVA, BSL	ZRH, GVA, BSL	ZRH, GVA	ZRH, GVA

Source: Steer analysis. Legend: Blue indicates that the airport is in scope based on being above five million passengers per annum, whereas black shows the airport in scope as being the largest in the Member State.

8.131 In terms of traffic concentration through the airports in scope of the ACD, we observe that in 2017, 84% of the European air passengers transited through an airport regulated by the ACD, 85% in 2019 but only 59% in 2020 and 65% in 2021. However, these figures hide some variations between Member States.

**Table 8.10: 2017-2021 traffic concentration through ACD in-scope airports, 2017-2021**

Member States with increased traffic through ACD in-scope airports	Member States with no noticeable change	Member States with moderate decreased traffic through ACD in-scope airports	Member States with significant decreased traffic through ACD in-scope airports
BG, CY, IE, HR, LT, AT, RO	EE, HU, LU, LV, MT, SI	BE, CZ, DK, EL, NL, PL, SK, FI, SE, CH	DE, ES, FR, IT, PT, NO, UK



Source: Steer analysis

*Member States approach to airports below the threshold*

What has been the approach of Member States to regulating airport charges for airports that fell outside the scope of the Airport Charges Directive because of the COVID-19 pandemic? For airports that fell below five million passengers annually, did national rules apply or Member States continued applying the provisions of the Airport Charges Directive?

- 8.132 From consultation with Member States, it is apparent that despite some airports falling below the traffic threshold to be included in the scope of the ACD, Member States have continued to regulate airport charges in the same manner despite these airports officially falling out of scope. This has generally been achieved through applying national laws and directives where required. Table 8.11 outlines the responses provided by Member States as part of the consultation process.

**Table 8.11: MS and ISA responses to airports falling below ACD passenger threshold**

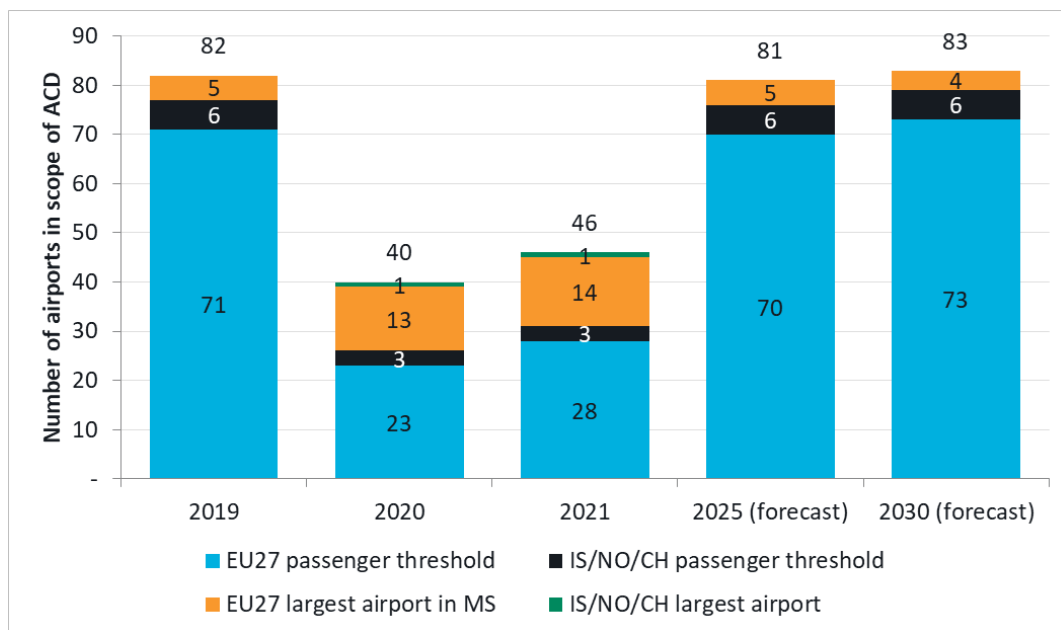
MS (ISA)	For airports that fell below the five million annual-passenger-threshold set by the Airport Charges Directive (ACD), did national rules apply or did Member States continue applying the provisions of the Directive?
AT	The only airport in Austria over the five million annual-passenger-threshold is Vienna Airport, which did not fall below the threshold.
CH	No airport fell below the five million annual-passenger-threshold (with the exception of the binational airport Basel which is governed by French law)
CZ (UPDI)	Prague, the only airport regulated by UPDI, did not fall below the five million passenger threshold. National rules apply to the other Czech airports.
DE	Four German airports fell under the five million thresholds in 2020. The ACD and national rules were fully applied regardless of that fact, as airlines expected the same level of transparency as before. German law requires approval of airport charges regardless of passenger numbers.
DK	No airport has fallen below the five million passenger threshold. CPH was the only airport with more than five million passengers, and they had more than five million passengers in 2020 and will have in 2021.
ES	Spain applies the provisions of the ACD regardless of the number of passengers in accordance with the current Airport Regulation Document in force (DORA 2022-2026)
ES (CNMC)	In Spain, all 45 AENA airports belong to the same network and the same regulation applies.
FI	Continue applying the provisions of the Directive.
FR (ART)	French law evolved during 2020 in order to take into account significant variation of traffic in a short timeframe. ART is, since December 2020, competent for airports above five million passengers in any of the previous five calendar years. Before this date, ART was competent for airports above five million passengers in the previous year.
HU	We do not have any airport where passenger number dropped below 5 million because of the pandemic.
IT	For airports that fell below the five million annual-passenger-threshold set by the Airport Charges Directive (ACD), Italy continued applying the provisions of the Directive that, by law (D.L n.1/2012), is applicable to all Italian Airports without any exemption due to the threshold
IT (ART)	The ACD has been transposed into national legislation with the Decree-law n. 1/2012, which extends the scope of the principles and criteria laid down by the Directive to all airports open to commercial traffic. These principles and criteria have been implemented by ART into the regulatory framework by means of ad hoc regulatory Models.
NL (ACM)	One airport fell below five million passengers (Eindhoven airport). Due to national regulation this airport is not regulated by the ACM in (at least) 2021 and 2022.
PL	National laws and directives were applied
PT (ANAC)	Considering that the 10 main airports in Portugal are under the same concession, they are all regulated. As such, economic regulation principles continued to be applied.

<b>MS (ISA)</b>	<b>For airports that fell below the five million annual-passenger-threshold set by the Airport Charges Directive (ACD), did national rules apply or did Member States continue applying the provisions of the Directive?</b>
SE	Yes, due to the fact that Swedavia has an airport network.

Source: Steer analysis of stakeholder consultation responses

8.133 Looking forward, traffic projections developed by Steer for this study for the years 2025 and 2030 indicate that, for EU27+3 Member States, 76 airports will reach the passenger threshold of five million passengers to fall in scope of the Airport Charges Directive in 2025, increasing to 79 by 2030. This represents an increase on 2019 levels, indicating that by 2025 more airports will fall in scope of the ACD than in 2019 pre-crisis. A further five airports fall in scope on the basis of being the largest airport in the Member State but not reaching the five million passenger threshold in 2025, falling to four airports in 2030.

Figure 8.7: Current and future expected changes to airports in scope of ACD, EU27+3



Source: Steer analysis of Eurostat, company traffic data. Forecast based on central estimate from the projection tool.

8.134 It was noted pre-pandemic that the threshold poorly correlated with the incidence of market power, since the latter depends on many factors such as share of catchment and the possibility of substitutability between airports located in the same area with available capacity. However, we see that the simple traffic threshold of the Airport Charges Directive has allowed Member States to adapt quickly and effectively to this crisis situation.

*Risk of market power and/or buyer power abuse*

What has been the impact of COVID-19 on the airports' and airlines' market/buyer power (in the context of airport charges setting process)? Has the impact of COVID-19 increased the risk of either airports or airlines misusing their market power in the context of airport charges setting process?

8.135 The risk of market/buying power in charge setting in Europe predated the pandemic. ISAs who participated in consultation did not report instances of airport market power abuses or airline

buying power abuses. Anecdotally an ISA commented that “there was no risk of market power abuse as there was no market to abuse”. Two ISAs slightly nuanced this view by adding that:

- ANC: There may be one airport where one specific airline may increase its dominance and with that increase its market power;
- CNMC: The airport network operator is perhaps in a position to obtain better finance conditions and has more financial muscle in critical situations.

8.136 No airline or airport reported instances of abuses of market/buying power. However, both categories of stakeholders commented on whether the risk was heightened by the pandemic. Arguments of the trade representatives and individual stakeholders can be summarised as such:

**Table 8.12: Impact of the pandemic on the risk of abuse, according to stakeholders**

		According to airlines	According to airports
Risk of airport market power	Opinion	The pandemic has increased the market power of airports, which due to their monopoly position, will abuse given the opportunity	The pandemic has eliminated any risk of airports using market power that they possess
	Evidence/Rationale	<ul style="list-style-type: none"> <li>• Airports losses incurred during the pandemic could not be passed on to users simply because there was no market. Charges would have needed to increase substantially given the very low passenger base), but airports will be seeking any possible way to recover such losses once traffic recovers</li> <li>• Airport loss recovery is an attempt to obtain the revenue or profit that was anticipated but did not materialise (as there were no flights) rather than for actual costs incurred. Some of these airports have not turned to their shareholders to cover the shortfall but are instead trying to pass the bill to users (for services they did not receive) and ultimately passengers. That would not be possible in a competitive market.</li> </ul>	<ul style="list-style-type: none"> <li>• Every airport has spare capacity and is competing to regain airline services</li> <li>• The fact that German airports could not raise airport charges significantly during and after the crises clearly shows that they do not have market power</li> </ul>
Risk of airline buying power	Opinion	<ul style="list-style-type: none"> <li>• The pandemic will not have increased airlines’ bargaining power to any meaningful extent, certainly not at the major hubs.</li> </ul>	<ul style="list-style-type: none"> <li>• Airline buyer power has increased, airlines are able to set conditions and demand terms from airports</li> <li>• Large airlines have strong buying power, which can limit the market behaviour of airports</li> </ul>
	Evidence/Rationale	<ul style="list-style-type: none"> <li>• Even with airline consolidation, the competitive environment would remain strong.</li> <li>• The MPA previously conducted by CAR for Dublin airport shows that airlines are not able to leverage</li> </ul>	<ul style="list-style-type: none"> <li>• Airports have fewer potential customers: the airline market has seen a rapid concentration, with the percentage of departing seats held by the top five airline groups increasing to 58% in the summer</li> </ul>

		According to airlines	According to airports
		buyer power at airports with significant market power <sup>164</sup>	<p>and 63% in the winter<sup>165</sup>. Less than a handful of airlines are actively shaping the air transport marketplace. Conversely airlines have choice of dozens of potential airports.</p> <ul style="list-style-type: none"> <li>• Airports are greatly dependant on airlines with a high traffic share, whereas vice versa the airlines are not. This is especially the case where airlines operate multi-hub systems: they can easily shift traffic to its various hubs on short notice, giving the airline a great deal of negotiating power</li> <li>• LCCs have shown during the crisis that they have a great ability to react very flexible to slumps in traffic and vice versa to higher demand</li> </ul>

Source: Steer analysis of stakeholder consultation responses

8.137 The pandemic has not shown any examples of risk of abuse of market/buyer power, but it provides some useful observations on airport market power:

- There has been little movement in terms of who the largest airports are as a result of the pandemic (Table 3.2): the top 5 EU airports of 2019 (in terms of passenger traffic) are the same top 5 EU airports of 2021 (in the same order). This is also true for the top 20 largest EU passenger airports: there has been movement within these airports but no significant changes as to which of these airports are part of the top 20.
- When airports are ranked by cargo traffic, the same findings are established (as per Table 3.3): the largest top 10 EU cargo airports are the same in 2021 than they were in 2019 (not totally in the same order). The same findings apply for 18 of the top 20 cargo airports too between 2019 and 2021.
- If there was a case for airlines to move hub operations from one airport to another, the pandemic provided one of the best opportunities as there was a combination of two rare events: significant amounts of capacity available at some of the largest European airports as well as charges often with incentives for new routes or new entrants. However, we could not find a single network airline to have changed its hub or to have at least moved a large part of their hub operations across.

8.138 This shows that even in the most serious demand event ever seen in commercial aviation in Europe, airlines have overall kept operating at the same large airports than they did pre-pandemic, in spite of lot of dynamic supply planning to bring passengers where they could and frozen airport charges. This may need to be considered by the regulators going forward especially for the largest European airports, this is in part facilitated by the retention of slot

<sup>164</sup> This is not a Steer view but A4E consultation response.

<sup>165</sup> Analysis of OAG data by ACI-Europe, year of analysis not stated

holdings at capacity constrained airports during the pandemic, in part facilitated by slot waivers.

- 8.139 On airline buying power, we cannot fail to observe that the complex situation that smaller airports find themselves. Unlike their largest peers, they are unlikely to secure good terms from lenders. The smaller of them are also more likely to rely on traffic from low-cost airlines, with significant levels of competition. It is therefore likely that the risk of airline buying power will remain as well, especially for the smallest or most isolated airports.

*Risk of insufficient funding of ISAs during the crisis*

- 8.140 The funding of ISAs varies across Member States. Pre-pandemic roughly a third of ISAs were not funded through their State budget but from other sources such as levies on one or more sectors of the aviation industry, including the ISAs of Belgium (Brussels), Denmark, France (ART), Greece, Ireland, Italy (ART), Luxembourg and Portugal.
- 8.141 With the impact of the pandemic on levels of traffic, where the ISA funding directly comes from the proportion of passenger or freight flown, it may have been that some of these ISAs have found themselves with a funding shortfall without necessarily experiencing a proportional fall in their duties/ costs incurred, especially if they are only focussed on air transport.
- 8.142 From the stakeholder responses received, most ISAs indicated that the pandemic had not impacted their funding. Nonetheless, funding challenges were identified by both ART in Italy and ANAC in Portugal, though it does not appear that the activities of these ISAs have been immediately affected by these challenges. Member States indicating that ISA funding came from the State noted that the pandemic had no impact on their funding, although Spain noted its ISA has a reduced budget in 2021 and 2022.

**Table 8.13: Impact on ISA funding**

MS	Name	Impact on ISA funding/resources
AT	Austrian CAA	No impact according to the Member State
BE	BRU	No
CZ	UPDI	UPDI has not been affected.
DE	Various	The Member State clarified ISAs are funded by the state. Airports must pay fees for the approval process.
FI	Traficom	The Member State clarified that the pandemic has affected on ISA funding but not resources. Some oversight charges are based on the number of operations or passengers.
FR	ART	No
HU	MIT	The Member State clarified that there was a partial impact: the income (resulting from fees) decreased due to the lower activities. However, as the ISA is State founded, this did not make a direct impact.
IE	CAR	The amount of work has increased for ISAs, but we are aiming to reduce costs where possible.
IT	ART	A decrease of ISA's funding by 18% is expected. To compensate this, the ISA will try to make use of budget surpluses resulting from previous years
NL	ACM	No

MS	Name	Impact on ISA funding/resources
PT	ANAC	The ISA's revenue was affected, as traffic decreased substantially and it also impacted it; notwithstanding the ISA had resources to maintain and even increase the level of service that was required during the pandemic to give a timely response to all the new challenges that were arising each day.
ES	CNMC	No (according to CNMC) The Spanish Member State explained that a budget is allocated to the Spanish ISA through the General State Budget of each year. There was 4.02% less budget in 2021 when compared to the previous year.
SE	Swedish Transport Agency	The Member State clarified that the Swedish ISA will have more budget restrictions during 2022

Source: Steer analysis of stakeholder consultation responses

- 8.143 Other models of funding independent from the State budget but not directly linked to passenger traffic may provide more resilience in a traffic crisis to ISAs. This is the case, illustrated below with the Irish ISA funding structure for the funding of its aviation activities, including ACD duties (noting that its scope of work as per Irish Aviation Regulation Act goes beyond the scope of ACD with formal price regulation): the ISA budget allocated for airport charges regulation is collected from the airport, rather than through the airport from passengers. For the passengers, the result is the same in the sense that they still end up paying for the cost of regulation, but avoids the ISA finding itself with a funding gap. Note that there was no decrease in employment levels at CAR during the pandemic.

**Table 8.14: CAR funding mechanisms for ACD duties**

	2018	2019	2020	2021
Regulation of airport charges budget	€1,770,359	€1,156,250	€995,704	€1,572,667
Parties imposed for airport charges regulation budget	An airport authority having vested in it a State Airport subject to the regulation of airport charges.			
Airports in scope of this imposition	DUB	DUB	DUB	DUB
Passenger traffic at airports in scope	31.5 million	32.9 million	7.4 million	TBC
Airport charges regulation cost per passenger	€0.06	€0.04	€0.13	€TBD

Source: Steer analysis of Commission for Aviation Regulation information

- 8.144 It is therefore encouraging to see that the ISAs who took part in consultation did not suffer from a lack of resources. However, it was only 7 of them, so the question remains open as to why the other ISAs did not send a questionnaire back and if perhaps it may indicate a lack of resources? We would encourage the Commission to establish this beyond this study.

*Risk that ISAs cannot provide strong regulatory supervision and enforcement*

- 8.145 The evaluation of the Directive also highlighted significant shortcomings in the effectiveness of ISAs, which are charged with overseeing the process of airport charge setting in accordance with the requirements of the Directive. As there has been no legislative change on the ACD

during the pandemic, we look at what happened at national level to see if this risk has changed/disappeared.

- 8.146 Compared to the situation pre-pandemic on ISAs powers and independence, we note only one significant change in France, where there is a new ISA (*Autorité de Régulation des Transports*). However, this is not as a result of the pandemic but rather of a political process started before COVID-19. This ISA has taken some recent decisions on fare moderation which have been received differently by the airlines and the airports. However, careful examination of its powers shows that it is not for instance empowered to address quality of service issues, which is a difference compared to some other ISAs. We are not debating here the merits of whether or not these powers are necessary, but we note that where the risk existed pre-pandemic of ineffective supervisory and enforcement powers across Europe, overall it remains.

*Risk that measures on consultation/transparency are ineffective/unclear*

- 8.147 The Evaluation Support Study on Airport Charges identified substantial variation in the level and quality of engagement on charge setting between airports and airlines. As noted in the Staff Working Document<sup>166</sup>, the persistence of this aspect of the problem suggests a lack of detail in certain provisions of the Directive. As there has been no changes brought to the Directive during the pandemic, we assess that the risk linked to a lack of detail in the drafting of the text therefore remains.
- 8.148 At national or local level, some limited changes have been reported to us on consultation and transparency during the pandemic as some approaches changed in this regard. On transparency:
- No significant changes were reported by ISAs, but some noted that they requested information on health and operational expenses;
  - Airlines stated that in some cases no change/no improvement, in other issues with information on investment plans, state-aid, or online consultation; and
  - Airports reported no change.
- 8.149 On the charging consultation:
- Different approaches were reported by ISAs: some with limited change in the process, others with consultation on hold because of the large uncertainty on building blocks (especially traffic). An issue was raised related to difficulties on forecasting as it affects all relevant tariff regulation parameters.
  - Airlines reported that the approach to consultation seemed to depend on the Member State. Some practical issues were mentioned such as only having four working days to respond to tariff proposals.
  - Airports reported no significant change but stated concerns of long lead times for the adjustment of the charge development in the pandemic.
- 8.150 On risk of airport charges being discriminatory, no observations were made in this regard by ISAs.

---

<sup>166</sup> SWD (2019)289 <https://transport.ec.europa.eu/system/files/2019-10/swd20190289-evaluation-report.pdf>



*Reactivity and flexibility of the Airport Charges framework in times of crisis*

Does the current regulatory framework relating to airport charges enable effective and timely cost recovery incurred as a result of COVID-19?

- 8.151 Article 6(2) of the Directive on consultation and remedy states that “the airport managing body shall submit any proposal to modify the system or the level of airport charges to the airport users, together with the reasons for the proposed changes, no later than four months before they enter into force, unless there are exceptional circumstances which need to be justified to airport user.”
- 8.152 ACI-Europe stated that, whilst the framework requires a minimum of four months to implement changes which does not allow airports to dynamically adjust its prices to reflect new levels of demand, this allowed customers to adjust accordingly. Nice airport explained that its process can take up to six to seven months if each stakeholder uses its full legal timeframe. Vienna airport thought that the timeframe for consultations in the ACD of four months could be shortened in case of crisis or force majeure to give even more flexibility when needed. Munich airport agreed as well by stating that as the process of adjusting airport charges takes six months, it is not possible to react effectively and timely.
- 8.153 Member States and ISAs had somewhat mixed views. In many cases, the clause in Article 6(2) has not been used to modify charges; respondents note that this was possibly because airports received financial assistance from the government and had no need to alter charges, or because charges are revised regularly and could adapt to the exceptional circumstances. Where charges are set over a longer regulatory period, a lack of flexibility provided may have impacted airports’ ability to revise charges and improve their resilience to the crisis.

**Table 8.15: MS and ISA response to flexibility of ACD within Article 6(2)**

MS (ISA)	Does the current provision in Article 6(2) of the ACD referring to changes to the level of airport charges in exceptional circumstances enable airports and airlines to effectively react to shocks such as COVID-19? In this regard, were airport charges modified under this clause?
AT	Apparently, there was no need to use this clause. Some airports received financial support by the government and were able to deal with the crisis without any changes to the procedure of consultation and approving the charges. Some airports decided to charge less than they could according to the formula or offered incentives.
BE (BRU)	Charges were put on hold due to the exceptional circumstances, based on national legislation.
CH	The charges at Geneva and Zurich airports are set for several years at a time. Fortunately, negotiations were pending at both airports in 2020, so it was possible to respond to the new circumstances. Otherwise, the current legal basis hardly allows a quick and uncomplicated adjustment of airport charges in case of extraordinary circumstances.
CZ (UPDI)	Even though the jurisdiction of UPDI applies to Article 6(2), UPDI is not in position to evaluate this. The airport charges of LKPR, the only airport regulated by UPDI, were not modified under the Article 6(2) of the ACD.
DE	Yes. In Germany, airport charges remained mostly unchanged during the pandemic. The market didn’t allow airports to increase their charges during the pandemic. In Germany, airport charges are usually changed and / or approved on a year-by-year basis, therefore the German regulatory model showed more resilient to exceptional circumstances than a regulatory model, where charges are set ex-ante for several years.
DK	Charges have not been changed, but incentive schemes linked to traffic growth were stopped.
ES (CNMC)	The Spanish Law provides for the possibility of changing the applicable DORA in case of impact on the financial viability of AENA due to unforeseen circumstances. The national regulatory framework is too rigid and lacks flexibility to react effectively and timely to the shocks. Given that all relevant parameters for the next five years are fixed, any adjustment requires a modification of the whole regulatory document.

MS (ISA)	Does the current provision in Article 6(2) of the ACD referring to changes to the level of airport charges in exceptional circumstances enable airports and airlines to effectively react to shocks such as COVID-19? In this regard, were airport charges modified under this clause?
FI	Our interpretation is that according to Article 6(2) exceptional circumstances refer only to the timeline set for the submission of the charging proposal. Thus Finnish legislation does not allow to modify airport charges under this clause. There's only flexibility in the timelines of the charging proposal for the reason that needs to be justified by the AMB.
FR (ART)	The exceptional circumstances clause of the ACD is not transposed in the national law.
HU	Yes, from legal point of view we think this Article provides the necessary flexibility. However, in Hungary airport charges has not been modified under this clause.
IE (CAR)	We allowed for the modification of charges under this clause by Dublin Airport. We reduced the mandatory four-month period to make a change to charges so that it could reduce charges immediately, and the stakeholders were in agreement on this change.
IT (ART)	In compliance with Directive 2009/12/CE, ART has developed regulatory models establishing a sufficiently flexible regulatory framework; see also the ART decision n.68/2021 ( <a href="https://www.autorita-trasporti.it/delibere/decision-no-68-2021/?lang=en">https://www.autorita-trasporti.it/delibere/decision-no-68-2021/?lang=en</a> )
NL (ACM)	No, airport charges were not modified under this clause. Schiphol did not rise the charges but decreased some charges in 2020 and 2021 voluntarily. The clause is not necessary for a decrease in tariffs.
PL	National laws and directives were applied
PT (ANAC)	In Portugal the changes that occurred in charges during the pandemic, namely the reductions presented before, were made under the normal application of the economic regulation of the concession. The ACD gives Member States the flexibility to establish economic regulation systems that are able to respond to exceptional times.
SE	No

Source: Steer analysis of stakeholder consultation responses

- 8.154 What we observe in summary is that the reactivity and flexibility of the Directive depends mainly on the national framework for airport charges. The ACD does not define "exceptional circumstances", which means that it gave rise to different interpretations in the Member States: the actions taken by ISAs varied, but included freezing or reducing charges, or amending existing rebate/discount schemes. Some Member States, such as NL and ES, have themselves defined exceptional and/or unforeseen circumstances in national law.

#### *Ability of the Airport Charges framework for cost recovery in times of crisis*

Does the current regulatory framework enable effective and timely airport charges adjustments/re-negotiations in case of sudden demand shocks such as COVID-19?

- 8.155 This question is at the core of the issues on the Directive highlighted during the pandemic. The cost-relatedness principle is referred to in Recital 9 of the Airport Charges Directive but not in the Articles of the text. Clearly as presented in Chapter 5, European airports have faced significant losses brought by the reduced amount of flying that took place and many would like to be able to recover the costs incurred from revenues they expected to get from airlines but did not obtain. This is not something that is clearly considered in the airport charges Directive.
- 8.156 It is clear that there was a lag in how quickly airports could adjust their operating costs when the pandemic started, certainly compared to airlines, but nonetheless some significant cuts in operating costs were achieved. In addition, we have seen earlier in this report that airports did not manage to cut their operating costs in par with the loss in traffic.
- 8.157 To start with, we observe that there are different national situations to consider understanding whether or not airports can recover their losses:

- In Spain, Ireland, France and Belgium (according to their respective ISAs CNMC, CAR, ART and Brussels Regulation) there is no possibility of cost (losses) recovery being taken into consideration when setting future levels of airport charges;
- In the case of the Czechia, Netherlands or Portugal, according to UDPI, ACM and ANAC there are some provisions in national legislation to recover losses in revenues in future charges (noting in the case of Portugal that this is being governed by a concession agreement);
- In Germany, ADV confirmed that while the framework allows for cost recovery for the given year and/or adjustments in charges in case of a shock, airports are not allowed to recover unrecovered costs from previous years.

8.158 However, outside of national frameworks, there may be clauses in concession contracts which may supersede the national Directive's transposition. For instance in France, there is a clause on exceptional losses in concession contracts which govern French airports cover. These are the responsibility of the grantor (i.e. the French State) and not within the control of the ISA. Some French airports have triggered this clause and are in discussion with the State, but no decision has been taken yet (as far as we are aware).

8.159 The legal framework in France which prevents automatic loss recovery by airports is such to be consistent with the fact that airports get their risk compensated through the return on capital calculations (via the Market Risk Premium and Beta Value). Airlines agree with this view and stated that loss recovery is "market abuse power" which would not correspond with normal market behaviour.

8.160 Airports disagree and explained that COVID-19 had proved that there is no appropriate risk sharing mechanism in place. Fraport suggested that in order to appropriately reflect the idea of risk/reward sharing in a regulated infrastructure, this should be adjusted going forward, with either the possibility to claw back losses in future periods should be granted or excess returns should be allowed to be retained in advance of the next shock.

#### *Need for greening investments*

8.161 This factor is not linked to the pandemic itself but we are considering this issue as there are some concerns on airports' ability to sustain their investments. The announcement of the Green Deal, the Fit for 55 proposals, the commitments made by airports and airlines for net carbon zero as well as the rest of societal changes have ensured that the need for decarbonisation is enshrined in the business plans of these organisations. These will need to be funded and financed, where the impacts of COVID-19 on the sector may be impactful.

8.162 For airports, these green investments will be driven partly due to their own climate commitments, as well as by new legislation, such as the proposal for an Alternative Fuels Infrastructure Regulation or the proposed Regulation on SAFs (ReFuel EU).

- Alternative Fuels Infrastructure Regulation (AFIR) proposal would set binding targets for airports to provide electricity (FEGP or GPUs) to stationary aircraft by 2025 (large airports) and 2030 (smaller airports); and
- The proposed Regulation on SAFs (ReFuel EU) places some responsibility on airport operators to ensure that SAF can be uplifted at all airports in scope.

8.163 These requirements are of course expected to trigger further investment by airports. For example, the total investment costs for the AFIR targets are estimated by the Commission to be approximately €949 million. Overall, the size and the challenge of the green investments is

considerable: ACI-Europe estimates that to bring the terminals at the top 50 European airports to net zero, this will represent an investment of €26 billion.

- 8.164 Airport investments also need long-term certainty so airports can be confident that they will be able to recover their capital expenditure and the cost of finance, which is incurred before the revenues are recovered over a longer time-period through charges. Airport investments, whether green, for digitalisation, capacity enhancements or else, owing to their impact on charges, fall in scope of the ACD.
- 8.165 Overall what is new here is not so much the fact that airports will need to make investments, but the size and complexity of these investments. Environmental organisations have pointed out the risk of greenwashing<sup>167</sup>. This is of course not an airport-only issue, but the complex nature of these projects, many of which will involve new technologies, will be a further test to the need for transparency and cost-efficiency so that the best possible value can be delivered in terms of the environment and for the passengers who fund these investments.

*Risk of airport financial resilience*

- 8.166 There is already pressure for postponed capital expenditure programmes to go ahead in the coming years, as traffic growth is assumed to resume from 2019 growth levels by 2024 or 2025. However, airports capacity to fund capital expenditure through cash flows will be influenced by the level of borrowing capacity remaining and operating surplus created. Some airports will be liquidity constrained, whereas others less so, and if they are more financially geared than they used to be, the operating cash surplus may need to be focussed first on repayment of existing debt rather than on funding additional capital expenditure.
- 8.167 We have presented in Chapter 5 the views of airport stakeholders who are cautiously optimistic on the sustainability of the levels of their debt, probably as large European airports have managed to maintain strong credit ratings. Whilst more expensive than post-pandemic, it looks like that there will not be an issue with the ability of large airports to source financing on the debt markets.
- 8.168 However, what the analysis in this report is showing is that there are different financial situations across European airports, based on a mix of factors depending on their markets, their seasonality, their mix of carriers, their geography, their regulatory framework, their size, etc. Some of the largest airports have indeed taken loans but where the interest rates were reported (such as 2%), they highlighted the confidence of lenders in these airports business models and future financial recovery. Some are already back to profitability (albeit sometimes only at group level), an impressive performance given the scale of the traffic reduction. However, it is less clear and less public how medium and smaller airports will obtain interest rates in par with the largest ones, or how they will be able to remunerate their green investments. We expect them to find it more difficult.
- 8.169 As highlighted previously in the context of airport charging, for European airports “one size does not fit all” and it is difficult to draw pan-European conclusions about airports financial resilience. To reach this conclusion, what is needed is detailed and transparent financial analysis carried out by the ISAs.

---

<sup>167</sup> This is where a private business, public entity, bond issuer or loan recipient makes claims regarding its green projects, initiatives, and sustainability efforts that are misleading to the public and investors

### Whether the objectives of the intervention remain valid

8.170 The 2009 Directive was designed to address the lack of a common EU framework on airport charges, discontent of users then that they had insufficient means to influence airport charges, and the absence of an independent regulatory body in MS to make decisions on charges. The Directive was therefore drafted to fulfil the following general objectives:

- Introduce a coherent framework at EU level;
- Improve airlines' (and indirectly consumers') countervailing power vis-à-vis airports with market power; and
- Promote cost-efficient management of airports and optimal use of scarce capacity.

8.171 The legislator also expected the following specific objectives to be delivered by the Directive:

- Ensure fairness in the process of setting charges;
- Improve fair competition between airports;
- Promote more transparent charging systems; and
- Generate sufficient revenue to maintain and complete airport infrastructure at an optimal level.

8.172 The evaluation of the Airport Charges Directive<sup>168</sup> undertaken pre-pandemic had shown that progress on the achievement of the objectives had stalled and that the objectives of the Directive had not addressed all of the issues that may be relevant in 2018 in view of market and regulatory developments. Based on this finding, an Inception Impact Assessment was launched in 2018.

8.173 The objectives of the IIA were defined as 1) prevent airports with significant market power from misusing their market power, 2) ensure that the airport charges setting process does not impose additional barriers to entry for airlines wishing to launch new services at EU airports. This included ensuring that the airport charges setting process does not unduly prevent or delay investment in airports which is in the long-term interests of passengers.

8.174 We have examined the problems identified and the new factors highlighted by the pandemic. We find that the IIA objectives still appear relevant:

- On the first objective, whilst airports have temporarily lost market power during the crisis, the largest ones are in the process of regaining their market power: there have of course been some changes in traffic levels, in market shares and traffic composition, but the largest airports post-pandemic airports in the EU27+3 are very nearly always the same than the largest pre-COVID-19 ones<sup>169</sup>. In addition, we observe that in this historic crisis not a single airport (large or small) across Europe has been bankrupted directly because of the pandemic, nor have network airlines shifted their hubs to cheaper airports as they cut costs. As pre-pandemic, the risk of abuse of a dominant position varies from one airport to another, depending in particular on the attractiveness of the territory it serves and competition from other airports or other means of rail transportation.
- On the second objective, European airlines are emerging from the crisis in various shapes and forms, with ultra-low-cost airlines generally in a stronger financial position than the

---

<sup>168</sup> Link to SWD on ACD

<sup>169</sup> Of the top 30 airports in 2019 in terms of passenger traffic, 27 remained in the top 30 in 2020 and 26 (of the 2019 ones) remained in the top 30 in 2021.

rest of their competitors. These airlines typically fly to smaller airports who typically in a more precarious financial and competitive situation than their largest counterparts. In addition, further airline consolidation is expected which will reduce the number of airlines that these airports can attract.

8.175 It may be that environmental objectives of the Commission also need to be better considered as part of any policy intervention. A change in the objectives of the ACD to include environmental objectives would be conducive to better focus and achievements in this area, however there are some limitations that would need to be carefully considered before any possible policy changes in this environmental area:

- On the possible impact of airport charges on greener or quieter aircraft fleet, we note that airport charges represent an operational cost for airlines ranging from 4% to 8% for network airlines to 15% to 20% for low-cost airlines<sup>170</sup>. On average pre-pandemic<sup>171</sup>, aircraft-related airport charges (which may include landing charges, take-off charges, parking charges and lighting charges) accounted for between 23% of charges revenue (for a short-haul low-cost flight) and 42% (for a long-haul full-service aircraft). This means that any noise or emissions-related charge would only account for, at most, 1.7% to 4.6% of aeronautical revenues (since the modulation would need to be applied to landing charges in accordance with ICAO guidance). Set against other costs, such as aviation fuel, changes of this magnitude appear unlikely to affect major investment decisions such as the choice of aircraft, although it is possible that they would have some impact at the margin;
- In principle, airlines should be incentivised to operate on the ground in an environmentally friendly manner, using infrastructure that reduces CO<sub>2</sub> emissions of their activities and that of their local service providers. The Fit for 55 proposal addresses the lack of incentives for airlines to use sustainable aviation fuels, but addresses only to a limited degree the greening of airport ground operations. ; and
- Lastly, airlines should also be incentivised to use airports climate-friendly investments.

#### **Summary of findings on the Airport Charges Directive regulatory acquis**

8.176 During the pandemic, with far less traffic than normal, airports competed strongly to attract as much demand as possible. There is however little sign of a significant change to the two problems reported in the SWD: risk of market power abuse by some airports, especially by the largest ones, and risk of airline buying power at smaller airports. The pandemic has not erased the issues that were present in the area of airport charges previously.

8.177 Setting charges at an appropriate level is particularly important for the recovery of air travel and the competitiveness of the industry following this historic crisis. There is little doubt that the level of charges is set to increase across Europe, sometimes moderately, sometimes significantly, in the context of strong underlying inflation, still a pressing need for investments in capacity and digitalization as per pre-pandemic, as well as the new factor of the urgent need for greening investments. The factors that have emerged in the pandemic are important to consider as part of this review. They have (or will very soon have) a direct impact on the charges setting framework.

---

<sup>170</sup> SWD(2019) 291 final

<sup>171</sup> Support study to the ex-post evaluation of the Airport Charges Directive



- 8.178 These factors make a possible intervention on airport charges as relevant as before especially considering the important issue of cost recovery, but consideration for the new post-pandemic context needs to be properly ensured, meaning that draft policy intervention changes done pre-pandemic cannot be assumed to still stand “as is” today.

## Other impacts on the EU regulatory acquis

### Impact of market exits for authorities

- 8.179 There were relatively few markets exits as noted by stakeholders during the pandemic. Of these exits, only the exit of airlines or airports would directly affect passengers (and freight forwarders). The exit of suppliers would create some indirect impact on passengers (and freight forwarders) e.g., the lack of provision of ground handling or retail services.
- 8.180 In the few identified cases of market exit, the impact on passengers was limited and resulted in lost tickets, passengers being stranded or deprived of connectivity. Sweden noted for example that in case of an airline ceasing to operate a certain route, there could be a temporary modal shift and in the long-term new airlines could enter the market.
- 8.181 We report below the experience of authorities related to organisations ceasing operations. We note that there have been very few markets exits of airlines operators, and the impact was limited mostly to the changes in airlines schedules. Few exits of groundhandling companies were reported.

**Table 8.16: Authorities' experiences of business ceasing operations**

MS	Experience of authorities when airlines/airports/suppliers exited the market. Impact on passengers (direct and indirect)
CY	No airlines exited the market. Changes in airline schedules only due to COVID-19 restrictions imposed by Member States as well as market driven re-planning.
DK	International services to and from Denmark are primarily served by SAS and foreign airlines. Their schedules have been adapted to the COVID-19 crisis, but none have exited the market. One airline has entered bankruptcy, Great Dane Airlines, but this is not necessarily related to the COVID-19 crisis.
DE	Not relevant.
FR	Where a company ceased operations (e.g. Open-Skies), it was orderly
IE	The following companies exited the market in 2021: Airlines (Stobart Air, Norwegian Air International), groundhandling companies (Menzies and Boeing). No information was provided on the experience of authorities in this regard
HU	We do not have this experience.
PL	One groundhandling company ceased operations (unclear if the pandemic was a reason), however there was no significant impact of passengers as the two leading groundhandling companies on the market quickly filled the demand.
SE	In the short term, there may be problems for the passenger. If, for example, an airline ceases to operate a certain route, the passenger may change mode of transport. In the longer term, it may enable new airlines to enter the market.
ES	The airlines operating in Spain have been able to provide the connectivity needed by the country.

Source: Steer analysis of stakeholder consultation responses



### Issue in coordination between aviation and health concerns

- 8.182 The pandemic has highlighted that health matters related to flight are by nature international everywhere in the world, including in Europe. A number of operational stakeholders have voiced the need to develop further the cooperation between aviation authorities (such as EASA) and health agencies (such as the ECDC), even in non-crisis times. They added that there was also a need for cooperation at world level between UN agencies such as ICAO (including CAPSCA) and WHO. They observed that cooperation had increased during the pandemic, but that it was not always easy. It then was a complex (and slow) process for EU Member States to implement the EASA-ECDC guidelines and where Member States “picked and chose” what they deemed necessary to implement leading to further barriers to travel by air.
- 8.183 It was also noted that European aviation is part of international aviation, and that there should be better ways to harmonise EU policy/emergency interventions with other key travel markets (e.g. UK/US) or other key mechanisms (such as WSSG for slots) to enable smooth travel to key markets outside the EU as well as within it.

### Some key issues on air passenger rights legislation

- 8.184 In air transport, passenger rights are protected through a large number of different legislative texts. We list below some of the key texts<sup>172</sup> for air passengers and the air transport ecosystem, but note that in addition to these texts air passenger rights protections interface with other horizontal consumer protection rules or schemes such as Alternative Dispute Resolution bodies (ADRs) and/or Online Dispute Resolution bodies (ODRs), and European Consumer Centres (ECCs):
- Regulation (EC) 261/2004 establishing common rules on compensation and assistance to passengers in the event of denied boarding and of cancellation or long delay of flights;
  - Directive (EU) 2015/2302, the “Package Travel Directive”; and
  - Regulation (EU) 2017/2394 on Consumer Protection Cooperation (CPC)
- 8.185 The most significant of these, Regulation (EC) 261/2004, introduced rules on compensation and assistance in the event of denied boarding, cancellations, long delays and involuntary downgrading. Enforcement of these rules is left to the Member States. Issues with the current legislation on air passenger rights is not a new policy finding: there has been a European Commission proposal for the revision of Regulation (EC) 261/2004 since 2013, but following a dispute between the United Kingdom and Spain over Gibraltar's airport, the proposal has been “on hold” since November 2015. Meanwhile, the Commission adopted Interpretative Guidelines<sup>173</sup> in 2016, which aimed to explain more clearly a number of provisions contained in Regulation (EC) No 261/2004, in particular in the light of the Court of Justice of the European Union's (CJEU) case law, in a bid to make current rules more effectively and consistently enforced.

---

<sup>172</sup> Other relevant texts include Regulation (EC) 1107/2006 concerning the right of disabled persons with reduced mobility when travelling by air, Regulation (EC) 889/2002 on air carrier liability in the event of accidents, Regulation (EC) 2005/2111 on the establishment of a Community list of air carriers subject to an operating ban.

<sup>173</sup> Interpretative Guidelines on Regulation (EC) No 261/2004 and on Regulation (EC) No 2027/97 as amended by Regulation (EC) No 889/2002 of the European Parliament and of the Council, OJ C 214, 15.6.2016, p. 5–21

- 8.186 In March 2020, The Commission published additional guidelines<sup>174</sup> on Regulation (EC) 261/2004, as well as on the other modal passenger rights, to clarify how certain provisions of the EU passenger rights legislation apply in the context of the COVID-19 outbreak, notably with respect to cancellations. Among others, these Interpretative Guidelines stated that COVID-19 circumstances needed a case-by-case assessment to decide whether they could be considered as “extraordinary circumstances” for the purpose of exempting the air carrier’s obligation to compensate in the event of a flight cancellation in accordance with Regulation (EC) 261/2004. In May 2020, the European Commission published an EU Recommendation on vouchers<sup>175</sup> and launched infringement proceedings against 10 Member States that introduced national rules amending passengers’ and travellers’ rights<sup>176</sup>.
- 8.187 On Regulation (EC) 261/2004, there was a consensus<sup>177</sup> before the COVID-19 pre-pandemic among passenger representatives, the industry and regulators that there are issues with the application and enforcement of air passenger rights, particularly those stemming from Regulation (EC) 261/2004 such as:
- A lack of clarity in certain air passenger rights provisions, including those enshrined in Regulation 261/2004, for example the definition of “extraordinary circumstances” in Article 5(3) and re-routing at the “earliest opportunity” in Article 8(1b).
  - Areas with ambiguous meaning which can lead to divergent interpretations, which give airlines an opportunity to try and interpret it in ways which minimise their obligations;
  - No clear guidance on a number of issues/situations which frequently arise but are not covered by the existing Regulation, particularly with regard to baggage and types of travel disruption (such as mass-disruptions) which are not explicitly addressed within the Regulation;
  - Uneven levels of effective enforcement across Member States; and
  - Inadequate complaint-handling processes, coupled with complex and insufficient means of individual redress.
- 8.188 As a result, passengers face difficulties in enforcing their rights, while complaint handling procedures are long and complex. In addition, procedures vary considerably between Member States, potentially distorting competition between airlines while, in the view of some stakeholders, the cost of complying with the obligations imposed by Regulation 261/2004 is unduly onerous (acting as a strong disincentive to comply).
- 8.189 A shortcoming of Regulation 261/2004 is the fact that it was not designed for crisis/events of mass cancellations such as the COVID-19 pandemic (or early ones such as the volcano ash crisis in Iceland in 2010). This was also investigated in an ECA Special Report<sup>178</sup> on air passenger rights during the pandemic. The Commission’s proposal of 2013 proposes a set of

---

<sup>174</sup> Interpretative Guidelines on EU passenger rights regulations in the context of the developing situation with Covid-19, C/2020/1830, OJ C 89I, 18.3.2020, p. 1–8

<sup>175</sup> Commission Recommendation (EU) 2020/648 of 13 May 2020 on vouchers offered to passengers and travellers as an alternative to reimbursement for cancelled package travel and transport services in the context of the COVID-19 pandemic, C/2020/3125, OJ L 151, 14.5.2020, p. 10–16

<sup>176</sup> [https://ec.europa.eu/commission/presscorner/detail/en/INF\\_20\\_1212](https://ec.europa.eu/commission/presscorner/detail/en/INF_20_1212)

<sup>177</sup> Steer study of 2019 on Air Passenger Rights

<sup>178</sup> [https://www.eca.europa.eu/Lists/ECADocuments/SR21\\_15/SR\\_passenger-rights\\_covid\\_EN.pdf](https://www.eca.europa.eu/Lists/ECADocuments/SR21_15/SR_passenger-rights_covid_EN.pdf)

measures to make the Regulation more crisis resilient, taking into account the volcano ash cloud crisis<sup>179</sup>.

- 8.190 Table 8.17 compares the airline schedules for the 2020 summer season planned pre-crisis (as of March 2, 2020) versus the actual scheduled capacity offered, and shows that the scale of flight cancellations was significant in the early months of the crisis. Assuming that these airlines would have operated with a load factor of 80% and that all passengers would have asked for a refund, these selected 11 airlines would have needed to process 105 million refund requests for the period April – June 2020. For the following 3 months, it would have been lower with 74 million tickets to process.
- 8.191 Whilst we cannot present the actual number of refunds or vouchers awarded to passengers as this data is not publicly available, the table below gives an indication of the order of magnitude of the number of cancellations airlines needed to process as flights were cancelled in the early stages of the pandemic.

**Table 8.17: Pre/post-crisis seats available for selected airlines, Q2/Q3 2020**

Airline	Pre-crisis scheduled seat capacity (million)		Post-crisis scheduled seat capacity (million)		Change in scheduled seat capacity (million)		Percentage change	
	Q2 2020	Q3 2020	Q2 2020	Q3 2020	Q2 2020	Q3 2020	Q2 2020	Q3 2020
Aer Lingus	4.7	4.9	0.6	0.9	-4.1	-3.9	-87%	-81%
Vueling	11.7	12.5	0.4	5.0	-11.3	-7.5	-97%	-60%
KLM	11.0	11.1	1.3	5.1	-9.7	-5.9	-88%	-53%
Wizz Air	11.8	12.9	9.5	8.9	-2.3	-4.0	-19%	-31%
Widerøe	1.5	1.5	0.8	1.2	-0.6	-0.2	-43%	-15%
Iberia	8.9	9.4	0.5	3.1	-8.4	-6.3	-95%	-67%
SATA Air Acores	0.3	0.4	0.0	0.3	-0.2	-0.1	-87%	-24%
Air France	16.8	16.9	1.3	7.9	-15.5	-9.1	-92%	-53%
British Airways	16.8	17.5	0.6	3.5	-16.2	-14.0	-96%	-80%
Ryanair	41.2	42.9	6.8	20.3	-34.5	-22.6	-84%	-53%
easyJet	30.4	31.8	1.0	12.3	-29.4	-19.5	-97%	-61%
<b>Total</b>	<b>155.1</b>	<b>161.5</b>	<b>22.8</b>	<b>68.5</b>	<b>-132.2</b>	<b>-93.0</b>	<b>-85%</b>	<b>-58%</b>

Source: Steer analysis of OAG data

- 8.192 In terms of passenger repatriation, the European External Action Service (EEAS) estimated<sup>180</sup> that over 600,000 EU citizens required some form of repatriation from around the world at the outset of the pandemic. 590,000 of those passengers were repatriated through a combination of existing commercial flights (around 90% of repatriations) and under the European Union Civil Protection Mechanism (around 10% of repatriations).

<sup>179</sup> COM(2013)130 final

<sup>180</sup> [https://www.eeas.europa.eu/eeas/good-stories-consular-support-eu-citizens-stranded-abroad\\_en](https://www.eeas.europa.eu/eeas/good-stories-consular-support-eu-citizens-stranded-abroad_en)

- 8.193 Directive 2015/2302<sup>181</sup> (the Package Travel Directive (PTD)) on package travel and linked travel arrangements, which replaces the previous Directive 90/314<sup>182</sup> from 1990, provides traveller protection for those booking at least two different types of travel services for the same trip or holiday. The Directive specifies the package organiser's levels of liability for compensation. It covers pre-arranged package holidays, but also self-customised packages, where the traveller chooses different elements from a single point of sale online or offline.
- 8.194 Furthermore, these rules provide certain protection for linked travel arrangements, which is when, for example, the traveller books a flight on a website and is then invited to book a hotel on a different website (provided that the second booking is made within 24 hours).
- 8.195 The Package Travel Directive ensures that travellers purchasing packages and linked travel arrangements are protected against the insolvency of airlines and other service providers. The Package Travel Directive also defines the organiser's liability for the performance of all travel services that are part of the package. Traders facilitating a linked travel arrangement, when airlines, must provide for money-back guarantee and repatriation when they become insolvent. Contrary to an organiser of a package, they are only liable for their own services.
- 8.196 The Package Travel Directive also introduces a system of mutual recognition of insolvency protection, accompanied by a structured cooperation mechanism between the Member States. Under the PTD, airlines are contributing to insolvency protection for flights sold with other services. Therefore, some airlines are now contributing to insolvency protection, which is a change of trend from the past. However, the PTD does not cover all hypotheses and have some limitations.
- 8.197 The pandemic has highlighted problems of articulation between the consumer protection legislations, mainly between Regulation (EC) 261/2004 and the Package Travel Directive, which impacted consumers and stakeholders of the travel supply chain, notably.
- 8.198 For instance, the Package Travel Directive provides that consumers may cancel their package and receive a full refund at no cost "in the event of unavoidable and extraordinary circumstances" (Article 12(2)). However, Regulation (EC) 261/2004 does not provide a statutory right to reimbursement of the full ticket price (passengers can get taxes, charges and fees reimbursed) if passengers cancel their tickets (whether or not due to "unavoidable and extraordinary circumstances"). In this case, passengers' rights will be governed by the terms and conditions of the ticket. During the pandemic, where passengers cancelled their flights due to a Member State travel ban or due to travel uncertainty but where airlines maintained the flights, these consumers have to engage with the airline on reimbursement (or not) of the full ticket price.
- 8.199 A certain disparity therefore arises between consumers who, depending on the type of service booked (package vs. single air service) would have different rights to be reimbursed. Passenger and travel supply industry representatives (BEUC, EU Travel tech) advocate for passenger rights to cancel the journey to be aligned in Regulation (EC) 261/2004 on those that exist in the PTD.
- 8.200 In the current state of European legislation, the level of protection obtained in Europe by an air passenger depends mainly on where and how their itinerary was purchased, as well as where the courts are based in the event where the passenger opts for judicial redress. This

---

<sup>181</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32015L2302>

<sup>182</sup> <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A31990L0314>

could also be an issue in the context of insolvency protection: the current EU framework does not provide any direct insolvency protection requirements for flight-only ticket holders and these passengers must instead ensure their own protection.

- 8.201 The risk of airline insolvency in non-crisis times is relatively low according to the Steer study on air passenger rights<sup>183</sup>: between 2011 and 2019, 5.6 million passengers were impacted by airline insolvencies in some way, which equated to approximately 0.05% of total EU passengers affected or stranded due to airline failure. On average, it was estimated by the study on air passenger rights that passengers directly affected by airline insolvencies incurred €431 in costs, 83% of which (i.e. €357) were not recoverable under one of the protection mechanisms. During 2020 and 2021, as has been reported above, few airline insolvencies happened (a percentage of passengers affected may not be very meaningful during the pandemic, but we note that these airlines tended to be small and/or had grounded their fleet as they exited the market).

*Shortcomings according to stakeholders*

- 8.202 All stakeholders in aviation commented on the significant shortcoming that was the lack of coordinated Member State approach during the pandemic. Beyond this, other points were noted, by passenger and air travel suppliers as well as by the airlines. These include:
- Where ticket refunds involve a third-party between passengers and airlines, stakeholders noted that business-to-business refunds or to a very limited extent intermediary-to-passenger refunds are not regulated in air passenger rights legislation. During the pandemic, various stakeholders reported delayed refunds, manual procedures where normal systems were suspended (such as IATA Billing and Settlement Plan system) which sometimes put some of these business in a complex situation where they found themselves in the middle of a refund chain.
  - On the implementation of Regulation (EC) 261/2004 requirements, stakeholders also noted that it was almost impossible under the circumstances for airlines to comply with the obligation to refund passengers within seven days: the volume of claims received was unprecedented and difficult to handle in a such short period of time. There were also practical difficulties, such as staff being required to work from home or being furloughed, meaning customer contact centres were short-staffed. For example, one of A4E's largest members would normally be able to deal with 10,000 refunds per week but had a backlog of 30 million refunds by the time staff returned to the office in June 2020.
  - Airlines noted that whilst Regulation (EC) 261/2004 provides remedies for passengers seeking refunds and re-routing in the event of disruption, the approach to fixed compensation regardless of circumstances needs to be urgently excluded from disruption events where the root-cause is Covid-related.
  - As discussed above in Chapter 4 on airlines finances, many airlines have had significant liquidity problems during the pandemic and some may have gone out of business without bridge loans or other forms of state support, therefore it is no surprise that airlines were far more inclined during the first phase of the pandemic to offer passengers vouchers rather than reimbursement, in breach of EU legislation (when the passenger was not given a choice other than to accept these vouchers), however this was to the detriment of the passengers, themselves sometimes in distressed financial situations. In 2021, the

---

<sup>183</sup> Study on the current level of protection of air passenger rights in the EU, Steer, 2019, <https://op.europa.eu/en/publication-detail/-/publication/f03df002-335c-11ea-ba6e-01aa75ed71a1>

European Commission and the CPC Network started formal dialogues with 16 airlines to obtain commitments with the view to correct practices that had been identified during the pandemic. In September 2021, 16 airlines committed to - inter alia - clearing their backlogs of pending reimbursement cases, offer refunds for vouchers distributed during the first phase of the pandemic and be more transparent toward passengers regarding their cancellation policies and the passenger's rights. In 2022, the CPC network took stock of how the 16 airlines have implemented their commitments. The information provided by the airlines shows that airlines have swiftly changed their practices in accordance with their commitments and that issues are encountered only in a limited number of complex cases<sup>184</sup>.

---

<sup>184</sup> [https://ec.europa.eu/info/live-work-travel-eu/consumer-rights-and-complaints/enforcement-consumer-protection/coordinated-actions/air-travel\\_en](https://ec.europa.eu/info/live-work-travel-eu/consumer-rights-and-complaints/enforcement-consumer-protection/coordinated-actions/air-travel_en)

## 9 Conclusions and Recommendations

- 9.1 This study was commissioned in the autumn of 2021 and finalised in spring 2022. The majority of the data available to demonstrate the impacts of COVID covered 2020 and part of 2021 due to time lags in reporting. This was augmented by stakeholder views collected in early 2022.
- 9.2 Some stakeholders assessed that it was premature to assess the full impact of the pandemic on the aviation industry in Europe. Moreover, during the study period, a number of events impacted the outlook for the European aviation industry including additional travel restrictions from the new wave of Omicron COVID-19 and the impacts of the Russian military aggression against Ukraine and associated trade sanctions impacting the industry. All these events add further uncertainty to the prospects and timing of recovery of the sector over the period till 2030 covered by the study.
- 9.3 We present below a synthesis and discuss interdependencies.

**Table 9.1: Table of synthesis**

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>Structurally, the European aviation industry has been resilient in general, thanks to emergency legislation, but for some stakeholders this has also been as a result of state aid;</li> <li>The European legislator has reacted quickly with emergency legislation on slots, air services and groundhandling;</li> <li>Overall, connectivity was significantly degraded in terms of schedules but somewhat maintained in terms of destinations;</li> <li>The role of commercial air cargo has been emphasized;</li> <li>The European aviation industry has largely survived the disruption but is financially weaker and has generally not yet recovered to profitability.</li> </ul>	<ul style="list-style-type: none"> <li>Travel restrictions were driven by national approaches with less consideration for European network effects.</li> <li>Staff protection mechanisms have usually been that of the general population which have not always allowed the specificities of aviation employment to be adequately considered and its staff to be effectively protected;</li> <li>Public aid has mostly been distributed to airlines and airports and did not often “trickle-down”. Compared to airlines and airports, groundhandling service providers have received minimal support.</li> <li>Airport capacity investments have been reduced to address liquidity needs but the lack of capacity will very soon become a major issue again;</li> <li>Public sector subsidy and support to the aviation industry in some other countries e.g., United States, Middle East states, may mean that the EU based industry is financially and commercially weaker than its competitors.</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>Passenger demand has rebounded quickly after the restrictions were lifted;</li> <li>Unrelated to the pandemic, there has been a real shift on environmental concerns by the industry, meaning that the difficult discussions</li> </ul>	<ul style="list-style-type: none"> <li>Operational issues mostly driven in the short-term by recruitment difficulties are hampering growth and damaging the image of the industry;</li> </ul>



<p>to come on financial matters will be placed in the context of an industry that accepts it needs to change;</p> <ul style="list-style-type: none"> <li>• The size of European airlines' cumulative aircraft investment needs is a positive for the manufacturing industry.</li> </ul>	<ul style="list-style-type: none"> <li>• With higher debt held by aviation stakeholders, increases in interest rates could have a material impact on costs;</li> <li>• Passenger and freight fares are bound to increase shortly and significantly (with the combined impacts of COVID activity levels and increasing fuel, commodity prices, and the cost of conversion of the industry to use of cleaner fuels).</li> <li>• The Russian invasion of Ukraine further threatens the stability of the recovery.</li> </ul>
---	---

Source: Steer analysis

9.4 We note that there are many interdependencies between all these themes: employment issues are already having a strong impact on the service quality being delivered to the passengers who have returned to flying: in a labour-intensive sector as most of commercial aviation is, shortage of labour impacts durably the supply that this industry is able to offer and further drives away recovery prospects. Financial pressures across the entire industry chain are stronger than they were pre-pandemic and are further compounded by the critical investments that the industry must rapidly undertake for sustainability purposes as well as for capacity enhancements.

### Outlook to 2030

9.5 Going forward, business travel is not expected to rebound before 2024 (as there will be more use of videoconferencing for instance), but long term we expect all air travel market segments to be growing again. It is likely that the trend in further airline consolidation seen before the pandemic to continue even further driven by new debts and weaker finances of carriers. Domestic connectivity is expected to recover as soon as 2022 with Intra-EU27+3 connectivity lagging behind. For both markets, there will be some variations as airports located in touristic areas are expected to be recovering to 2019 levels sooner than airports focussed on business passengers. Extra-EU27+3 connectivity was expected to be the market that would recover more slowly before Russia invaded Ukraine. The precise impacts of the Russian war of aggression against Ukraine have not been considered in this study, but we note that flights to Asia will be impacted by the Russian airspace ban, as well as creating some issues for flights to/from Baltic States and Finland.

9.6 We also expect that airport and airlines in Europe will incur significant increases in costs (user charges, fuel and environmental costs) as they also start to pay back COVID-19 associated borrowing, which may in part be passed onto customers and part absorbed, depending on the strength of consumer demand to fly. This is compounded by passenger demand remaining below 2019 levels until at least 2024 and the impact this will have on both airline and airport revenues.

9.7 Airports will likely be required to increase aeronautical tariffs and also seek new streams of non-aeronautical revenues from both passengers and other ventures to try and close this gap in funding. Any increases in aeronautical charges will be charged to airlines and this will further increase their costs. It was estimated that aeronautical revenues per passenger would need to be increased by a magnitude of around +40% per passenger between 2022 and 2028 solely to allow airports to meet their repayment obligations. Further to this, operating profit will still remain considerably below 2019 values until 2024/2025, which will continue to impact

airport cashflow and their ability to pay for historical, required and future capital expenditure programmes.

- 9.8 EBITDA levels for European airports are expected to return to 2019 levels in 2029 (2026 without the impact of COVID-19 related financing expenditure) with the additional cost of financing to the airport sector estimated to reduce operating surplus by -€45.3 billion over the period 2022-2030. Note that there are some differences in airport debt repayment adjusted EBITDA recovery by size category: regional airports report a small operating loss until 2024, whilst medium sized are expected to operate at a loss until 2023. Major hub revenues rebound strongly in 2021, however only represent 33% of 2019 revenues.
- 9.9 The impact of reduced passenger demand and lower levels of operating surplus per passenger (especially when considering additional debt repayments) will mean that airport cashflow will remain significantly reduced until 2029 unless measures are taken to increase revenues to offset this.
- 9.10 Airlines are likely to increase passenger fares to:
- Assist with repayments of COVID-19 related borrowing;
  - Counteract additional fuel costs due to market forces and also due to requirements to transition towards alternative fuels (SAFs) and/or be required to pay taxes on fossil fuels;
  - Counteract additional airport charges levied by airports; and
  - Provide operating profit to ensure cashflow for ongoing and future investments, especially those required to comply with their decarbonisation objectives.
- 9.11 In addition, airlines are disappointed to be expected to pay for air navigation services they never received, especially as they are, on average, in an uncertain financial situation, whereas ANSPs in many cases have had more difficulty in delivering a meaningful contribution in adapting their cost-bases. The pandemic may put a higher burden on airlines and their passengers having to deal not only with their own losses, but also with some of that of ANSPs.
- 9.12 Airlines' EBITDA levels are not expected to return to 2019 levels until 2029 with and without the impact of COVID-19 related financing expenditure, however the total additional cost of financing to the airline sector is estimated to have reduced EBITDA by -€43.4 billion over the period 2022-2030. Note that this does *not* factor in potential changes in revenues (due to changes in consumer habits) or costs due to increased charges levied by airports or increases in fuel and other costs. If increases in costs were to be encountered, airline EBITDA would either reduce further, or this could be counteracted with increased fares if the market was willing to pay them. The functionality of the model does not permit the impact of increased fares on demand to be quantified.
- 9.13 For other parts of the aviation eco-system, we expect airlines to continue increasing pressure on their suppliers to minimise costs: this is very likely to be the case for airlines with their groundhandling suppliers for instance. In this sector, no overall change is expected in industry structure and/or market opening, but as price pressure continues and as finances of groundhandling companies have been considerably stretched during the pandemic (noting that they operated on thin margins pre-pandemic and that they barely received any state-aid), it is likely that the consolidation of groundhandling companies will accelerate to the benefit of the largest and more resilient ones. Moreover concerns exist on the ability of groundhandling companies to invest in decarbonisation technologies and assets.

- 9.14 For passengers and cargo customers, we expect higher fares coupled with service-quality issues as soon as the traffic returns to 2019 levels (and at peak-times) due to resourcing gaps. Service quality issues will be especially acute in labour-intensive, low-paid sectors or sectors with limited prospects of automation (such as groundhandling, security, airport retail, cabin crew, etc.) and will have an impact on the entire aviation value chain. Moreover, if all additional current and future costs across the sector are passed on to passengers, ticket price increases may well be significant.

## Conclusions

- 9.15 The COVID-19 health crisis has been a reminder that Member States, especially in times of distress, are geared to take decisions to suit their needs first, with relevant consideration for European interests following.
- 9.16 This national approach to travel restrictions and the availability of financial assistance to the industry and its staff, has led to divergent and significant impacts. These have often led to significant negative social and economic impacts on staff, especially where low skilled and/or working in countries with no or poor employment support schemes.
- 9.17 Crucially, whilst industry, authorities and staff agilely adapted to the crisis and its changing episodes, they all faced quite unique and localised sets of rules and circumstances. We present the impacts of the crisis in this report, to the extent that we know them, but we must not overlook that not all organisations had access to the same government support, and different legal contexts.
- 9.18 Faced with significantly reduced revenues, airlines have increased borrowing during the pandemic, leading to higher leverage across the airline industry. Whilst this borrowing was an important way of remaining financially viable, the cost of servicing this additional debt will increase the cost base of airlines in the coming years. Additionally, the debt burden airlines face may impact the ability of airlines to secure sufficient future borrowing for the greening and digitalisation transitions.
- 9.19 Airports reported significant losses in 2020. By 2021, interim results indicate that they have rebounded somewhat, but the response has been mixed between them, with some of the largest recovering back to profitability (albeit sometimes at group level only). Airport debt increased significantly during the crisis, but no stakeholders who took part in consultation highlighted a concern on the sustainability of their level of debt, due to their ability to maintain strong credit ratings. However, these loans will still need to be repaid over time.
- 9.20 This health pandemic and the public health and sanitary measures adopted by Member States have thrown a harsh light on the fact that there has been a major difference in treatment between “domestic” and “intra-EU” flows, which appeared contradictory to the objective of free movements of goods and persons within the European Union.
- 9.21 In other parts of the world, generous national support schemes to the aviation industry were sometimes provided (e.g. USA CARES Act), although not everywhere. These actions will tend towards increased competition between European-based companies versus Turkey, the Gulf, and USA as a result of COVID-19.
- 9.22 Furthermore, unrelated to the pandemic but important to consider going forward, the Fit for 55 proposed measures targeted at European aviation CO<sub>2</sub> emissions may impact on air fares and on European competitiveness with non-EU territories, without further support or similar measures in those territories.

- 9.23 Overall, the industry is in the middle of a recovery period. Traffic and levels of activity are not back to where they were in 2019, and there remain trade, economic and health uncertainties. This position means there remain uncertainties about forward projections of recovery of the industry and the implications for policy findings presented in this report.

### **Policy conclusions**

#### *Air Services Regulation*

- 9.24 The introduction of the temporary framework on the operation of air services adopted in May 2020 as per Regulation (EU) 696/2020 was a beneficial experience particularly where it allowed airlines in temporary financial difficulty to keep their operating licence. This mechanism prevented carrier bankruptcies due to a temporary lack of liquidity which would have greatly disrupted connectivity further than it has. The framework also allowed Member States to refuse, limit or impose conditions on traffic rights for reasons related to the COVID-19 pandemic, although it quickly became apparent that banning traffic rights was perhaps counterproductive.
- 9.25 Emergency rules related to PSOs were available to Member States during the pandemic from two sources: from Article 16(12) of the Air Services Regulation which allows them to select another airline by mutual agreement to operate that PSO route for up to seven months, if there is a sudden interruption to a service provided by the selected air carrier; and from a guidance on the State aid rules and public service obligations rules applicable to the air transport sector during the COVID-19 outbreak which was published in April 2020 and updated in March 2021.
- 9.26 Only a small number of Member States that normally operate PSOs reported using emergency legislation during the pandemic: Italy (using Regulation 1008/2008), Sweden (using the COVID-19 temporary guidance on PSOs) and France (using Regulation 1008/2008). They highlighted some positives (that there was competition for each contract) or that the guidance was satisfactory but suggested that Article 16(12) was quite rigid during the crisis and may benefit from added flexibility to better reflect the operational reality faced by the airlines and authorities.

#### *Slots*

- 9.27 The emergency legislation that was put in place by the EU early in 2020 has resulted in waivers or part-waivers of slot usage rules which, in effect, have nearly “frozen” the slot landscape to where it was pre-pandemic. Despite the co-legislators' attempt to better balance the interests of providing certainty and slot protection on the one hand and facilitating entry and expansion of those air carriers able to operate air services on the other, in practice there was little change in slot holdings. Despite this apparent lack of change in slot holdings at constrained airports comparing 2019 to 2022, the industry has been very dynamic to react to constant changes in demand due to the possibility of using ad hoc slots, which however does not give the airlines that operated the slots any prospect of entering the market long term.
- 9.28 Where airlines have been required to release slots under the commitments from the State Aid remedies from DG COMP, the experience has been mixed. In Paris-Orly, former Air France slots have been immediately taken up by a new base competitor, while the opportunity at Munich/Frankfurt under the Lufthansa State Aid remedies has not yet been taken up. This may reflect the relative level of slot availability at each of these airports pre-pandemic.

9.29 On the core legislative text, the views of the stakeholders do not seem to have changed much compared to what they were before March 2019 when Steer undertook its Fact-Finding Study for DG MOVE. i.e. that most stakeholders assess the need to revise the Slot Regulation remains as the rules are no longer fit for purpose. This is especially important considering that as traffic bounces back, the capacity issues that were prevalent in the European aviation industry until the start of the pandemic will soon need addressing again. In addition, the pandemic has highlighted, once again, the lack of crisis resilience of the Regulation. At a bare minimum, some redrafting of the legislation to enable an “automatic” and more responsive way to cope with extreme events may be helpful, as the Commission’s temporary delegated act powers have shown.

9.30 The pandemic has nonetheless provided real-life experience of the use of Justified Non-Utilization of Slots (JNUS) provisions, and has shown:

- Effectiveness/coherence issues as there was room for interpretation;
- Real-life experience of a more dynamic return of slots (up to three weeks ahead of use, which most airports found inconvenient); and
- Further highlighted that slot allocation requires as much transparency, consistency and independence as possible and that slots legislation is not just an EU-focussed issue but needs to consider consistency with global rules.

#### *Airport charges*

9.31 Views on airport charges legislation remain polarised across stakeholder groups in Europe and probably even more entrenched as a result of the acute financial situation of airports and airlines. There will not be an easy middle ground going forward in agreeing any changes to European legislation.

9.32 Contrary to other key pieces of European aviation legislation, the Airport Charges Directive did not require emergency policy intervention. No change in this area has certainly been helpful to reduce industry uncertainty. However we would refrain from interpreting this as an endorsement of the Directive’s adequacy with industry’s needs for policy in this area - unless perhaps there is clear evidence that the Directive fulfils all of its objectives, which there is not as reported by the European Commission’s Staff Working Document<sup>185</sup> in 2018/2019. By providing a high-level framework at European level, there was still a need for some changes to airport charges at national level in some instances.

9.33 Looking at the issues highlighted then, there is little sign of a significant change to the two problems reported there: on the risk of market power abuse by some airports, especially by the largest ones, and on the risk of airline buying power at smaller airports. We assess that whilst there have been some changes in airport or airline market shares, it has been limited: there has not been a single notable airport bankruptcy (apart from three small airports in Germany but they continue operating) and no “large” airline bankruptcy across Europe. No network airline has changed hub location, and whilst airlines including low-cost airlines have closed/open bases, their core offer has not evolved very much.

9.34 It does not mean that there have not been some noticeable changes at some individual airports or airlines, but in general terms, we see a limited evolution in market shares rather than a completely different situation now. ISAs who took part in the study (around a third) did

---

<sup>185</sup> <https://transport.ec.europa.eu/system/files/2019-10/swd20190289-evaluation-report.pdf>

not report either misuse of market power during the pandemic or discriminatory behaviours, but as one commented “*there was no market to abuse in 2020 and 2021*”. However, the issues of limited transparency and consultation highlighted in the Staff Working Document remain.

- 9.35 Going forward, discussions with stakeholders indicate that the competition between small airports (or airports focussing on business passengers) to attract airlines is likely to increase as further airline consolidation is expected (and return of the business passengers may not happen to the same extent as before). There has not been much new airport concession activity during the period in Europe, with the Aéroports de Paris privatisation put on hold and only Sofia airport being privatised.
- 9.36 The key issue in the area of airport charges is that of “lost” revenues by airports as a result of the lack of traffic whilst costs have continued to be incurred (in spite of airports actions to reduce operating costs and capital investment programmes being put on hold, or reduced during the pandemic). This issue will be addressed at a national level in different ways, noting that in some Member States, national frameworks do not seem to allow for recovery of unrecovered costs from previous years (in Germany and in France) meaning only limited charges increases, whereas in other Member States significant increases are likely to happen. This discrepancy in the treatment of lost revenue between Member States may potentially impact a level playing field between EU airports with some of them being able to recover past losses while other will not be. This could potentially impact competition between them and, as a knock-on effect, also competition between airlines. It may also impact the decarbonisation pace across EU airports.
- 9.37 Some airports under concession have benefited from concession extension and some are exploring force majeure type of compensation from Member States when this was in the concession contract. The potential issue of possible compliance issues between concession contracts and the objectives of the ACD are expected to remain valid. Airports will need to look at all sources of revenues and any unregulated charges (such as centralised infrastructure for groundhandling) are likely to increase even further than airport charges.
- 9.38 Another issue in the context of Net Carbon Zero, is that airports have limited levers to modulate charges on environmental grounds under the current Directive. In addition, the European Commission’s proposal on “Fit for 55” and the planned return of demand to 2019 levels by 2024/5 mean that there is pressure on airports to re-launch their capital expenditure programmes as soon as they can. There is appetite from airports, airlines and freight forwarders to do so, but the risks related to unclear airport remuneration of the capex costs to be incurred, and patchy oversight of ISAs on airport investments (in terms of cost and in terms of ensuring that the capex is what is needed) means that the situation is very complex with no guarantee that a capacity crunch will be avoided from 2025-2030 and no further guarantees that investment costs/choices will be totally transparent and justified.
- 9.39 Airports are concerned about their ability to fund these investments, given many of them have incurred losses during the pandemic and have needed to take out additional credit facilities to maintain liquidity levels required during the pandemic. There is still appetite by airport investors in the sector. The largest airports where they have been downgraded by credit agencies have “only” lost 1 notch (less than airlines who typically lost 2, 3 or more) and some are not too far from a return to profitability (although this is not universally the case), but investors have been reminded that there is a traffic risk in aviation (up and down) and that some other sectors also need funding.



- 9.40 Airlines have little sympathy for airport views as they are very stretched financially themselves (with perhaps less cost absorption potential than pre-pandemic), they will very soon face higher airport charges, higher air navigation charges, increased costs for environmental externalities and significant aircraft investment costs (estimated by Airbus at €140-€170 bn for the European airlines to 2030), meaning that ticket prices for passengers are very likely to materially increase to/from/within Europe with minimal change in the quality of service delivered to them and a further downgrade of the European airline product compared to USA/Turkish/Gulf airline products, who have all benefited from generous state-funding during the pandemic and less capacity issues, whether at airports or in the skies.
- 9.41 There is little doubt that the level of charges is set to increase across Europe, sometimes moderately, sometimes significantly, in the context of strong underlying inflation, still a pressing need for investments in capacity and digitalization as per pre-pandemic, as well as the new factor of the urgent need for greening investments.
- 9.42 This makes a possible intervention on airport charges as relevant as before especially considering the important issue of cost recovery, but consideration for the new factors highlighted needs to be properly ensured, meaning that draft policy intervention changes done pre-pandemic cannot be assumed to still stand “as is” today.
- 9.43 Whether any policy interventions take place or not, there is a real risk that the aviation industry may price-out some passengers and that it may come back, as it used to be, to a transport mode only affordable to the wealthier. If this happens, the impact on the entire ecosystem will be profound because European aviation is entirely funded by the passenger (and by cargo): without passengers there may be a spiral of costs, a vicious circle. Contrary to other transport modes in Europe, this form of public transport which has underpinned the freedom of movement (and especially so during the pandemic), connectivity and economic activity of European economies does not get government subsidies in normal times. In the exceptional case of this pandemic, support was provided in an unharmonized manner not particularly conducive to a fair market-playing field (that European aviation legislators have tried to ensure over the years) and in most cases with the requirement that such support should be reimbursed.

#### *Groundhandling*

- 9.44 The fate of groundhandling companies or their staff did not make the headlines during the pandemic, nor did the sector obtain much public support (with the notable exception being Italy which has plans to do so in 2022) beyond job protection schemes. Some bankruptcies took place, mostly smaller market players, but these were not reported on outside the industry press. The groundhandling companies with the better pandemic outcomes were the generalist ones able to perform a number of groundhandling activities, including cargo handling (a growth sector), those with cash reserves or those with a network of stations to allow for cross-subsidisation between geographies, that is the larger international handlers with a pan-country portfolio of stations.
- 9.45 Groundhandling activity is directly linked with the number flights undertaken by passenger and cargo aircraft. This direct relationship explains the terrible and immediate impact of the pandemic on the sector.
- 9.46 In a labour-intensive sector with staff costs representing approximately 60% of total operating cost, staff has been the immediate adjusting variable. If there were job support schemes available in the Member State during the pandemic, it benefitted the groundhandling staff,



otherwise job losses took place quickly. Adjusting staff costs and reacting in an agile manner to the demand starts and stops throughout 2020 and 2021 has allowed groundhandling companies to maintain their operations at their airports.

- 9.47 In general, looking at the market structure now, we observe a similar situation to that of 2019 (as reported in Steer's ex-post evaluation study of the Groundhandling Directive). Apart from one notable market exit at a large European airport, the industry has stayed as it was with respect to industry structure. However, beyond the lack of market impacts, the European groundhandling industry is in an even more precarious financial situation than it was pre-pandemic with a higher level of debt and heightened staff recruitment and retention concerns.
- 9.48 Pre-pandemic there was no appetite from Member States to change the competitive landscape of groundhandling and stakeholder responses confirm this position has not changed.
- 9.49 Without a change of legislation at EU level and considering how the financial situation of groundhandling companies has deteriorated, further consolidation of groundhandling suppliers and further price pressure from airlines are expected. It is also very likely that there will be continuing pressure on the quality of groundhandling services being delivered because finding groundhandling staff is less straightforward than it was (and it was far from easy before), especially to serve demand during peak periods.
- 9.50 European emergency legislation (Regulation 2020/696) played a role during the pandemic supporting in the case of one market exit, and allowing the extension of a handful of licences in Europe. However some stakeholders complained about a lack of flexibility in the text with a six-month direct award being considered insufficient in a crisis such as the COVID crisis and the fact that most licence renewals happened after the end of the period during which emergency legislation applied.
- 9.51 In terms of policy views going forward, it remains unclear how much the groundhandling industry is calling for the European Commission to address the Directive although it seems that they are less reserved on the topic than they were in 2019. This is where the lack of engagement of groundhandling companies in this study becomes limiting. Staff representatives on the other hand are as disappointed as ever that workers' jobs and working conditions are most impacted by changes in the industry and are keen to remind authorities of the need to improve social protection in the sector. For airlines and airports, no significant change in position was noted compared to 2019 on the need for future groundhandling legislation.

## Recommendations

- 9.52 In our assessment, we do not find that the impacts of the pandemic on European air transport have materially changed the needs of the legislative environment in the three areas of groundhandling, slots and airport charges. Although there are a small number of new factors to consider, most notably the resilience and greening aspects, if there was a need to intervene before, it remains. The key difference is that the views of stakeholders on what should be done, and how, are more entrenched than before.
- 9.53 As we have established in this report that the need remains post-COVID for policy intervention in the area of slots, airport charges and groundhandling, we recommend that the Commission considers next steps in these areas.

- 9.54 The financial challenges facing the industry as it comes out of the COVID-19 pandemic alongside green investment requirements will place pressure on the cost base of the industry. There is danger, acknowledged by all stakeholders, that the unit price of air travel in Europe could escalate significantly over the period to 2030. This in turn may drive passengers away from flying, mathematically reducing the demand base when simultaneously requiring the demand base to cover escalating industry costs. Whilst a reduction in passenger numbers may not be a bad thing from an environmental point of view, it is important that the remaining passengers are able to pay for all the necessary investments.
- 9.55 There is also the case for some consideration of whether aviation can remain a predominantly “consumer pays” industry, or if it could receive state funding as is the case for other transport modes across Europe: as a form of public transport, the level of government, EU funding made available to aviation is modest when compared to other public transport modes, e.g. rail., despite large decarbonisation investments needed to be sustained.
- 9.56 As the European Union wishes to maintain its global competitiveness, robust trade links and worldwide tourism attraction, a financially and environmentally sustainable aviation industry forms one of the key pillars to do so. We would recommend that the competitiveness of the European industry versus other competing geographies, some of which that have received significant governmental support (such as USA, Gulf, Turkey) is taken into consideration.

# Appendices

# A Passenger demand by Member State

Table A.1: Passenger numbers by Member State (EU27+3), 2019 – 2021

MS	Market	2019 Market Share (%)	2019 Pax (m)	2020 Market Share (%)	2020 Pax (m)	2020 % change vs. 2019	2021 Market Share (%)	2021 Pax (m)	2021 % change vs. 2019
BE	Dom	0%	0.0	0%	0.0	-56%	1%	0.0	96%
	Intra-EU	70%	24.8	72%	6.8	-73%	67%	7.6	-70%
	Extra-EU	30%	10.5	28%	2.7	-75%	33%	2.8	-73%
	Total	100%	35.4	100%	9.5	-73%	100%	10.4	-71%
BG	Dom	3%	0.3	7%	0.1	-55%	8%	0.2	-29%
	Intra-EU	62%	7.3	63%	2.4	-67%	68%	3.5	-52%
	Extra-EU	35%	4.1	30%	1.2	-72%	24%	1.3	-67%
	Total	100%	11.7	100%	3.7	-68%	100%	5.0	-57%
CZ	Dom	0%	0.0	0%	0.0	-35%	1%	0.0	-52%
	Intra-EU	58%	11.0	60%	2.3	-79%	67%	3.2	-71%
	Extra-EU	42%	7.8	40%	1.5	-81%	32%	1.6	-80%
	Total	100%	18.8	100%	3.8	-80%	100%	4.8	-75%
DK	Dom	5%	1.9	16%	0.8	-57%	19%	1.1	-42%
	Intra-EU	69%	23.9	63%	5.8	-76%	66%	7.8	-67%
	Extra-EU	26%	9.0	21%	2.0	-77%	15%	1.9	-79%
	Total	100%	34.8	100%	8.7	-75%	100%	10.8	-69%
DE	Dom	10%	23.2	19%	5.9	-75%	12%	4.8	-79%
	Intra-EU	52%	119.0	49%	31.0	-74%	55%	42.6	-64%
	Extra-EU	37%	84.6	33%	20.9	-75%	33%	26.2	-69%
	Total	100%	226.8	100%	57.8	-75%	100%	73.6	-68%
EE	Dom	1%	0.0	3%	0.0	-22%	4%	0.0	25%
	Intra-EU	75%	2.4	76%	0.6	-73%	73%	0.9	-61%
	Extra-EU	24%	0.8	21%	0.2	-76%	24%	0.3	-60%
	Total	100%	3.3	100%	0.9	-74%	100%	1.3	-60%
IE	Dom	0%	0.1	1%	0.0	-67%	1%	0.0	-61%
	Intra-EU	50%	18.8	50%	4.2	-78%	64%	5.4	-71%
	Extra-EU	50%	19.0	49%	4.1	-79%	36%	3.6	-81%
	Total	100%	37.9	100%	8.3	-78%	100%	9.1	-76%
EL	Dom	15%	8.6	35%	3.8	-55%	48%	5.8	-32%
	Intra-EU	57%	32.0	49%	10.1	-68%	42%	20.5	-36%
	Extra-EU	28%	15.6	17%	3.5	-78%	11%	6.0	-62%

	Total	100%	56.1	100%	17.3	-69%	100%	32.2	-43%
ES	Dom	19%	42.6	45%	16.9	-60%	45%	26.0	-39%
	Intra-EU	50%	115.3	37%	27.4	-76%	41%	48.8	-58%
	Extra-EU	31%	70.4	18%	13.6	-81%	13%	17.2	-76%
	Total	100%	228.3	100%	57.8	-75%	100%	91.9	-60%
FR	Dom	19%	31.7	44%	14.4	-55%	47%	19.1	-40%
	Intra-EU	41%	69.2	29%	18.7	-73%	32%	27.8	-60%
	Extra-EU	40%	67.9	27%	17.6	-74%	21%	19.3	-72%
	Total	100%	168.7	100%	50.7	-70%	100%	66.2	-61%
HR	Dom	5%	0.5	17%	0.2	-66%	10%	0.2	-53%
	Intra-EU	67%	7.2	63%	1.3	-81%	71%	3.3	-54%
	Extra-EU	28%	3.0	20%	0.4	-85%	20%	0.9	-68%
	Total	100%	10.6	100%	1.9	-82%	100%	4.5	-58%
IT	Dom	20%	32.4	47%	12.5	-61%	54%	21.1	-35%
	Intra-EU	51%	81.8	34%	18.2	-78%	34%	29.2	-64%
	Extra-EU	29%	46.4	18%	9.7	-79%	11%	9.3	-80%
	Total	100%	160.7	100%	40.4	-75%	100%	59.5	-63%
CY	Dom	0%	0.0	0%	0.0	#DIV/0!	0%	0.0	#DIV/0!
	Intra-EU	41%	4.6	56%	1.3	-72%	45%	2.0	-57%
	Extra-EU	59%	6.7	44%	1.0	-85%	55%	2.7	-60%
	Total	100%	11.3	100%	2.3	-80%	100%	4.6	-59%
LV	Dom	0%	0.0	0%	0.0	-75%	0%	0.0	-100%
	Intra-EU	66%	5.1	71%	1.4	-72%	73%	1.7	-67%
	Extra-EU	34%	2.6	29%	0.6	-78%	27%	0.6	-76%
	Total	100%	7.8	100%	2.0	-74%	100%	2.3	-70%
LT	Dom	0%	0.0	0%	0.0	8093%	0%	0.0	680%
	Intra-EU	61%	4.0	64%	1.1	-71%	65%	1.6	-61%
	Extra-EU	39%	2.5	36%	0.7	-74%	35%	0.9	-64%
	Total	100%	6.5	100%	1.8	-72%	100%	2.5	-62%
LU	Dom	0%	0.0	0%	0.0	-63%	0%	0.0	-61%
	Intra-EU	81%	3.5	87%	1.2	-65%	90%	1.8	-49%
	Extra-EU	19%	0.8	13%	0.2	-76%	10%	0.2	-75%
	Total	100%	4.4	100%	1.4	-67%	100%	2.0	-54%
HU	Dom	0%	0.0	0%	0.0	147%	0%	0.0	698%
	Intra-EU	65%	10.9	66%	2.6	-76%	74%	3.3	-70%
	Extra-EU	35%	5.8	34%	1.3	-77%	26%	1.3	-77%
	Total	100%	16.7	100%	4.0	-76%	100%	4.7	-72%
MT	Dom	0%	0.0	0%	0.0	-100%	0%	0.0	-100%
	Intra-EU	68%	5.0	73%	1.3	-74%	80%	1.9	-61%
	Extra-EU	32%	2.3	27%	0.5	-79%	20%	0.6	-74%
	Total	100%	7.3	100%	1.8	-76%	100%	2.5	-65%
NL	Dom	0%	0.0	0%	0.0	227%	0%	0.0	51%
	Intra-EU	54%	44.1	58%	13.6	-69%	66%	18.8	-57%
	Extra-EU	46%	37.1	42%	10.0	-73%	34%	10.3	-72%
	Total	100%	81.2	100%	23.6	-71%	100%	29.1	-64%
AT	Dom	2%	0.6	3%	0.1	-74%	2%	0.1	-79%

	Intra-EU	67%	23.8	68%	6.3	-74%	70%	7.7	-67%
	Extra-EU	32%	11.3	29%	2.7	-76%	28%	3.2	-71%
	Total	100%	35.6	100%	9.2	-74%	100%	11.1	-69%
PL	Dom	4%	2.0	9%	0.7	-65%	7%	0.7	-62%
	Intra-EU	58%	27.3	55%	7.8	-71%	58%	11.3	-58%
	Extra-EU	38%	17.7	36%	5.3	-70%	34%	6.8	-62%
	Total	100%	46.9	100%	13.8	-71%	100%	18.9	-60%
PT	Dom	10%	5.4	19%	1.9	-65%	25%	3.1	-42%
	Intra-EU	59%	32.6	57%	10.4	-68%	55%	14.0	-57%
	Extra-EU	31%	17.0	23%	4.3	-75%	19%	5.2	-70%
	Total	100%	55.0	100%	16.5	-70%	100%	22.3	-59%
RO	Dom	6%	1.3	12%	0.4	-67%	15%	0.5	-62%
	Intra-EU	65%	14.1	60%	4.2	-70%	52%	4.7	-66%
	Extra-EU	28%	6.1	28%	2.0	-68%	33%	2.2	-65%
	Total	100%	21.6	100%	6.6	-69%	100%	7.4	-66%
SI	Dom	0%	0.0	0%	0.0	#DIV/0!	0%	0.0	#DIV/0!
	Intra-EU	51%	0.9	59%	0.2	-81%	56%	0.3	-69%
	Extra-EU	49%	0.8	41%	0.1	-86%	44%	0.2	-82%
	Total	100%	1.7	100%	0.3	-83%	100%	0.4	-76%
SK	Dom	0%	0.0	0%	0.0	-79%	0%	0.0	-61%
	Intra-EU	45%	1.3	43%	0.2	-83%	57%	0.4	-72%
	Extra-EU	55%	1.6	57%	0.3	-82%	43%	0.3	-82%
	Total	100%	2.8	100%	0.5	-82%	100%	0.6	-77%
FI	Dom	13%	3.0	33%	1.0	-66%	34%	0.9	-71%
	Intra-EU	59%	13.8	46%	3.0	-79%	52%	2.8	-80%
	Extra-EU	28%	6.5	22%	1.5	-78%	14%	0.9	-86%
	Total	100%	23.3	100%	5.4	-77%	100%	4.6	-80%
SE	Dom	18%	7.0	36%	2.0	-71%	33%	1.3	-82%
	Intra-EU	62%	23.2	47%	5.3	-77%	53%	4.0	-83%
	Extra-EU	20%	7.5	17%	2.0	-74%	14%	1.1	-85%
	Total	100%	37.6	100%	9.3	-75%	100%	6.4	-83%
IS	Dom	4%	0.3	15%	0.2	-51%	15%	0.3	-15%
	Intra-EU	51%	3.9	51%	0.8	-79%	47%	1.2	-69%
	Extra-EU	44%	3.4	34%	0.5	-84%	38%	0.9	-72%
	Total	100%	7.6	100%	1.5	-80%	100%	2.4	-68%
NO	Dom	39%	15.8	75%	7.7	-51%	79%	9.0	-43%
	Intra-EU	49%	19.8	20%	4.4	-78%	18%	4.5	-77%
	Extra-EU	12%	4.7	5%	1.1	-77%	3%	0.7	-86%
	Total	100%	40.3	100%	13.2	-67%	100%	14.1	-65%
CH	Dom	1%	0.7	2%	0.2	-75%	2%	0.2	-73%
	Intra-EU	61%	35.1	61%	9.9	-72%	68%	12.9	-63%
	Extra-EU	37%	21.4	37%	5.9	-72%	30%	6.1	-71%
	Total	100%	57.2	100%	16.0	-72%	100%	19.2	-66%
EU 27 +3	Dom	12%	177.4	30%	68.9	-61%	32%	94.4	-47%
	Intra-EU	54%	785.6	45%	204.0	-74%	47%	295.5	-62%
	Extra-EU	34%	495.0	25%	117.1	-76%	21%	134.6	-73%

	Total	100%	1,457.9	100%	390.1	-73%	100%	524.5	-64%
--	-------	------	---------	------	-------	------	------	-------	------

Source: Eurostat (avia\_paoa)



## B State aid tables

Table B.1: State aid provided to air transport companies

MS	Company Type	Name	Amount, millions	Support type	Details and conditions
AT	Airline	Austrian Airlines	€ 450	State aid and loan	Austrian Airlines will be required to reduce total emissions by 30% by 2030 from 2005 levels, though enforceability unclear; flights where train under 3hrs exists will be banned; a minimum price (€40) for tickets will be introduced; 2% blending mandate for alternative fuel, though timeline and type of fuel unclear. In addition to the €300m loan, the parent company Lufthansa will provide €150m support which may be drawn from the €6bn recapitalisation of the German airline.
AT	ANSP	Austro Control			
AT	Airport	Vienna Airport	€20	Fixed cost contribution	There is the possibility of receiving state support for uncovered fixed costs for non-state-owned companies. SZG was not granted a cost coverage but VIE applied for one.
AT	Airport	Vienna Airport	€159	Short-time work	Short time work 2020: €80.3m; short time work 2021 until 30.9.2021: €78.5m
BE	Airline	Brussels Airlines	€ 290	Loan	In addition to the €290m loan, the parent company Lufthansa will provide €170m support. Related to recapitalization: - Dividend ban
BE	ANSP	skeyes		Loan	Loan from EUROCONTROL
BE	Ground handling	Aviapartner	€25	Convertible loan	€25 million Belgian aid to support the ground handling service provider Aviapartner, approved by the Commission in July 2020. The aim of the recapitalisation measure is to ensure that Aviapartner has

MS	Company Type	Name	Amount, millions	Support type	Details and conditions
					sufficient liquidity to continue its operations. Conditions include an acquisition ban to prevent undue benefits from recapitalisation aid to the detriment of competition in the Single Market.
CY	Airport	Hermes Airports	€22.2	Loan	Hermes Airports has received a €22.2m loan from the Republic of Cyprus in December 2020. The Loan was given under the temporary framework of State Aid.
CY	Airlines	Airlines departing / arriving in Cyprus	€6.3	Direct grant	Incentive scheme towards airlines departing/arriving in Cyprus from June 2020 until December 2020. Airlines applying for aid can receive up to €800,000 each. Air is conditional on airlines having a load factor between 41% and 70% and record this data. The subsidy is graduated based on the load factor; the lower the load factor, the greater the subsidy per passenger (within the necessary 41% to 70% limits).
CZ	Airline	Smartwing	CZK 900	Loan guarantee	Conditions attached included that the airline changes its name to Czech Airlines, retain 2,500 employees and not pay dividends for ten years.
CZ	ANSP	ANS CR	€20	Loan	Czech ANS - state loan of 20 mil. Euro granted in 2020, repayable from 2027 to 2031.
CZ	Airport	Karlovy Vary	CZK 0.99	State aid	
CZ	Airport	Pardubice	CZK 1.16	State aid	
DE	Airline	TUI Group	€ 4,250	Loan and recapitalisation	Related to recapitalization: - M&A ban - Dividend ban - Share buyback ban - Cross-subsidization ban.
DE	Airline	Condor	€ 525	Loan	Condor received a €550m state loan from the German government, which was annulled by the General Court. A new decision awarded €525m based on ex-post analysis of damages incurred and taking into account the account of the judgement. Condor have committed to funding 70% of restructuring costs, its private investor Attestor has committed €200m in equity and €250m in fleet renewal, aiming to replace an aging fleet with efficient new aircraft. Condor has committed to a capacity cap of its fleet during the restructuring period to limit the distortions of competition possibly caused by restructuring aid.
DE	Airline	Lufthansa AG	€ 9,000	Recapitalisation / partial takeover / loan	Lufthansa: The government will take a 20% share in the airline in return for €9bn in equity and loans which can increase to 25% plus 1 share if Lufthansa is subject to a hostile takeover bid. Conditions include a ban on dividends until the State has exited in full, a ban on cross-subsidisations using State aid, a ban on acquiring over 10% stake in competitors until 75% of the recapitalisation is redeemed, the divestment of 24 slots daily at Frankfurt and Munich airports, and the publishing of information related to using State aid towards greening and digitalisation.

MS	Company Type	Name	Amount, millions	Support type	Details and conditions
					As of 16 November 2021, Lufthansa has repaid the 9bn bailout; the German government is looking to sell its stake in the group by October 2023 at the latest.
DE	Airport	FBB	€ 98	Subsidy	Support for loss of income during March 4th and June 30th 2020.
DE	Airport	FBB	€ 753	Loans	Support for loss of liquidity during January 1 and November 9 2021.
DE	Airport	FBB	€1700	Recapitalisation	<p>Conditions on the necessity, appropriateness and size of the intervention: the capital injection will not exceed the minimum needed to ensure the viability of FBB and will not go beyond restoring its capital position compared to before the coronavirus outbreak;</p> <p>Conditions on the State's entry: the recapitalisation aid will prevent an insolvency of FBB, which would have serious consequences for Berlin's connectivity and employment;</p> <p>Conditions regarding the exit: Germany committed to work out a credible exit strategy within 12 months after the aid is granted, unless the State's intervention is reduced below the level of 25% of equity by then. Should the State's intervention not be reduced below 15% of FBB's equity after seven years from the recapitalisation, Germany will have to notify a restructuring plan for FBB to the Commission.</p> <p>Conditions regarding governance and acquisition ban: until at least 75% of the recapitalisation is redeemed, FBB (i) will be subject to strict limitations as regards the remuneration of its management, including a ban on bonus payments; and (ii) will be prevented from acquiring a stake of more than 10% in competitors or other operators in the same line of business;</p> <p>Commitments to preserve effective competition: until the aid has been fully redeemed, FBB will not offer any discounts to airlines and not expand its capacity. This is to ensure that FBB does not unduly benefit from the recapitalisation aid by the State to the detriment of fair competition in the Single Market; and</p> <p>Public transparency and reporting: FBB will have to publish information on the use of the aid received and on how it supports activities in line with EU and national obligations linked to the green and digital transition.</p>
DE	Airport	Flughafen München	€ 253	Subsidy	
DE	Airport	Flughafen Koeln/Bonn	€ 75	In payment in capital reserve	
DE	Airport	German airports		State aid	In total 11 German airports (BRE, DRS, DUS, FMO, FRA, HAJ, HAM, LEJ, NUE, SCN, STR) received circa €400m in compensation for damages during the first lockdown in 2020. 2 airports which are partially state-owned (BER, CGN) received compensation in the form of equity. Other airports have received additional loans under local frameworks e.g. €50m support to regional airports for air navigation services. The Federal Government is also working to postpone the general ban on airport subsidies scheduled by the EU for 2024 and is thus accepting a delay in the intended ban.

MS	Company Type	Name	Amount, millions	Support type	Details and conditions
DE	ANSP	DFS	€300	State support	The German ANSP (DFS Deutsche Flugsicherung GmbH) has received support in February 2021 with a corporate action of 300 million EUR; Until now it is not yet defined, if DFS has to include this into the unit rate in future years.
DK	Airline/ Airports	Danish airlines and small regional airports	€ 24	Direct grant	DKK 180 million granted, of which DKK 150 million (EUR 20 million) for airlines flying within and to/from Denmark, and DKK 30 million (EUR 4 million) for the 13 airports in Denmark. Aid of 25% of eligible charges (take-off, landing, passenger charges) granted to airlines and airports.
DK	ANSP	NAVIAIR			
EE	Airline	Nordica	€ 30	Recapitalisation	Combined with previous investments, the total sum invested in the airline by the Estonia government has risen to €155m. Conditions: - M&A ban - Non-mandatory coupon payment ban.
EL	Airline	Aegean Airlines	€ 120	State aid	The EC approved on December 23rd 2020 a direct grant of EUR 120 million from the Greek state.
EL	Airport	Fraport Greece	€ 177.9	State aid	A Finance Ministry bill that will pay Fraport Greece 177.9 million euros as aid compensating for losses due to the restrictive measures imposed to contain the coronavirus was approved at committee level.
EL	Airport	Athens International Airport	€110	Direct grant, cancellation of concession fees	€110 million aid to compensate Athens international airport for the damage suffered due to the coronavirus outbreak, approved by the Commission in February 2021.
ES	Airline	Iberia	€ 750	Loan	The five-year loans will be channelled via a syndication of banks. Condition: - Restrictions on upstream of cash to other IAG companies.
ES	Airline	Volotea	€150	Loan	Syndicated loan guaranteed by ICO.
ES	Airline	Binter Canarias	€80	Loan	Syndicated loan guaranteed by ICO.
ES	Airline	Plus Ultra	€53	Loan	€34m participating loan and a €19m subsidised loan.
ES	Airline	Air Nostrum	€149	Loan, direct grant	€140m syndicated loan guaranteed by ICO plus €9m in direct grant as compensation for damages caused between March 29 2020 and May 23 2020. Air Nostrum requested aid from the SEPI but this has not been approved at the time of writing.

MS	Company Type	Name	Amount, millions	Support type	Details and conditions
ES	Airline	Vueling	€ 260	Loan	The five-year loans will be channelled via a syndication of banks. Condition: - Restrictions on upstream of cash to other IAG companies.
ES	Airline	Air Europa	€615	Loan	On November 3, 2020, the Spanish government approved two credits for Air Europa: a loan worth €235 million and another participatory loan of €240 million. Air Europa also received a syndicated loan of €140m guaranteed by ICO.
ES	All	Air transport sector	Up to €10,000	Hybrid debt instruments	
FI	Airline	Finnair	€1,237/€63	Credit guarantee Recapitalisation, loan	The government provided guarantees to 90% of a €600m loan, then the parliament approved a mandate of up to €700m for recapitalisation arrangements. €286m were used for direct recapitalisation and €351m for a hybrid loan, both agreed by the European Commission. A further €63m of public money is still available.
FI	Airport	Finavia	€350	Capital injection, subordinated loan, damage compensation	249 M€ capital injection, 33 M€ subordinated loan, 68 M€ the damage compensation measure. Conditions include a ban on bonuses for management until 75% of recapitalisation is redeemed, a ban on acquiring stakes over 10% in other operators, and publishing information on the use of aid received towards the green and digital transformation.
FI	ANSP	Fintraffic ANS	€6.3	State funding	ANSP (Fintraffic ANS) has received state funding 2,9 M€ in 2020 and 3,4 M€ in 2021. The funding is fully reimbursed to airspace users through ANS charging mechanism.
FI	Ground handling	Swissport Finland	€0.5		Funds from State Treasury cost support to help companies' liquidity and aiming to prevent bankruptcies.
FI	Airline	Nordic Regional Airlines	€0.5		Funds from State Treasury cost support to help companies' liquidity and aiming to prevent bankruptcies.
FR	Airline	Air France	€7,570	Loan and recapitalisation	In May 2020, the French government agreed to a €7bn bailout plan, including €4bn guaranteed loan and €3bn direct loan. In April 2021, a second Air France bailout was announced. The French State will convert its €3bn direct loan into a hybrid instrument. Another €1bn will come from a capital increase. Conditions of the loan include discontinuing domestic flights on routes where there is a train under 2.5 hours, a 50% reduction in emissions from domestic flights by 2024, and the use of biofuels. Additionally, Air France must return 18 daily slots at Paris-Orly airport to offset competitive distortions from State aid. Other conditions include a ban on dividends until the recapitalisation is redeemed, a ban on acquisitions of stakes over 10% in competitors until 75% of the recapitalisation is redeemed, a ban on cross-subsidisation of related entities in financial difficulties prior to 31 December 2019, and a requirement to publish information on the use of State aid towards greening and digitalisation.

MS	Company Type	Name	Amount, millions	Support type	Details and conditions
FR	Airline	Corsair International (France)	€137	Restructuring aid, state aid	<p>Conditions:</p> <ul style="list-style-type: none"> <li>- Restructuring aid represents less than 50% of restructuring costs.</li> <li>- Aid is accompanied with a restructuring plan to restore the viability of Corsair by 2023, including reduction of staff costs, concentration on core profitable routes to French overseas territories, fleet optimisation and abandoning lossmaking routes</li> <li>- Competition measures including not acquiring interest or holdings in other companies, not increasing fleet above that already ordered, not opening new routes except those in the restructuring plan, divest slots, close its Paris-Miami route, and divest customer service activities at Paris-Orly airport.</li> </ul>
FR	Airline	La Compagnie	€10	Loan guarantee	
FR	Airport	All French airports	€550	Repayable advance	86 airports benefitted from funding towards safety and security measures. €300m available in 2020, €250m in 2021.
FR	Manufacturers	Manufacturers		Loan	In order to provide a specific response to SMEs and ETIs in the aeronautics sector which, due to the slowdown in aircraft production rates, are experiencing a sharp increase in their inventory and financing requirements, the State-guaranteed loan (PGE) has been reinforced by an "Aero" PGE to meet their specific needs. They were able to benefit from the new partial activity scheme, then from the exceptional long-term partial activity scheme. In addition, the Ministries of the Armed Forces and of the Interior have anticipated orders worth more than €800m.
HR	Airline	Croatian Airlines	€12	State aid	The measure aims at compensating the airline for the losses directly caused by the coronavirus outbreak and the travel restrictions in the period between 19 March 2020 and 30 June 2020.
HR	Airport	International airports	€0.8 per airport (9 airports)	State guarantee	This is part of the overall state aid programme for the transport sector and users can apply on a voluntary basis. No support aid has been granted as of yet.
IE	Airport	Irish airports	confidential		Confidential
IE	Airline	Aer Lingus	€150	Debt facility	€150 million commercial debt facility from the Irish Strategic Investment Fund to Aer Lingus to support its liquidity needs given the severe impact of the pandemic across the aviation sector. Ryanair was also offered access to this fund.
IE		DAA	€40	Bond issue participation	€40 million participation in € 500 million public bond issuance.
IE	Airline	Stobart Air	€29	Ongoing funding support	Not in response to COVID-19 pandemic

MS	Company Type	Name	Amount, millions	Support type	Details and conditions
IE	Airports / Airline	Irish airports and airlines	€267	Multiple supports	<p>Horizontal Enterprise Supports. From IGEES:</p> <p>It is estimated that by end-June 2021, the aviation sector will have received approximately €267 million in horizontal supports (Department of Transport, 2021). Supports included the Temporary Covid-19 Wage Subsidy Scheme (TWSS), the Employment Wage Subsidy Scheme (EWSS) and the waiving of commercial rates. These schemes are non-reimbursable. The €267 million figure reported is an estimate. It does not include, however, other horizontal supports drawn down by the sector such as tax deferrals, the Covid Restrictions Support Scheme (CRSS), the credit guarantee scheme and the Strategic Banking Corporation of Ireland's (SBCI) Working Capital Scheme (Seanad Éireann debate, 2021). Of this €267m a considerable proportion of it is attributed to income supports (TWSS and EWSS). The EWSS remains in effect until 30 April 2021. Other horizontal supports availed of by businesses in this sector have also been extended such as the CRSS and the Commercial Rates waiver scheme which have been extended until 31 December and 30 September 2021 respectively. As part of the national recovery plan, further horizontal supports will be made available to enterprises in particular for businesses in sectors for which easing restrictions will be slower, such as restrictions around international travel (Economic Recovery Plan, 2021). These supports include the Business Resumption Support Scheme (BRSS) and the Covid-19 Deferred Payment Scheme.</p>
IT	Airline	Alitalia	€297/€3,000	State aid/Takeover	<p>The government has earmarked €3 billion for nationalization. That is subject to agreement by the EC. Additionally, the EC has to decide on the €1.3 billion state aid that was already granted to Alitalia in 2017 and 2019. To date, for purpose of coronavirus relief, the European Commission has approved €297m in aid to the airline.</p>
IT	Airline	Alitalia	€12	Direct grant	<p>Additional aid measure to compensate Alitalia for further damages suffered on certain specific routes from 1 to 31 January 2021 due to the emergency measures and travel restrictions necessary to limit the spread of the virus. The support will take the form of a €12.835 million direct grant, which corresponds to the estimated damage directly caused to the airline in that period according to a route-by-route analysis of the eligible routes.</p>
IT	Airline	Alitalia	€39	Direct grant	<p>Additional aid measure to compensate Alitalia for further damages suffered on certain specific routes from 1 March to 30 April 2021 due to the emergency measures necessary to limit the spread of the virus. The support will take the form of a €39.7 million direct grant, which corresponds to the estimated damage directly caused to the airline in that period according to a route-by-route analysis of the eligible routes.</p>
IT	Airline	ITA	€1,350	Capital injection (at market conditions, hence not considered state aid)	<p>As part of the present decision, the Commission also assessed whether certain capital injections by the Italian State into ITA, amounting to €1.35 billion over the next three years (of which €700 million this year), would be carried out at market conditions and therefore do not amount to State aid.</p> <p>Under EU State aid rules, public interventions in favour of companies can be considered free of State aid,</p>



MS	Company Type	Name	Amount, millions	Support type	Details and conditions
					<p>when the State acts not as a public authority, but on terms that a private operator would have accepted under market conditions (the market economy operator principle – “MEOP”).</p> <p>The Commission found that the investment in ITA would give the Italian State a return that a private investor would also accept.</p>
IT	Airlines	Air Dolomiti, Neos, Blue Panorama	€130		The Measure will take the form of a grant paid by a compensation fund (“Fund”) of €130 million that is financed by the general budget of the Italian State. The aid paid to the beneficiaries will be net of any amount recovered from insurance, litigation, arbitration or other source for the same damage. Potential beneficiaries of the Measure are all airlines (except Alitalia). The Italian authorities submitted that there are only three eligible carriers that fulfil all those requirements: Air Dolomiti, Blue Panorama and Neos.
IT	Ground handlers	Italian ground handlers	€65	State aid	From the beginning of 2022, the Italian handlers will receive a total sum of €65m as state aid approved by European Commission, proportionally to the losses as stated in the Italian Decree. The process will begin in January 2022.
IT	Airports	Italian airports	€735	Direct grant	€800 million Italian scheme to compensate airports and ground-handling operators for the damage suffered due to the coronavirus outbreak, which was approved by the Commission in July 2021. A claw-back mechanism will ensure that any public support received by the beneficiaries in excess to the actual damage suffered will have to be paid back to the Italian State.
IT	Airport	Italian airports		Suspension of taxes	Italian Government has also suspended from July to December 2021 the application of the Municipality tax (€ 6.50 per departing passengers) at airports with a traffic below 1 million departing passengers in 2019. This measure, despite resulting in state aid, has not been notified to EC. The measure has expired on 31.12.2021.
IT	Airport	Toscana Aeroporti	€10	Direct grant	Compensation for damages caused by the lockdown between 10 March 2020 and 3 June 2020.
LT	Airport	Lithuanian Airports	€2.2	Reimbursement for salary expenses	
LT	Airport	Lithuanian Airports	€0.07	Reimbursement for C19 expenses	
LT	Airport	Lithuanian Airports	€9.7	Delay of profit distribution	
LV	Airline	airBaltic	€250	Recapitalisation	<p>Following this aid, the Latvian state’s shareholding in airBaltic will increase from 80.05% to 91%.</p> <ul style="list-style-type: none"> <li>- M&amp;A ban</li> <li>- Dividend ban</li> </ul>

MS	Company Type	Name	Amount, millions	Support type	Details and conditions
					- Share buyback ban
LV	Airport	Riga International Airport	€39.7	Direct equity investment, dividend waiver	Riga Airport have received state aid support of the share capital of Riga Airport by 35.2 million euros and leaving the dividends of the profit for 2019 in the amount of 4.5 million euros at the disposal of the company.
LV	ANSP	JSC Latvijas gaisa satiksme	€6	Direct equity investment	
LV	ANSP	JSC Latvijas gaisa satiksme		Loan	Loan from EUROCONTROL.
NL	Airline	KLM	€3,400	Loan and loan guarantee	The Dutch government will directly loan KLM €1bn and will guarantee a further €2.4bn of loans. There are binding climate commitments for KLM to reduce CO <sub>2</sub> per passenger km to -50% on 2005 levels (increased from previous target of -15%), use a minimum of 14% of sustainable aviation fuel in 2030, the implementation of plans to reduce hindrance, ultra-fine particles, nitrogen, and the implementation of Air Rail; and reducing the number of flights at Schiphol to a maximum of 25,000. Air France KLM note that this support also came with conditions of a unit cost target and a salary decrease. State aid was reapproved by the Commission after the General Court annulled the original approval; the Commission provided further information to justify the reapproval under the terms of the Temporary Framework.
NL	Airline	KLM	€918	Wage support	The NOW is a general support measure, for which all Dutch companies can apply for.
NL	Airport	Royal Schiphol Group	€112	Wage support	Schiphol Group received €112m in 2020 as Employment wage subsidy (NOW-arrangement). This arrangement was applicable to all Dutch companies.
NL	Airline	Winair	USD 3 million	Collateralised loan	
PL	Airline	LOT	€ 650	Loan and recapitalisation	The Polish government has worked on a bailout of 2.9 billion złoty (ca €650 million), coming as a 1.8 billion złoty loan and 1.1 billion złoty recapitalization. The plan was agreed by the EC. Related to recapitalization: - M&A ban - Dividend ban - Share buyback ban - Cross-subsidization ban.

MS	Company Type	Name	Amount, millions	Support type	Details and conditions
PL	Airport	Polish airports	€32	Direct grant	€32 million Polish aid scheme to compensate airports for damage suffered due to coronavirus outbreak approved by the Commission in September 2020. The scheme includes a claw-back mechanism, whereby any possible public support in excess of the actual damage received by the beneficiaries will have to be paid back to the Polish State.
PT	Airline	SATA Air Açores	€133	Loan	As an airline which was facing financial difficulties prior to the crisis, it was eligible for this loan only under the restructuring aid guidelines. At the same time, the Commission is investigating whether other aid granted to the airline meets criteria established in 2014.
PT	Airline	TAP	€2,550	Equity / quasi-equity	€2.55bn restructuring package. €1.2bn original aid package was annulled by the General Court and reapproved by the Commission after providing further information. Conditions: <ul style="list-style-type: none"> <li>- split business into two airlines, TAP Air Portugal and Portugalia.</li> <li>- non-core assets to divest including subsidiaries in maintenance in Brazil, catering and groundhandling</li> <li>- TAP SGPS and TAP Air Portugal banned from any acquisitions.</li> <li>- Reduce fleet until end of restructuring plan, streamline network and adjust to latest forecasts of demand not returning to pre-crisis levels before 2023.</li> <li>- Make up to 18 daily slots available at Lisbon airport to a competing carrier.</li> </ul>
PT	Airline	TAP	€569	Loan	Aid measure to compensate TAP for the damage it suffered between 19 March and 30 June 2020 as a direct result of the measures introduced to limit the spread of the coronavirus. The support will take the form of a €462 million loan that may be converted into capital and disbursed to TAP in one or several instalments. Also includes €107.1m in compensation for damages suffered between 1 July 2020 and 30 December 2020.
PT	Airline	SATA Air Açores	€268	Direct grant; liquidity support	€12 million in compensation due to damages suffered as a direct result of travel restrictions imposed due to the coronavirus outbreak, plus up to €255.5 million additional liquidity support to SATA Air Açores. The support will take the form of a €12 million direct grant. The measure provides that, following appropriate reporting by SATA to the Commission at the end of the financial year, any public support in excess of the actual damage suffered will have to be returned to Portugal.
PT	ANSP	Portuguese ANSP	€31	Loan	The Portuguese ANSP received 1 State-loan in 2020. Amount: 31 million €; Interest rate: 1,5%; Maturity: 2 years.
RO	Airline	Blue Air	€ 62	Loan guarantee	Approved as a loan guarantee.

MS	Company Type	Name	Amount, millions	Support type	Details and conditions
RO	Airline	TAROM	€19	Loan guarantee	Approved as a loan guarantee. The measure aims to compensate the airline for the losses directly caused by the coronavirus outbreak and the travel restrictions introduced by Romania and other destination countries to limit the spread of the coronavirus in the period between 16 March 2020 and 30 June 2020.
RO	Airline	TAROM	€190	Direct subsidy, capital injection, debt write-off	The restructuring plan sets out a package of measures for streamlining TAROM's operations, renewing its ageing fleet and reducing costs. Romania plans to support the restructuring with around €190 million of public funding. This support would take the form of a capital injection, a direct subsidy and a debt write-off of the rescue aid amount (approximately €36.7 million) and its corresponding interest.
RO	Airport	Romanian airports	RON22.3	State aid	The Government approved on September 24, 2020 an Emergency Government Ordinance on some measures to support the activity of 5 regional airports, to compensate the losses registered as a result of the COVID-19 pandemic, during March-June 2020. The total value of the state aid that will be granted is 22,284 million lei. The five beneficiary airports are: - Cluj International Airport: 8.537 million lei; - Iasi International Airport: 6 million lei; - Sibiu International Airport: 3.966 million lei; - Craiova International Airport: 630,000 lei; - Bacau International Airport: 3.149 million lei.
RO	Airport	Timisoara Airport	€2.8	State aid	The European Commission has approved 2 state aids for Timisoara Airport, the first in the amount of approximately €1 million and the second of €1.8 million.
SI	Airport	Fraport Slovenija	€5	Direct grant	The aid measure, which will take the form of a direct grant, will allow the Slovenian authorities to compensate the airport for the revenue losses suffered during the period between 17 March and 30 June 2020. The aid measure includes a claw-back mechanism, whereby any possible public support in excess of the actual damage received by the beneficiary will have to be paid back to the Slovenian State.
SI	ANSP	Slovenia Control	€4.6	State aid	Slovenia Control, Ltd. received certain state funding (state-aid) as part of the general state measures (legislative packages) to mitigate negative effects of the COVID-19 pandemic for all economic entities: - reimbursement of pension and disability insurance contributions: circa €1m in 2020; - partial reimbursement of uncovered fixed costs: €0.675m in 2020 and €1.996m in 2021; - refunds of wage compensation for workers on temporary waiting for work: €0.225m in 2020 and €0.747m in 2021.

MS	Company Type	Name	Amount, millions	Support type	Details and conditions
SE	Airline	All airlines operating in Sweden	€318	Loan guarantee	Total pot of €455m has been made available to all airlines registered in Sweden. SAS has been loaned €137m and that has been deducted from this amount and included in the overall support provided to SAS by Sweden and other countries. The remaining €318m remains available for SAS and other Swedish airlines.
SE	Airport	Swedavia	SEK3150	Capital injection	
SE	CAA	LFV	SEK900	Capital injection	
SE	Airport	Non-state-owned airports	SEK100	Temporary support	
SE	Air Traffic Control	Air Traffic Control services	€16.3	Subsidised loan	€16.3 million Swedish scheme to support air traffic control services affected by the coronavirus outbreak. The aim of the scheme is to cover the losses for the years 2020 and 2021 incurred by small and medium sized companies active in air traffic management, which have suffered significant losses in revenues due to these drops in the number of flights performed. Under the scheme, the public support will take the form of loans provided by the Swedish National Transport Administration (Trafikverket) with subsidised interest rates. The Commission found that the Swedish scheme is in line with the conditions set out in the Temporary Framework. In particular, (i) the maturity of the loans is limited to six years, (ii) a 1% flat rate interest rate applies for the entire duration of the loans, (iii) the amount of the loans corresponds to the level foreseen in the Temporary Framework, (iv) the loans relate to working capital needs, and (v) the loan contracts will be signed by 31 December 2021 at the latest.
SE/ DK	Airline	SAS - Scandinavian Airlines (Sweden/Denmark)	€1,070	Credit guarantee	State recapitalisation of SAS of up to SEK 11 billion (approximately €1 billion), of which about SEK 6 billion (approximately €583 million) will be provided by Denmark and SEK 5 billion (approximately €486 million) by Sweden. This replaced €177m in loans provided by Sweden and Denmark, however it appears that the €130m loan from Norway remains unaffected, creating a total of €1070m. Conditions: <ul style="list-style-type: none"> <li>- SAS to reduce its CO<sub>2</sub> emissions.</li> <li>- M&amp;A ban</li> <li>- Dividend ban</li> <li>- Share buyback ban</li> <li>- Cross-subsidization ban.</li> </ul>
SK	ANSP	LPS		Direct equity injection	

MS	Company Type	Name	Amount, millions	Support type	Details and conditions
CH	Airline	Swiss Airlines and Edelweiss Air	CHF1500	Loan	Swiss Parliament gave green light to a CHF 1.5bn loan and guarantee of 85% to the Swiss airlines. Condition from the Swiss government: state aid must remain in Switzerland and jobs are retained. The government forbade dividends or other payments by carriers until the assistance has been repaid. Other conditions include financial requirements (interest rate, guarantee premium) and policy requirements (development of Zurich location within the Lufthansa Group compared to other Lufthansa hubs). Other conditions: - Sufficient collateral - Dividend ban - Cross-subsidization ban - To benefit of Swiss infrastructure.
CH	ANSP	Skyguide	CHF500	Loan	Loan from Federal Council to cover liquidity issues caused by the crisis. Cost savings of CHF 100 million were requested as a condition for support; this will have to be increased due to new requirement to increase efficiency in order to recover losses from airspace users from 2023.
CH	Aircraft maintenance company	Aircraft Maintenance Company SR Technics	CHF120	Loan, loan guarantee	120 million CHF loan by banks, backed by a federal government guarantee. In this case the guarantee only covers 60% of the loan amount. In addition to various financial requirements there are also policy and labour law related conditions.
IS	Airport	Isavia	ISK4000 disbursed, ISK 15000 authorised for 2021	Share capital	Both authorizations are conditional on job preservation, cost rationalization and Covid-19 damages.
IS	Airline	Icelandair	0	State guarantee	90% coverage up to USD 120 mill. worth of loan agreements.
NO	Airline	Widerøe and small regional carriers in Norway	€121	Loan guarantee	One-quarter of Norway's rescue package for airlines (loan guarantee of NOK 6 billion (\$549 million)) will be divided between Widerøe, which offers key regional service, and other small regional airline operators.
NO	Airline	Norwegian Air Shuttle	€439	Loan guarantee	Financial conditions relating to debt/equity levels were attached to these loans. Norwegian shareholders have backed up a plan to hand majority ownership to the airline's creditors, which will allow to unlock full state aid. Norwegian Airlines requested more public money in November 2020, but Norway's government refused, considered it was too "risky" for the taxpayers and "not defensible".
NO	Airport	Avinor (Norway)	NOK3600	Subsidy	

MS	Company Type	Name	Amount, millions	Support type	Details and conditions
NO	Airport	Avinor (Norway)	NOK444.4	Exemption from repayment on state loans	
NO	Airport	Avinor (Norway)	NOK351	Exemption from dividends	
NO	Airline	All airlines using Avinor airports (Norway)	~NOK370	Exemption from airport charges paid as remuneration for airport services	
UK	Airline	EasyJet	€2,344	Loan	An initial government loan of GBP 600m (ca €703m) was provided at the start of the crisis, followed with a government backed loan of GBP 1,4 bn (ca €1,641m) in January 2021.
UK	Airline	Wizz Air	€352	Loan	Wizz Air announces that it has received confirmation that it is an eligible issuer under the UK Government's Covid Corporate Financing Facility (CCFF). Related to CCFF loan: - Of investment grade standing before COVID-19 - Potential restraint on capital distributions.
UK	Airline	British Airways	€3,867	Loan, loan guarantee	£300m (€352m) loan from HM Treasury and Bank of England's coronavirus corporate finance facility (CCFF) at pre-crisis commercial interest rates. A further credit facility of £3bn (€3.52bn) was granted to IAG by the British government on the last day of 2020 Related to CCFF loan: - Of investment grade standing before COVID-19 - Potential restraint on capital distributions.
UK	Airline	Jet2.com	€234	Loan	GBP 200m of UK CCFF loan. Related to CCFF loan: - Of investment grade standing before COVID-19 - Potential restraint on capital distributions.
UK	Airline	Ryanair UK	€703	Loan	Ryanair has received a 600 million GBP loan from the UK Covid-19 corporate financing facility. Conditions: Related to CCFF loan: - Of investment grade standing before COVID-19 - Potential restraint on capital distributions.
UK	ANSP	NATS	GBP92	Loan	Loan from EUROCONTROL.



MS	Company Type	Name	Amount, millions	Support type	Details and conditions
UK	Airport / ground handling	UK airports / ground handlers	£8m, £4m per successive round		Airport and Ground Operators Support Scheme.

Source: Steer analysis, Greenpeace, European Commission, media reports, stakeholder responses

**Table B.2: State aid provided to low-cost and full-service airlines**

Low-cost airline	Amount (EUR million unless otherwise)	Full-service carrier	Amount (EUR million unless otherwise)
easyJet (UK)	2,344	Lufthansa (DE)	9,000
Ryanair (UK)	670	Air France (FR)	7,570
Norwegian Air Shuttle (NO)	439	British Airways (UK)	3,867
Wizz Air (UK)	352	KLM (NL)	3,400
Vueling (ES)	260	TAP (PT)	1,662
Volotea (ES)	150	ITA Airways (IT)	1,350
Blue Air (RO)	62	Finnair (FI)	1,237
		Swiss Airlines	1,225
		SAS (SE/DK/NO)	1,070
		Iberia (ES)	750
		LOT (PL)	650
		Air Europa (ES)	615
		Austrian Airlines (AT)	450
		Alitalia (IT)	310
		Brussels Airlines (BE)	290
		airBaltic (LV)	250
		TAROM (RO)	209

Low-cost airline	Amount (EUR million unless otherwise)	Full-service carrier	Amount (EUR million unless otherwise)
		Aer Lingus (IE)	150
		Aegean Airlines (EL)	120
		Nordica (EE)	30
		Croatian Airlines (HR)	12
<b>Total LCC:</b>	<b>€4.3 billion</b>	<b>Total FSC:</b>	<b>€34.5 billion</b>

Source: Steer analysis, Greenpeace, European Commission, media reports, stakeholder responses

**Table B.3: State aid provided to airports and their operators**

MS	Airport/airport operator	Amount (millions)	Description
AT	Vienna Airport	€20	State support for uncovered fixed costs for non-state-owned companies (Fixkostenzuschuss).
CY	Hermes Airports	€22.2	Loan from the Republic of Cyprus, given under the Temporary Framework for State aid.
CZ	Karlovy Vary Airport	€0.04 (CZK 0.99)	
CZ	Pardubice Airport	€0.05 (CZK 1.16)	
DE	Flughafen Berlin Brandenburg	€1,700	Recapitalisation measure for Berlin Brandenburg Airport. Conditions include the German state creating an exit strategy within 12 months of the aid being granted if state ownership is 25+%, limitations on remuneration of managers and a ban on bonuses until 75% of recapitalisation is redeemed, a ban on acquisitions of over 10% of the stake of competitors, and agreements to not offer discounts to airlines or expand its capacity.
DE	Flughafen Berlin Brandenburg	€851	Support for loss of income during March 4 2020 (€98.8m, subsidy) to June 30 2020 and January 1 2021 to November 9 2021 (€753.2m, low-interest loans).
DE	Flughafen München	€253	Subsidy
DE	Flughafen Koeln Bonn	€75	In payment in capital reserve.

MS	Airport/airport operator	Amount (millions)	Description
DE	Multiple German airports	€400	11 German airports (BRE, DRS, DUS, FMO, FRA, HAJ, HAM, LEJ, NUE, SCN, STR) received around €400m in compensation for damages during the first lockdown in 2020; 2 airports partially state-owned received compensation in the form of equity. Other airports have received additional loans under local frameworks e.g. €50m support to regional airports for air navigation services.
DK	13 Danish airports	€4	Direct grant per departing passenger from August 1 to December 21 2020. The aid represents 25% of eligible airport charges, and is implemented in tandem with an equivalent aid measure for airlines.
EL	Fraport Greece	€177.9	Finance Ministry bill that will pay Fraport Greece €177.9 million as aid compensating for losses due to the restrictive measures imposed to contain the coronavirus
EL	Athens International Airport	€110	€110 million aid to compensate Athens international airport for the damage suffered due to the coronavirus outbreak, approved by the Commission in February 2021.
FI	Finavia	€350	€249m capital injection, €33m subordinated loan, €68m in damage compensation. Conditions include a ban on bonuses for management until 75% of recapitalisation is redeemed, a ban on acquiring stakes over 10% in other operators, and publishing information on the use of aid received towards the green and digital transformation.
FR	French airports	€550	86 airports benefitted from funding towards safety and security measures. €300m was provided in 2020, and €250m in 2021.
HR	International airports	€7.2 (according to OECD, has not been used)	€0.8m per airport, 9 airports eligible. Part of the overall state aid programme for the transport sector and users can apply on a voluntary basis. Not clear that any of the available funds have been used by airports.
IE	Irish airports	(confidential)	Confidential
IT	Italian airports	€735	€800 million Italian scheme to compensate airports (€735m) and ground-handling operators (€65m) for the damage suffered due to the coronavirus outbreak, which was approved by the Commission in July 2021.
IT	Italian airports	-	Italian Government has also suspended from July to December 2021 the application of the Municipality tax (€ 6.50 per departing passengers) at airports with a traffic below 1 million departing passengers in 2019. This measure, despite resulting in state aid, has not been notified to EC. The measure has expired on 31.12.2021.
LT	Lithuanian Airports	€12	Reimbursement for salary expenses (€2.2m), COVID-19-related expenses (€0.07m) and delay of profit distribution (€9.7m).
LV	Riga International Airport	€39.7	Riga Airport have received state aid support of the share capital of Riga Airport by €35.2 million and leaving the dividends of the profit for 2019 in the amount of €4.5 million at the disposal of the company.
PL	Polish airports	€32	€32 million Polish aid scheme to compensate airports for damage suffered due to coronavirus outbreak approved by the Commission in September 2020.

MS	Airport/airport operator	Amount (millions)	Description
RO	Romanian airports	€4.5 (RON 22.3)	The Government approved on September 24, 2020 an Emergency Government Ordinance on some measures to support the activity of 5 regional airports (Cluj, Iasi, Sibiu, Bacau, Craiova), to compensate the losses registered as a result of the COVID-19 pandemic, during March-June 2020. The total value of the state aid that will be granted is 22,284 million lei.
RO	Timisoara Airport	€2.8	The European Commission has approved 2 state aids for Timisoara Airport, the first in the amount of approximately €1 million and the second of €1.8 million.
SI	Fraport Slovenija	€5	Direct grant to compensate the airport for the revenue losses suffered during the period between 17 March and 30 June 2020
SE	Swedavia	€297 (SEK 3150)	Capital injection from the Swedish state.
SE	Non-state-owned airports	€9.4 (SEK 100)	Temporary support
IS	Isavia	€105.8 (ISK 15000)	Share capital injection. Both authorizations are conditional on job preservation, cost rationalization and Covid-19 damages.
NO	Avinor	€735.1 (NOK 7400)	Government subsidies in 2020 (NOK 3.6bn) and 2021 (NOK 3.8bn) were granted to allow Avinor to meet its minimum equity ratio requirement of 40% included in the company bylaws – the government waived this requirement temporarily from October to December 2021 and has no plans to give government grants in 2022.
<b>Total</b>		<b>€6.7bn</b>	

Source: Steer analysis, Greenpeace, European Commission, media reports, stakeholder responses

**Table B.4: State aid provided to groundhandling companies**

MS	Company	Amount, millions	Description
BE	Aviapartner	€25	€25 million Belgian aid to support the ground handling service provider Aviapartner, approved by the Commission in July 2020. The aim of the recapitalisation measure is to ensure that Aviapartner has sufficient liquidity to continue its operations.
FI	Swissport Finland	€0.5	Funds from State Treasury cost support to help companies' liquidity and aiming to prevent bankruptcies
IT	Italian groundhandling companies	€65	From the beginning of 2022, the Italian handlers will receive a total sum of €65m as state aid approved by European Commission, proportionally to the losses as stated in the Italian Decree.
<b>Total</b>		<b>€90.5m</b>	

Source: Steer analysis, media reports, stakeholder responses

**Table B.5: State aid to ANSPs**

State-aid	Loan
ANS CR (CZ), ANS Finland (FI), Austro Control (OS), DFS from DE (b), LGS from LV (a,b), LPS from SK (b), NATS from UK (a), NAVIAIR (DK), skeyes from BE (a), Slovenia Control (SI)	
Skyguide of CH (b), Avinor of NO (b)	Croatia Control (HR), DSNA (FR), EANS from EE (a), HungaroControl (HU), IAA (IE), LVNL from NL (c), MATS from MT (a), NAV Portugal (PT), Oro Navigacija from LT (a), PANSAs (PL), ROMATSA (RO)

Source: Special report on the impact of the COVID-19 pandemic on the U.S. and European ANS systems. Note that (a) refers to EUROCONTROL loans, and (b) refers to an Increase in equity. In the case of Avinor from the parent company, which is a State-owned enterprise.



## C Connectivity tables

Table C.1: Number of direct routes operated from each Member State

	Domestic				Intra-EU+3				Extra-EU+3			
	2019	2020	2021	2019-2021 Δ	2019	2020	2021	2019-2021 Δ	2019	2020	2021	2019-2021 Δ
Austria	4	4	3	-25%	149	131	125	-16%	104	89	62	-40%
Belgium	-	-	-	-	210	165	179	-15%	122	101	85	-30%
Bulgaria	3	3	3	-17%	105	74	90	-14%	57	42	33	-42%
Croatia	13	11	12	-8%	162	64	118	-27%	67	27	40	-40%
Cyprus	-	-	1	-	58	45	62	7%	76	59	72	-5%
Czechia	1	1	1	100%	108	64	85	-21%	71	45	42	-41%
Denmark	10	9	8	-20%	152	115	117	-23%	85	61	47	-45%
Estonia	2	2	2	-	32	19	26	-19%	13	8	7	-46%
Finland	21	21	18	-14%	86	59	48	-44%	55	37	29	-47%
France	155	151	152	-2%	569	405	472	-17%	552	418	342	-38%
Germany	65	67	54	-18%	957	750	722	-25%	648	504	450	-31%
Greece	71	66	70	-2%	450	254	441	-2%	207	141	192	-7%
Hungary	-	-	1	-	89	84	76	-15%	57	46	34	-40%
Ireland	2	2	2	-	159	126	124	-22%	102	81	57	-44%
Italy	177	171	213	21%	875	603	748	-15%	481	330	238	-51%
Latvia	1	1	-	-100%	66	45	57	-14%	29	18	20	-31%
Lithuania	-	-	-	-	64	48	50	-22%	28	24	23	-18%
Luxembourg	-	-	-	-	54	43	55	2%	13	8	13	-



	Domestic				Intra-EU+3				Extra-EU+3			
	2019	2020	2021	2019-2021 Δ	2019	2020	2021	2019-2021 Δ	2019	2020	2021	2019-2021 Δ
Malta	-	-	-	-	83	60	68	-18%	31	24	17	-45%
Netherlands	2	2	2	-	236	197	211	-11%	173	146	140	-19%
Poland	14	14	16	14%	344	275	299	-13%	207	174	157	-24%
Portugal	33	35	34	2%	215	177	182	-15%	126	104	108	-14%
Romania	10	10	8	-20%	177	163	194	10%	58	49	49	-16%
Slovakia	-	-	-	-	31	14	12	-61%	31	17	17	-45%
Slovenia	-	-	-	-	14	9	7	-50%	13	8	8	-38%
Spain	188	175	193	3%	917	651	751	-18%	516	378	365	-29%
Sweden	50	45	40	-20%	187	126	121	-35%	82	58	57	-30%
<b>EU27</b>	<b>819</b>	<b>788</b>	<b>829</b>	<b>1%</b>	<b>6,549</b>	<b>4,766</b>	<b>5,440</b>	<b>-17%</b>	<b>4,004</b>	<b>2,997</b>	<b>2,704</b>	<b>-32%</b>
Iceland	12	11	11	-9%	36	24	27	-25%	40	22	20	-50%
Norway	114	112	104	-9%	172	113	104	-40%	55	40	25	-55%
Switzerland	2	1	1	-50%	232	201	209	-10%	166	135	125	-25%
<b>EU27+3</b>	<b>946</b>	<b>911</b>	<b>944</b>	<b>-0%</b>	<b>6,989</b>	<b>5,104</b>	<b>5,780</b>	<b>-17%</b>	<b>4,265</b>	<b>3,194</b>	<b>2,874</b>	<b>-33%</b>

Source: OAG Schedules Analyser, Steer analysis

Table C.2: Average weekly frequencies operated from each Member State

	Domestic				Intra-EU+3				Extra-EU+3			
	2019	2020	2021	2019-2021 Δ	2019	2020	2021	2019-2021 Δ	2019	2020	2021	2019-2021 Δ
Austria	94	33	24	-74%	1,991	805	764	-62%	727	270	284	-61%
Belgium	-	-	-	-	1,844	698	797	-57%	635	226	262	-59%
Bulgaria	26	19	18	-30%	411	218	242	-41%	262	114	102	-61%
Croatia	89	56	71	-20%	561	164	289	-49%	213	49	82	-62%
Cyprus	-	-	0	-	253	118	166	-35%	632	193	260	-59%
Czechia	1	1	1	0	836	240	254	-70%	444	138	126	-72%
Denmark	252	148	170	-32%	1,922	695	702	-63%	570	197	168	-71%

	Domestic				Intra-EU+3				Extra-EU+3			
	2019	2020	2021		2019	2020	2021		2019	2020	2021	
Estonia	24	18	24	1%	287	108	106	-63%	52	17	14	-72%
Finland	412	188	167	-59%	1,119	381	326	-71%	356	106	89	-75%
France	2,438	1,257	1,457	-40%	4,995	1,830	2,329	-53%	4,036	1,718	1,503	-63%
Germany	2,318	843	596	-74%	9,295	3,408	3,739	-60%	4,609	1,639	1,850	-60%
Greece	1,005	570	760	-24%	1,618	672	1,208	-25%	849	304	479	-44%
Hungary	-	-	0	-	717	304	252	-65%	340	152	99	-71%
Ireland Republic of	28	27	25	-11%	1,166	434	445	-62%	1,368	449	330	-76%
Italy	2,460	1,271	1,702	-31%	5,689	1,977	2,409	-58%	2,760	860	748	-73%
Latvia	4	2	-	-100%	524	207	203	-61%	240	75	55	-77%
Lithuania	-	-	-	-	337	145	139	-59%	136	66	59	-56%
Luxembourg	-	-	-	-	432	179	204	-53%	81	24	24	-71%
Malta	-	-	-	-	323	140	164	-49%	145	55	51	-65%
Netherlands	2	2	1	-33%	3,184	1,504	1,793	-44%	1,989	809	807	-59%
Poland	277	152	129	-53%	2,053	900	899	-56%	963	467	413	-57%
Portugal	529	299	407	-23%	2,123	910	1,120	-47%	952	354	422	-56%
Romania	164	83	96	-41%	971	526	599	-38%	398	212	211	-47%
Slovakia	-	-	-	-	89	24	16	-83%	81	31	25	-69%
Slovenia	-	-	-	-	113	23	26	-77%	86	18	16	-81%
Spain	3,758	1,897	2,504	-33%	6,844	2,478	3,457	-49%	3,930	1,299	1,445	-63%
Sweden	1,004	433	405	-60%	1,834	628	625	-66%	449	158	135	-70%
<b>EU27</b>	<b>14,884</b>	<b>7,297</b>	<b>8,559</b>	<b>-42%</b>	<b>51,531</b>	<b>19,715</b>	<b>23,274</b>	<b>-55%</b>	<b>27,303</b>	<b>9,997</b>	<b>10,062</b>	<b>-63%</b>
Iceland	110	78	88	-20%	222	88	91	-59%	207	63	69	-67%
Norway	2,203	1,639	1,732	-21%	1,479	536	467	-68%	331	116	77	-77%
Switzerland	80	22	22	-73%	2,931	1,062	1,202	-59%	1,356	512	483	-64%
<b>EU27+3</b>	<b>17,277</b>	<b>9,036</b>	<b>10,401</b>	<b>-40%</b>	<b>56,162</b>	<b>21,401</b>	<b>25,034</b>	<b>-55%</b>	<b>29,197</b>	<b>10,689</b>	<b>10,692</b>	<b>-63%</b>

Source: OAG Schedules Analyser, Steer analysis (Iceland, Norway, Switzerland and UK "Intra-EU" flights are to EU27 destinations)

**Table C.3: Proportion of non-stop itineraries by journey type**

Final destination → Origin ↓	Domestic				Intra-EU				Extra-EU			
	2019	2020	2021	2019-2021 Δ	2019	2020	2021	2019-2021 Δ	2019	2020	2021	2019-2021 Δ
Austria	95.2%	96.7%	98.9%	4pp	89.5%	89.9%	90.6%	1pp	62.8%	65.0%	64.4%	2pp
Belgium	-	-	-	-	94.1%	92.5%	91.9%	-2pp	65.7%	65.7%	71.3%	6pp
Bulgaria	100.0%	99.7%	99.9%	-0pp	85.9%	90.4%	89.8%	4pp	73.8%	79.8%	73.6%	-0pp
Croatia	98.6%	98.7%	97.4%	-1pp	81.9%	77.0%	83.8%	2pp	63.1%	57.6%	63.2%	0pp
Cyprus	-	-	-	-	83.4%	84.6%	83.4%	0pp	83.0%	77.3%	72.8%	-10pp
Czechia	-	-	-	-	89.9%	87.3%	87.6%	-2pp	65.1%	68.0%	66.5%	1pp
Denmark	98.1%	98.0%	97.3%	-1pp	86.5%	84.2%	84.3%	-2pp	62.6%	61.8%	54.8%	-8pp
Estonia	-	-	-	-	58.6%	59.2%	56.0%	-3pp	45.6%	46.5%	47.1%	1pp
Finland	96.6%	96.7%	99.4%	3pp	76.7%	71.0%	66.4%	-10pp	54.9%	54.1%	52.7%	-2pp
France	96.8%	96.2%	96.7%	-0pp	90.0%	88.0%	88.3%	-2pp	71.1%	71.4%	72.9%	2pp
Germany	97.1%	96.9%	98.2%	1pp	89.1%	87.1%	89.3%	0pp	64.6%	64.0%	68.0%	3pp
Greece	97.2%	96.3%	95.3%	-2pp	89.2%	88.5%	88.5%	-1pp	70.6%	73.4%	70.5%	-0pp
Hungary	-	-	-	-	90.8%	91.2%	87.5%	-3pp	73.1%	76.6%	66.1%	-7pp
Ireland	100.0%	99.7%	100.0%	0pp	94.6%	94.0%	93.4%	-1pp	76.6%	78.3%	63.9%	-13pp
Italy	95.5%	95.6%	96.8%	1pp	90.3%	88.4%	87.6%	-3pp	62.8%	64.3%	59.2%	-4pp
Latvia	-	-	-	-	85.7%	85.1%	84.8%	-1pp	72.4%	72.6%	67.2%	-5pp
Lithuania	-	-	-	-	76.3%	77.6%	76.9%	1pp	72.7%	79.0%	71.7%	-1pp
Luxembourg	-	-	-	-	87.7%	90.1%	89.8%	2pp	57.8%	58.2%	54.0%	-4pp
Malta	-	-	-	-	92.0%	91.3%	88.4%	-4pp	80.4%	82.1%	70.9%	-10pp
Netherlands	-	-	-	-	95.7%	95.0%	95.9%	0pp	75.7%	75.0%	71.9%	-4pp
Poland	93.3%	94.6%	96.1%	3pp	85.7%	87.5%	87.7%	2pp	81.0%	85.2%	80.5%	-0pp
Portugal	94.4%	93.7%	92.1%	-2pp	90.3%	90.4%	88.9%	-1pp	77.1%	78.6%	77.0%	-0pp
Romania	98.7%	99.2%	99.0%	0pp	89.1%	91.7%	91.9%	3pp	74.5%	80.9%	76.9%	2pp
Slovakia	-	-	-	-	90.1%	89.0%	83.2%	-7pp	90.4%	92.3%	85.1%	-5pp
Slovenia	-	-	-	-	65.4%	64.5%	63.8%	-2pp	61.8%	50.3%	50.8%	-11pp
Spain	95.2%	94.6%	94.9%	-0pp	91.6%	89.3%	89.1%	-3pp	77.9%	76.7%	70.1%	-8pp
Sweden	90.4%	90.0%	88.9%	-2pp	82.3%	79.5%	79.8%	-2pp	55.7%	54.8%	50.2%	-5pp

Final destination → Origin ↓	Domestic				Intra-EU				Extra-EU			
	2019	2020	2021	2019-2021 Δ	2019	2020	2021	2019-2021 Δ	2019	2020	2021	2019-2021 Δ
<b>EU27</b>	<b>95.7%</b>	<b>95.4%</b>	<b>95.8%</b>	<b>0pp</b>	<b>89.6%</b>	<b>88.4%</b>	<b>88.7%</b>	<b>-1pp</b>	<b>70.3%</b>	<b>71.1%</b>	<b>69.0%</b>	<b>-1pp</b>
Iceland	99.4%	99.5%	99.6%	0pp	90.8%	89.4%	86.2%	-5pp	77.4%	79.7%	61.9%	-15pp
Norway	86.8%	85.3%	81.7%	-5pp	73.9%	71.5%	70.1%	-4pp	50.1%	48.2%	34.2%	-16pp
Switzerland	84.4%	99.8%	99.4%	15pp	91.3%	90.2%	91.4%	0pp	61.7%	65.3%	63.0%	1pp
<b>EU27+3</b>	<b>94.8%</b>	<b>94.1%</b>	<b>94.9%</b>	<b>0pp</b>	<b>89.2%</b>	<b>88.1%</b>	<b>88.5%</b>	<b>-1pp</b>	<b>69.7%</b>	<b>70.6%</b>	<b>68.5%</b>	<b>-1pp</b>

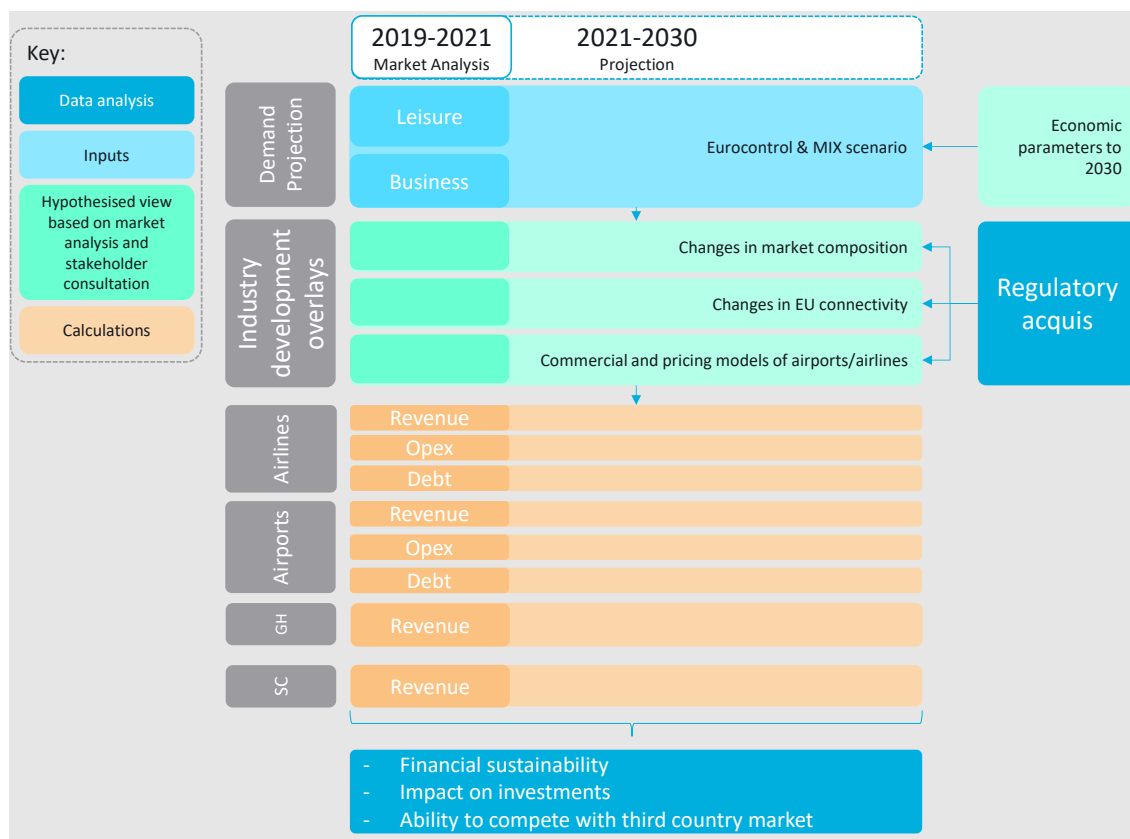
Source: OAG Traffic, Steer analysis

## D Projection tool

### Introduction

- D.1 A projection tool has been developed to respond to the requirements of the Term of Reference of the study and to allow the medium-long term impact (to 2030) of the COVID-19 pandemic on aviation industry stakeholders to be estimated.
- D.2 The projection tool draws on assumptions and information gained from the market analyses and stakeholder consultation aspects of the study and extrapolates findings to European Union level so that estimations for the full extent of the impact of COVID-19 can be estimated across the European aviation industry.
- D.3 The tool includes three core components:
1. Demand projections;
  2. Industry development overlays to determine options for the structure of the industry to 2030; and
  3. The financial sustainability of aviation stakeholder groups is estimated in EBITDA terms, with an additional allowance for the impact of COVID-19 related debt.
- D.4 The model is underpinned by **demand projections**, which estimated passengers by Member State between 2021 and 2030 before being allocated out to airports within each Member State. Three demand projections representing a base, a high, and a low case recovery from the pandemic are included in the projection tool.
- D.5 The market analysis and stakeholder consultation being conducted to answer question Clusters 1, 4, 5 and 6 allow the market structure in 2019, 2020 and 2021 to be defined and for three years of base data to be established. **Industry development overlays** were created for the period 2022-2030 based on the outputs and expected future developments found in these clusters and account for potential changes in market composition and connectivity.
- D.6 Information and outputs obtained in answering question Clusters 2 and 3 formed the financial foundations of the model and will detail changes in the financial status between 2019 and 2021 to be evaluated and a starting point for the forecast to be established in 2021.
- D.7 A series of average and expected revenues (per passenger) and costs for both the airline and airport markets is established and used to drive revenue and operating costs forecasts over the period in tandem with the passenger forecast and expected passenger development. Additionally, the impact of each industries' level of debt and how this is expected to develop to 2030 is considered with predicted cash level, which allows the long-term **financial sustainability** of the industry to be assessed.
- D.8 The figure below presents the structure of the model.

Figure D.1: Model structure



Note: "SC" stands for Slot coordinators

D.9 Due to the structure of the European airline industry<sup>186</sup>, and to assist with reconciliation to actuals, model has been split into the following markets:

- Domestic;
- Intra-EU+4; and
- Extra EU+4

## Historical data and segmentation

### Historical passenger data

D.10 Annual passenger data was compiled from Eurostat for the period 2015 to 2020 from the Air passenger transport by main airports in each reporting country (avia\_paoa) dataset. This data covers all airports in EU27 Member States as well as for IS, NO, CH and UK airports<sup>187</sup>. Data was collected separately for the Domestic, Intra-EU+4 and Extra-EU+4 markets from each airport to permit any differentiation in impacts by market to be reflected in the model. This data was extracted on 18 November 2021. Currently [March 2022] full year passenger data for 2021 was not available from Eurostat.

<sup>186</sup> easyJet, IAG, Ryanair and Wizz all contain UK bases subsidiaries.

<sup>187</sup> Data for UK airports is not available after 2019 and data from the UK Civil Aviation Authority has been used for UK airports from 2020.

- D.11 For clarity the market segmentation is structured as follows:
- The domestic market includes all travel wholly within each Member State/State
  - The intra-EU+4 market includes all cross-border flights between EU27 Member States and Iceland, Norway, Switzerland and the United Kingdom;
  - The extra-EU+4 market includes all passenger travelling to/from destinations outside of the EU27+4 Member States.
- D.12 It was important that differences in the definition of passenger accounting between airports and airlines are included in the tool when reconciling between data sets and this was ensured in the model:
- Airports count passengers separately on arrival and departure. A passenger travelling directly between Madrid and Frankfurt will be counted as a passenger in Madrid and Frankfurt; and
  - Airlines count passengers per leg of each journey being made. A passenger travelling between Madrid and Frankfurt will be counted as one passenger.
- D.13 We note that the data available from Eurostat relates to each passenger's immediate destination, rather than their ultimate destination and the data presents passengers as counted by airports rather than individual passenger journeys, however for the purposes of this model, this level of disaggregation was sufficient.
- D.14 Eurostat data was extracted back to 2015 so that the historical data set had two sets of data points consistent with the EU DEGD MIX scenario (2015 and 2020).

### Market segmentation

- D.15 Airports were categorised based on 2019 total passenger numbers. The table below outlines the five groupings used in the model.

**Table D.1: Airport groupings used (total passengers)**

Airport type	Group	Min	Max
Major Hub	1	35,000,000	100,000,000
Hub	2	15,000,000	35,000,000
Major	3	5,000,000	15,000,000
Medium	4	3,000,000	5,000,000
Regional	5	-	3,000,000

Source: Steer

- D.16 Passenger data from Eurostat does not segment passengers by airline/airline type, journey length, geographical area and journey purpose. As these factors are a core component of quantifying market impacts, it was necessary to derive market segmentation overlays to allocate passengers out between each of these markets.
- D.17 To allocate passengers out between airlines, journey length and/or geographical area, Official Aviation Guide (OAG) Schedules data was downloaded for each airport in 2019, 2020 and 2021, which provided the number of seats operated from each airport by different carriers in the domestic, intra-EU and extra-EU markets. To ensure that passengers were sufficiently disaggregated out to permit some of the cluster questions to be answered (especially



regarding very short flights and the impact on regional carriers) airline capacity from each airport was also grouped by route length/type as detailed in the table below. By splitting passengers in this way, the impact of current and potential changes due to COVID-19 as well as those from alternative forms of transport on different route length groups can be more appropriately considered.

**Table D.2: Geographical market groupings, Domestic and intra-EU markets**

Route Type	Example route	Defined by
Short – HSR Competition	Barcelona – Madrid	Route distance: 0-1000km
Short – No Competition	Amsterdam-Warsaw	Route distance: 0-1000km
Long	Copenhagen-Gran Canaria	Route distance: 1000km+
Regional	Stockholm – Lycksele	Defined by airline

- D.18 In the extra-EU market, routes were split geographically based on the final destination of each flight. The six groups used have been presented in the table below:

**Table D.3: Geographical market groupings, Extra-EU markets**

Route Type	Example route	Defined by
North America	Amsterdam-Chicago	Geography
Asia	CDG-Tokyo	Geography
South America	Madrid-Santiago	Geography
Middle East	Munich-Dubai	Geography
Africa	Brussels-Kinshasa	Geography
China	Helsinki-Beijing	Geography

- D.19 The airline market was split to groups so that the impacts on different airline operating structures and market segments could be estimated. Capacity was initially split dependent on whether it was operated by an EU or a non-EU carrier. Further market segmentation was then applied to split passengers into Network, Low-cost, Regional and Leisure airlines.
- D.20 To permit the application of airline financial data to the model, it was necessary to include some specific airlines in the airline groupings. 11 European airlines were selected from across Europe to allow the range of different airline types to be represented where sufficient financial data was also available. Passengers transported by the specific carriers included represented 75% of all passengers transported by EU airlines in 2019 (61% of all passengers). The full list of those used has been presented below.

**Table D.4: Airline groupings**

Nationality	Type	Network	Low Cost	Regional	Leisure
EU	Specific	AFKLM	Ryanair	SATA	
		Air Baltic	EasyJet	Widerøe	
		IAG	Wizz		
		Lufthansa Group			
		SAS			

Nationality	Type	Network	Low Cost	Regional	Leisure
		TAP			
	Other	Other EU FSC	Other EU LCC	Other EU Regional	Other EU Leisure
Non-EU	All	Non-EU_FSC	Non-EU_LCC	Non-EU_Regional	Non-EU-Leisure

- D.21 We note that airlines groups such as Lufthansa Group (Swiss), IAG (British Airways), easyJet (easyJet UK, easyJet Swiss), Ryanair (Ryanair UK), SAS and Wizz (Wizz UK) have airlines based outside of EU27 Member States, however for the purposed of analysis, and owing to the fact that the majority of operations conducted by these companies are based in the EU, these airline groups have been considered as EU airlines.
- D.22 An allowance for differences in airline load factor has also been included to allocate passengers to groups in the most representative manner. Load factors for the airlines included in the table above were collated from respective airline annual report for 2019 and 2020. Estimates have been included for 2021. We note that some airlines<sup>188</sup> report results for periods different to the January-December format used in the projection tool and consequently quarterly report data for these airlines was used so that the load factor over the correct period could be used. Load factors for the remaining airlines groups were estimated based on the load factor data from the airlines collated and make an allowance for differences in load factors between airlines; Low-cost airlines typically have higher load factors than network airlines. The table below shows the load factor inputs used in the model. Functionality to vary load factors by geographical market is available in the model, however input data to support this level of disaggregation was not available.

Table D.5: Airline load factors

Airlines	2019	2020	2021
AFKLM	87.0%	58.8%	65.0%
Air Baltic	75.8%	52.0%	58.2%
easyJet	91.0%	62.4%	69.9%
IAG	84.6%	63.8%	61.1%
Lufthansa Group	82.5%	53.6%	60.1%
Ryanair	96.0%	77.0%	85.0%
SAS	75.0%	45.0%	58.2%
SATA	76.0%	50.0%	50.0%
TAP	80.0%	65.0%	58.2%
Widerøe	51.4%	36.4%	40.0%
Wizz	93.6%	74.8%	69.9%
Other_FSC	80.0%	52.0%	58.2%
Other_LCC	85.0%	55.3%	61.9%

<sup>188</sup> easyJet, Ryanair, SAS and Wizz

Airlines	2019	2020	2021
<i>Other_Leisure</i>	85.0%	55.3%	61.9%
<i>Other_Regional</i>	70.0%	45.5%	51.0%

Source: Airline annual report, Steer analysis

- D.23 A requirement of the Terms of Reference was to include the impact of different journey types (Business/Leisure/VFR<sup>189</sup>). No comprehensive data set exists permitting passengers to be split in this way and instead it was decided that the impact of changes in passenger type would be determined through the application of fare changes determined from fare analysis.

### Reconciliation

- D.24 A reconciliation check was undertaken on the outputs at airline level to ensure that they outputs are representative of actuals. The table below presents the comparison of airline 2019 actuals (from annual report) compared with estimates derived from the model based on airport passengers, airline capacity and load factor assumptions. At a total level the project slightly understates the selected airline passengers.

Table D.6: Airline passenger cross check

Airline	2019 Passengers		Difference
	Actual	Estimated	
AFKLM	104,000,000	104,352,827	0%
Air Baltic	5,000,000	5,049,476	1%
easyJet	96,700,000	92,379,976	-4%
IAG	118,300,000	122,086,352	3%
Lufthansa Group	145,299,000	145,839,553	0%
Ryanair	154,400,000	146,441,150	-5%
SAS	29,800,000	29,496,106	-1%
SATA	766,642	624,806	-19%
TAP	17,052,000	17,405,335	2%
Widerøe	3,001,078	3,001,078	0%
Wizz	42,533,997	40,158,752	-6%
Total	716,852,717	706,835,411	-1%

Source: Airline annual reports, Steer analysis

## Demand projections

### Overview

- D.25 Traffic projections to 2030 have been developed using the following sources.
- Eurostat historical passenger data (described above);
  - EU “Fit for 55” MIX scenario (MIX scenario); and
  - Eurocontrol seven year Forecast 2021-2027 (three scenarios).

<sup>189</sup> Visiting Friends and Relatives

- D.26 The MIX scenario projections will inform passenger traffic between 2025 and 2030, whilst the recovery profile from 2020 to 2025 will be influenced by the Eurocontrol seven-year forecast.
- D.27 The composition of the three traffic forecasts are as follows (at Member State level):
- **Central Case** – Recovery from 2020 to derived EU MIX scenario passenger levels in 2025 influenced by the Eurocontrol recovery profile. Passenger growth from 2025 to 2030 derived from the EU MIX scenario;
  - **High Case** – Differential between the Eurocontrol baseline and high scenario is applied to central case 2025 passengers to define high case passenger levels in 2025. YoY growth from the EU MIX scenario defines growth to 2030 and the Eurocontrol high scenario recovery profile influences traffic between 2020 and 2030; and
  - **Low Case** – Differential between the Eurocontrol baseline and low scenario is applied to central case 2025 passengers to define low case passenger levels in 2025. YoY growth from the EU MIX scenario defines growth to 2030 and the Eurocontrol low scenario recovery profile influences traffic between 2020 and 2030.

#### EU “Fit for 55” MIX scenario

- D.28 The MIX scenario forms the central-case scenario between the present day and 2030. The MIX scenario is based on the 2020 Reference Scenario (in terms of macro-economic assumptions, technology assumptions, fuel price assumptions, etc.) but additionally incorporates measures related to the EU Fit for 55 legislation package. The MIX scenario provides information relating to air transport activity by Member State and related emissions, and also reflects the impacts of the COVID-19 pandemic drawing on the GDP projections from DG ECFIN. This data is available at points every five years, thus we are required to extrapolate between 2015-2020, 2020-2025 and 2025-2030.
- D.29 The projections assume no drastic reductions in business traffic and no major structural changes in the composition of transport in the European Union, however it does include the impact of some passengers shifting to rail as a result of the 4th railway package, TEN-T Regulation as well as the impact of taxation and the ETS directive resulting from “Fit for 55”.
- D.30 The MIX scenario provides a passenger km forecast by Member State and distinguishes between intra-EU and extra- EU passenger activity. Forecasts for Iceland, Norway, Switzerland and the United Kingdom are not available from the MIX scenario and instead suitable growth forecasts were generated using forecasts from comparable Member States, whilst making allowances for different GDP growth projections. The table below presents the comparable Member States used to derive demand elasticities to GDP growth together with resulting growth rates used in the model.

**Table D.7: Structure of calculations**

MS	Annual GDP Growth	Comparable MS		Demand elasticity to GDP		Passenger Growth	
		1	2	Intra-EU+4	Extra -EU+4	Intra-EU+4	Extra -EU+4
CH	+1.3%	AT	DE	+0.58	+1.97	+0.8%	+2.7%
IS	+1.4%	SE	DK	+0.99	+1.72	+1.4%	+2.4%
NO	+1.5%	SE	DK	+0.99	+1.72	+1.5%	+2.7%
UK	+1.4%	DE	IE	+0.70	+1.72	+1.0%	+2.5%

Source: EC MIX Scenario, Eurocontrol, Steer analysis

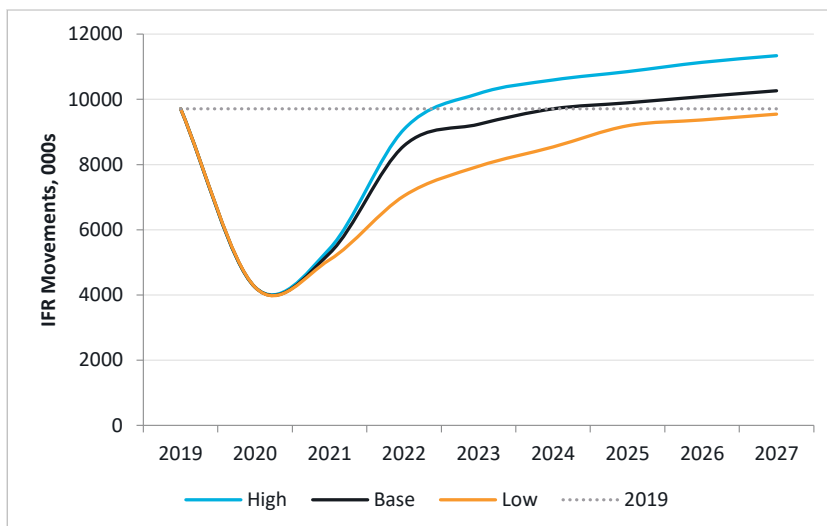
### Eurocontrol seven year Forecast 2021-2027

D.31 The Eurocontrol Seven Year Forecast<sup>190</sup> provides three short-term scenarios corresponding to three headline scenarios:

- High Scenario – Recovery to 2019 levels in mid-2023;
- Baseline Scenario – Recovery to 2019 levels by the end of 2023; and
- Low Scenario – Recovery to 2019 after 2027

D.32 The figure below presents an overview of projected IFR movements at EU27 level.

Figure D.2: EU27 IFR movement projection, EU27



Source: Eurocontrol May 2021, Steer analysis

D.33 A summary of the assumptions behind each forecast can be found in the figure below.

Figure D.3: Assumptions behind STATFOR 2021-2027 forecast

High scenario	Baseline scenario	Low scenario
<b>Recovery to 2019 level in mid-2023</b>	<b>Recovery to 2019 level by end 2023</b>	<b>Recovery to 2019 level after 2027</b>
<ul style="list-style-type: none"> <li>• Efficient vaccination campaign within Europe and globally</li> <li>• Reliable vaccine (also against variants)</li> <li>• Effective test-trace-isolate programme</li> </ul>	<ul style="list-style-type: none"> <li>• Vaccine roll-out reaching herd immunity levels within Europe</li> <li>• Reliable vaccine (also against variants)</li> <li>• Effective test-trace-isolate programme</li> </ul>	<ul style="list-style-type: none"> <li>• Patchy uptake of vaccine</li> <li>• Need of updated vaccines</li> <li>• Frequent reintroduction of lockdowns and mask mandates</li> </ul>
<ul style="list-style-type: none"> <li>• Less travel restriction</li> <li>• Coordinated interregional approach</li> <li>• North-Atlantic flows restarting during November 2021</li> <li>• Asia-Pacific/India Q2 2022, Middle-East Q4 2021, Australia flows Q3 2022</li> <li>• Good passenger confidence</li> <li>• Savings glut/Pent-up demand</li> <li>• Faster bounce-back of business travel</li> </ul>	<ul style="list-style-type: none"> <li>• Limited travel restriction</li> <li>• Coordinated European approach</li> <li>• North-Atlantic flows restarting during November 2021</li> <li>• Asia-Pacific/India Q3 2022, Middle-East Q1 2022, Australia flows Q4 2022</li> <li>• Relatively good passenger confidence</li> <li>• Savings glut/Pent-up demand</li> <li>• Business travel return to pre-COVID19 levels in 2023</li> </ul>	<ul style="list-style-type: none"> <li>• Strong travel restriction</li> <li>• Coordinated European approach</li> <li>• Long-haul flows restarting as of end 2022</li> <li>• Demand is bouncing back for 60-70% of travelers but reluctance to fly for rest; Permanent drop in propensity to fly; Growing environmental constraint</li> </ul>
<ul style="list-style-type: none"> <li>• Airports well able to bring back capacity</li> </ul>	<ul style="list-style-type: none"> <li>• Airports well able to bring back capacity</li> </ul>	<ul style="list-style-type: none"> <li>• Airport difficulties to operate as pre-COVID</li> </ul>

<sup>190</sup><https://www.eurocontrol.int/publication/eurocontrol-forecast-update-2021-2027>

Source: Eurocontrol

D.34 The Eurocontrol scenarios are published at Member State level and include IFR Movements (traversing and terminating in each Member State), En-route service units and terminal service units. Information for Iceland, Norway, Switzerland and the UK is also available and was included.

D.35 There are some important caveats to consider when using the STATFOR forecasts:

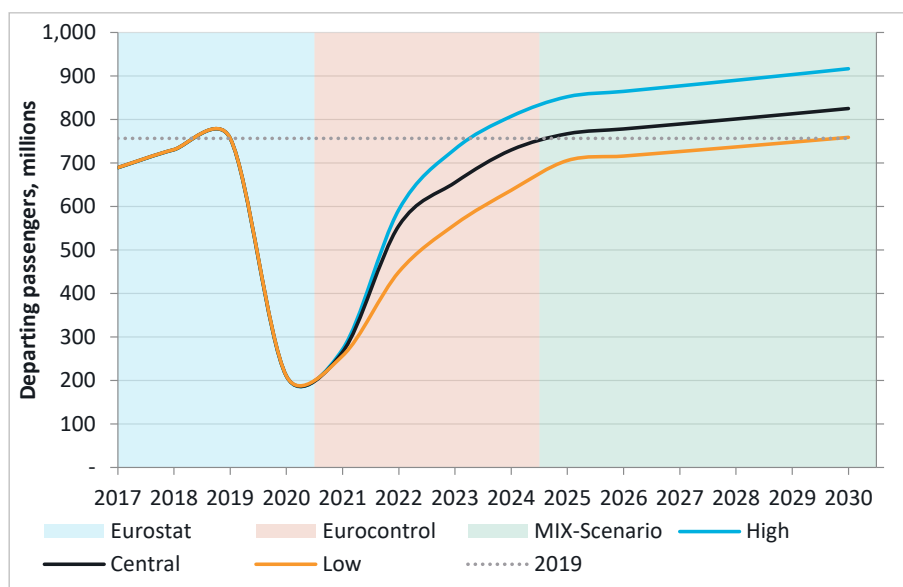
- They do not consider the “Fit for 55” proposals;
- STATFOR use different GDP (and other key variables) than the MIX scenario;
- The forecast was developed prior to the emergence of the Omicron variant in late 2021; and
- Outputs are presented in terms of IFR movements rather than passenger demand.

### Combined projections

D.36 To form the central case traffic projection, growth from the EU MIX scenario by MS is used to determine growth in the period 2025 to 2030. The recovery in passengers between 2021/2022 and 2025 is influenced by the central Eurocontrol movement recovery profile, with overlays included so that the impact of load factors and capacity per movement changes can also be included.

D.37 The remaining two forecasts (a high and low case) are derived by combing the profiles of the high and low Eurocontrol forecasts to 2025 and then applying growth rates from the MIX scenario forecast. The figure below presents the three demand profiles generated from this methodology at EU27 level.

Figure D.4: Overview of the composition of the combined passenger demand projection



Source: Eurostat, EU Mix scenario, Steer

### Integrating the Eurocontrol recovery profiles

D.38 The Eurocontrol seven-year forecasts provide an indication of how aircraft movements are expected to recover between 2021 and 2025 and these profiles have been used to influence the recovery of traffic between the historical data (2020) and the first year of the MIX scenario

forecast (2025) in the central case. The reduction in passengers in 2020 versus 2019 was not entirely consisted with the reduction in movements; in every Member State the reduction in movements was less pronounced as aircraft loads factors also reduced below 2019 levels. This necessitated the development of movement to passenger factor assumptions. In 2020 these could be established based on the actual difference in the reduction of passenger traffic and the reduction in actual movement recorded by Eurocontrol. It was assumed this factor remained the same as 2020 levels in 2021 and then gradually increased back to parity in 2025, which assumes that increases in movements are entirely proportional to passengers). The table below presents the factors derived and assumed for the domestic and intra-EU markets, while the following table presents the factors used in the Extra-EU market.

**Table D.8: Movement to Passenger factor assumptions – Domestic and Intra-EU Market**

*Proportion of passenger to movement growth*

MS	2019	2020	2021	2022	2023	2024	2025
AT	100.0%	61.9%	61.9%	81.0%	90.5%	96.2%	100.0%
BE	100.0%	62.2%	62.2%	81.1%	90.6%	96.2%	100.0%
BG	100.0%	83.0%	83.0%	91.5%	95.8%	98.3%	100.0%
CY	100.0%	62.0%	62.0%	81.0%	90.5%	96.2%	100.0%
CZ	100.0%	55.7%	55.7%	77.8%	88.9%	95.6%	100.0%
DE	100.0%	58.5%	58.5%	79.3%	89.6%	95.9%	100.0%
DK	100.0%	62.9%	62.9%	81.4%	90.7%	96.3%	100.0%
EE	100.0%	63.4%	63.4%	81.7%	90.8%	96.3%	100.0%
EL	100.0%	83.3%	83.3%	91.7%	95.8%	98.3%	100.0%
ES	100.0%	71.4%	71.4%	85.7%	92.9%	97.1%	100.0%
FI	100.0%	60.6%	60.6%	80.3%	90.2%	96.1%	100.0%
FR	100.0%	84.0%	84.0%	92.0%	96.0%	98.4%	100.0%
HR	100.0%	45.4%	45.4%	72.7%	86.4%	94.5%	100.0%
HU	100.0%	58.7%	58.7%	79.4%	89.7%	95.9%	100.0%
IE	100.0%	55.6%	55.6%	77.8%	88.9%	95.6%	100.0%
IT	100.0%	72.7%	72.7%	86.3%	93.2%	97.3%	100.0%
LT	100.0%	66.3%	66.3%	83.2%	91.6%	96.6%	100.0%
LU	100.0%	75.3%	75.3%	87.6%	93.8%	97.5%	100.0%
LV	100.0%	64.2%	64.2%	82.1%	91.1%	96.4%	100.0%
MT	100.0%	56.5%	56.5%	78.2%	89.1%	95.6%	100.0%
NL	100.0%	66.5%	66.5%	83.3%	91.6%	96.7%	100.0%
PL	100.0%	75.3%	75.3%	87.7%	93.8%	97.5%	100.0%
PT	100.0%	74.8%	74.8%	87.4%	93.7%	97.5%	100.0%
RO	100.0%	75.4%	75.4%	87.7%	93.9%	97.5%	100.0%
SE	100.0%	58.1%	58.1%	79.1%	89.5%	95.8%	100.0%
SI	100.0%	43.0%	43.0%	71.5%	85.7%	94.3%	100.0%
SK	100.0%	57.9%	57.9%	79.0%	89.5%	95.8%	100.0%
CH	100.0%	70.0%	70.0%	85.0%	92.5%	97.0%	100.0%
IS	100.0%	57.6%	57.6%	78.8%	89.4%	95.8%	100.0%
NO	100.0%	65.5%	65.5%	82.7%	91.4%	96.5%	100.0%
UK	100.0%	61.7%	61.7%	80.9%	90.4%	96.2%	100.0%

Source: Eurostat, Eurocontrol, Steer analysis



**Table D.9: Movement to Passenger factor assumptions – Extra-EU Market***Proportion of passenger to movement growth*

MS	2019	2020	2021	2022	2023	2024	2025
AT	100.0%	51.6%	51.6%	75.8%	87.9%	95.2%	100.0%
BE	100.0%	58.4%	58.4%	79.2%	89.6%	95.8%	100.0%
BG	100.0%	40.3%	40.3%	70.2%	85.1%	94.0%	100.0%
CY	100.0%	28.0%	28.0%	64.0%	82.0%	92.8%	100.0%
CZ	100.0%	45.3%	45.3%	72.7%	86.3%	94.5%	100.0%
DE	100.0%	56.1%	56.1%	78.0%	89.0%	95.6%	100.0%
DK	100.0%	52.9%	52.9%	76.5%	88.2%	95.3%	100.0%
EE	100.0%	50.5%	50.5%	75.2%	87.6%	95.0%	100.0%
EL	100.0%	34.4%	34.4%	67.2%	83.6%	93.4%	100.0%
ES	100.0%	53.3%	53.3%	76.7%	88.3%	95.3%	100.0%
FI	100.0%	50.2%	50.2%	75.1%	87.5%	95.0%	100.0%
FR	100.0%	63.3%	63.3%	81.7%	90.8%	96.3%	100.0%
HR	100.0%	37.1%	37.1%	68.5%	84.3%	93.7%	100.0%
HU	100.0%	46.5%	46.5%	73.2%	86.6%	94.6%	100.0%
IE	100.0%	40.8%	40.8%	70.4%	85.2%	94.1%	100.0%
IT	100.0%	48.7%	48.7%	74.4%	87.2%	94.9%	100.0%
LT	100.0%	40.8%	40.8%	70.4%	85.2%	94.1%	100.0%
LU	100.0%	67.1%	67.1%	83.6%	91.8%	96.7%	100.0%
LV	100.0%	38.0%	38.0%	69.0%	84.5%	93.8%	100.0%
MT	100.0%	51.8%	51.8%	75.9%	87.9%	95.2%	100.0%
NL	100.0%	59.7%	59.7%	79.8%	89.9%	96.0%	100.0%
PL	100.0%	57.1%	57.1%	78.5%	89.3%	95.7%	100.0%
PT	100.0%	59.4%	59.4%	79.7%	89.8%	95.9%	100.0%
RO	100.0%	54.0%	54.0%	77.0%	88.5%	95.4%	100.0%
SE	100.0%	62.5%	62.5%	81.2%	90.6%	96.2%	100.0%
SI	100.0%	33.7%	33.7%	66.8%	83.4%	93.4%	100.0%
SK	100.0%	31.6%	31.6%	65.8%	82.9%	93.2%	100.0%
CH	100.0%	64.0%	64.0%	82.0%	91.0%	96.4%	100.0%
IS	100.0%	22.5%	22.5%	61.3%	80.6%	92.3%	100.0%
NO	100.0%	34.8%	34.8%	67.4%	83.7%	93.5%	100.0%
UK	100.0%	66.2%	66.2%	83.1%	91.6%	96.6%	100.0%

Source: Eurostat, Eurocontrol, Steer analysis

- D.39 The movement recovery profile for each Member State was proportionally scaled so that the passenger recovery percentage reached in 2025 matched proportion calculated for the MIX scenario data. This recovery profile was then multiplied by the movement to passenger factor assumptions to derive the central case passenger recovery profile for each Member State between 2020 and 2025. The table below presents the central case domestic and intra-EU market recovery profile, whilst the following table presents the profiles used for the Extra-EU market. Further tables present recovery profiles for the High and Low cases.

**Table D.10: Passenger recovery profiles – Domestic and Intra-EU Market – Central Case***Proportion of 2019 passengers*

MS	2019	2020	2021	2022	2023	2024	2025
AT	100.0%	26.8%	32.8%	72.9%	86.6%	97.2%	102.8%
BE	100.0%	27.0%	32.3%	71.1%	83.8%	94.3%	99.7%
BG	100.0%	35.5%	45.6%	75.0%	87.7%	93.8%	98.0%
CY	100.0%	24.7%	38.1%	71.1%	92.5%	102.5%	110.2%
CZ	100.0%	21.8%	26.3%	65.4%	81.0%	91.7%	97.8%
DE	100.0%	25.5%	28.3%	69.4%	84.1%	95.0%	100.7%
DK	100.0%	25.8%	26.4%	67.3%	84.2%	95.4%	100.7%
EE	100.0%	26.8%	27.9%	62.4%	83.7%	94.2%	99.1%
EL	100.0%	36.1%	53.0%	79.8%	90.8%	97.9%	101.8%
ES	100.0%	28.5%	38.8%	77.3%	86.9%	96.5%	101.8%
FI	100.0%	25.3%	25.3%	68.2%	86.0%	97.1%	102.8%
FR	100.0%	34.6%	45.1%	83.4%	91.0%	98.5%	102.0%
HR	100.0%	19.2%	27.1%	64.6%	81.9%	94.5%	102.2%
HU	100.0%	25.1%	30.4%	67.7%	83.9%	93.8%	100.2%
IE	100.0%	22.6%	24.2%	66.6%	87.1%	94.8%	101.1%
IT	100.0%	29.0%	40.2%	77.0%	87.9%	96.6%	101.3%
LT	100.0%	30.4%	34.4%	69.2%	89.2%	100.1%	105.0%
LU	100.0%	32.6%	39.1%	76.8%	86.8%	95.6%	99.7%
LV	100.0%	28.2%	29.7%	65.9%	86.2%	97.7%	102.7%
MT	100.0%	24.3%	34.3%	65.0%	87.8%	97.9%	106.2%
NL	100.0%	29.8%	32.2%	72.9%	85.6%	95.9%	100.5%
PL	100.0%	31.1%	38.1%	72.3%	88.8%	98.4%	102.6%
PT	100.0%	31.5%	40.5%	74.2%	86.6%	95.6%	100.2%
RO	100.0%	32.3%	42.2%	71.5%	86.2%	93.8%	98.7%
SE	100.0%	24.8%	25.3%	65.8%	83.9%	95.9%	101.7%
SI	100.0%	18.2%	24.2%	63.4%	80.5%	93.7%	101.3%
SK	100.0%	20.7%	27.6%	61.3%	78.5%	88.1%	94.1%
CH	100.0%	28.4%	36.6%	75.7%	85.5%	94.6%	99.0%
IS	100.0%	25.1%	29.6%	63.5%	91.2%	97.7%	105.1%
NO	100.0%	38.1%	39.4%	68.3%	87.0%	97.0%	101.7%
UK	100.0%	24.6%	26.8%	71.9%	85.7%	95.0%	100.2%

Source: Eurostat, Eurocontrol, Steer analysis

**Table D.11: Passenger recovery profiles – Extra-EU Market – Central Case***Proportion of 2019 passengers*

MS	2019	2020	2021	2022	2023	2024	2025
AT	100.0%	22.3%	27.8%	69.4%	85.5%	97.8%	102.8%
BE	100.0%	25.3%	30.9%	70.6%	84.4%	95.5%	99.7%
BG	100.0%	17.3%	22.7%	59.0%	80.0%	92.1%	98.0%
CY	100.0%	11.2%	17.8%	58.1%	86.7%	102.3%	110.2%
CZ	100.0%	17.8%	21.8%	62.3%	80.2%	92.5%	97.8%
DE	100.0%	24.4%	27.6%	69.4%	84.9%	96.3%	100.7%
DK	100.0%	21.8%	22.6%	64.3%	83.3%	96.0%	100.7%
EE	100.0%	21.4%	22.6%	58.3%	81.8%	94.2%	99.1%
EL	100.0%	14.9%	22.3%	59.9%	81.0%	95.1%	101.8%
ES	100.0%	21.3%	29.7%	70.8%	84.8%	97.1%	101.8%
FI	100.0%	20.9%	21.3%	64.9%	85.0%	97.7%	102.8%

MS	2019	2020	2021	2022	2023	2024	2025
FR	100.0%	26.1%	34.7%	75.5%	87.8%	98.3%	102.0%
HR	100.0%	15.6%	22.6%	62.2%	81.7%	95.8%	102.2%
HU	100.0%	19.9%	24.7%	64.0%	83.0%	94.9%	100.2%
IE	100.0%	16.6%	18.1%	61.4%	85.1%	95.1%	101.1%
IT	100.0%	19.4%	27.5%	67.6%	83.8%	96.1%	101.3%
LT	100.0%	18.7%	21.4%	59.3%	84.0%	98.7%	105.0%
LU	100.0%	29.1%	35.5%	74.5%	86.4%	96.4%	99.7%
LV	100.0%	16.7%	17.8%	56.1%	81.0%	96.3%	102.7%
MT	100.0%	22.3%	32.6%	65.4%	89.8%	101.0%	106.2%
NL	100.0%	26.7%	29.2%	70.8%	85.1%	96.5%	100.5%
PL	100.0%	23.6%	29.4%	65.9%	85.9%	98.2%	102.6%
PT	100.0%	25.0%	32.9%	69.2%	84.9%	96.2%	100.2%
RO	100.0%	23.1%	31.0%	64.4%	83.4%	94.1%	98.7%
SE	100.0%	26.7%	27.7%	68.7%	86.2%	97.9%	101.7%
SI	100.0%	14.3%	19.3%	60.4%	79.9%	94.6%	101.3%
SK	100.0%	11.3%	15.4%	52.2%	74.4%	87.7%	94.1%
CH	100.0%	25.9%	33.9%	74.1%	85.4%	95.4%	99.0%
IS	100.0%	9.8%	11.9%	50.8%	84.8%	97.0%	105.1%
NO	100.0%	20.3%	21.2%	56.3%	80.7%	95.1%	101.7%
UK	100.0%	26.4%	29.1%	74.9%	87.9%	96.8%	100.2%

Source: Eurostat, Eurocontrol, Steer analysis

**Table D.12: Passenger recovery profiles – Domestic and Intra-EU Market – Low Case**

*Proportion of 2019 passengers*

MS	2019	2020	2021	2022	2023	2024	2025
AT	100.0%	26.8%	31.5%	58.1%	73.0%	83.9%	95.2%
BE	100.0%	27.0%	31.2%	56.9%	71.1%	81.9%	92.4%
BG	100.0%	35.5%	43.6%	58.4%	73.2%	81.8%	91.2%
CY	100.0%	24.7%	36.6%	57.1%	78.6%	92.2%	103.4%
CZ	100.0%	21.8%	25.4%	52.1%	68.0%	79.4%	90.7%
DE	100.0%	25.5%	27.6%	56.6%	72.5%	83.8%	95.5%
DK	100.0%	25.8%	25.7%	53.0%	70.7%	82.8%	90.9%
EE	100.0%	26.8%	26.8%	48.9%	68.6%	82.9%	90.8%
EL	100.0%	36.1%	49.9%	66.3%	78.7%	86.8%	95.2%
ES	100.0%	28.5%	36.9%	61.1%	71.9%	80.3%	91.9%
FI	100.0%	25.3%	24.7%	55.0%	72.8%	85.6%	93.0%
FR	100.0%	34.6%	43.2%	67.4%	77.3%	84.8%	94.4%
HR	100.0%	19.2%	25.8%	51.2%	68.7%	81.0%	94.0%
HU	100.0%	25.1%	29.2%	52.7%	69.5%	80.7%	91.8%
IE	100.0%	22.6%	22.6%	48.6%	72.7%	85.1%	97.1%
IT	100.0%	29.0%	37.9%	61.4%	72.9%	81.7%	91.1%
LT	100.0%	30.4%	32.8%	55.4%	73.7%	87.7%	96.0%
LU	100.0%	32.6%	37.7%	61.5%	73.7%	83.0%	92.4%
LV	100.0%	28.2%	28.9%	51.8%	70.9%	85.4%	93.6%
MT	100.0%	24.3%	32.6%	50.6%	72.7%	86.8%	97.7%
NL	100.0%	29.8%	31.0%	57.5%	72.1%	83.2%	92.6%
PL	100.0%	31.1%	36.8%	57.4%	73.8%	85.6%	93.3%

MS	2019	2020	2021	2022	2023	2024	2025
PT	100.0%	31.5%	38.6%	58.2%	71.6%	81.5%	91.2%
RO	100.0%	32.3%	40.6%	56.0%	72.0%	81.6%	90.9%
SE	100.0%	24.8%	24.7%	52.2%	70.4%	83.2%	90.8%
SI	100.0%	18.2%	23.1%	50.5%	68.0%	80.6%	93.9%
SK	100.0%	20.7%	26.5%	48.0%	65.1%	76.7%	86.5%
CH	100.0%	28.4%	35.2%	60.3%	72.2%	81.3%	91.5%
IS	100.0%	25.1%	28.4%	44.5%	77.0%	92.3%	102.6%
NO	100.0%	38.1%	38.9%	59.5%	78.7%	89.7%	95.3%
UK	100.0%	24.6%	25.5%	56.5%	72.3%	82.8%	93.8%

Source: Eurostat, Eurocontrol, Steer analysis

**Table D.13: Passenger recovery profiles – Extra-EU Market – Low Case**

*Proportion of 2019 passengers*

MS	2019	2020	2021	2022	2023	2024	2025
AT	100.0%	22.3%	28.7%	59.4%	77.4%	90.6%	95.2%
BE	100.0%	25.3%	31.8%	60.3%	76.4%	88.6%	92.4%
BG	100.0%	17.3%	23.3%	49.1%	71.4%	85.8%	91.2%
CY	100.0%	11.2%	17.8%	48.7%	76.8%	96.0%	103.4%
CZ	100.0%	17.8%	22.6%	53.1%	72.1%	85.7%	90.7%
DE	100.0%	24.4%	28.9%	60.9%	78.6%	91.3%	95.5%
DK	100.0%	21.8%	22.8%	52.6%	72.7%	86.6%	90.9%
EE	100.0%	21.4%	22.6%	47.5%	69.9%	86.3%	90.8%
EL	100.0%	14.9%	22.2%	52.4%	74.1%	89.0%	95.2%
ES	100.0%	21.3%	30.6%	60.7%	76.0%	87.6%	91.9%
FI	100.0%	20.9%	21.3%	53.6%	73.7%	88.3%	93.0%
FR	100.0%	26.1%	35.7%	65.6%	80.1%	90.9%	94.4%
HR	100.0%	15.6%	23.1%	52.9%	73.5%	88.1%	94.0%
HU	100.0%	19.9%	25.2%	53.0%	73.2%	86.9%	91.8%
IE	100.0%	16.6%	18.1%	47.9%	76.0%	91.3%	97.1%
IT	100.0%	19.4%	27.6%	57.4%	74.1%	86.5%	91.1%
LT	100.0%	18.7%	21.3%	49.6%	72.6%	90.3%	96.0%
LU	100.0%	29.1%	36.5%	63.6%	78.3%	89.4%	92.4%
LV	100.0%	16.7%	18.1%	46.0%	69.5%	87.8%	93.6%
MT	100.0%	22.3%	32.1%	52.8%	77.2%	93.0%	97.7%
NL	100.0%	26.7%	30.0%	59.4%	76.2%	88.9%	92.6%
PL	100.0%	23.6%	29.6%	54.7%	74.7%	89.3%	93.3%
PT	100.0%	25.0%	33.4%	57.9%	74.9%	87.5%	91.2%
RO	100.0%	23.1%	31.6%	53.4%	73.7%	86.7%	90.9%
SE	100.0%	26.7%	27.8%	56.0%	74.4%	87.4%	90.8%
SI	100.0%	14.3%	19.9%	51.9%	72.8%	87.7%	93.9%
SK	100.0%	11.3%	15.6%	43.3%	65.2%	80.6%	86.5%
CH	100.0%	25.9%	35.1%	63.5%	77.5%	88.2%	91.5%
IS	100.0%	9.8%	11.8%	36.8%	73.9%	94.6%	102.6%
NO	100.0%	20.3%	21.2%	49.7%	73.9%	89.1%	95.3%
UK	100.0%	26.4%	29.9%	63.3%	79.8%	90.6%	93.8%

Source: Eurostat, Eurocontrol, Steer analysis

**Table D.14: Passenger recovery profiles – Domestic and Intra-EU Market – High Case***Proportion of 2019 passengers*

MS	2019	2020	2021	2022	2023	2024	2025
AT	100.0%	26.8%	33.6%	77.5%	97.0%	107.3%	113.8%
BE	100.0%	27.0%	33.1%	75.8%	93.5%	103.5%	110.1%
BG	100.0%	35.5%	46.8%	80.1%	98.6%	103.9%	109.4%
CY	100.0%	24.7%	39.0%	75.9%	101.9%	111.4%	121.2%
CZ	100.0%	21.8%	27.0%	69.6%	91.3%	101.7%	109.1%
DE	100.0%	25.5%	29.1%	73.7%	94.0%	105.0%	111.9%
DK	100.0%	25.8%	27.4%	71.7%	93.4%	103.6%	110.2%
EE	100.0%	26.8%	28.5%	66.3%	92.8%	101.8%	107.9%
EL	100.0%	36.1%	53.7%	83.9%	99.8%	106.7%	111.7%
ES	100.0%	28.5%	39.7%	83.3%	98.5%	109.6%	116.3%
FI	100.0%	25.3%	26.6%	72.7%	94.6%	104.2%	110.9%
FR	100.0%	34.6%	46.1%	88.8%	101.8%	109.5%	113.7%
HR	100.0%	19.2%	27.8%	68.5%	91.9%	104.6%	113.9%
HU	100.0%	25.1%	31.2%	72.1%	94.1%	103.5%	111.4%
IE	100.0%	22.6%	24.7%	70.2%	96.3%	103.1%	110.4%
IT	100.0%	29.0%	41.0%	81.9%	97.7%	106.1%	112.0%
LT	100.0%	30.4%	35.0%	73.0%	98.2%	108.8%	115.2%
LU	100.0%	32.6%	40.0%	81.9%	96.9%	104.9%	110.1%
LV	100.0%	28.2%	30.6%	70.0%	95.6%	105.8%	112.4%
MT	100.0%	24.3%	34.8%	68.6%	96.7%	106.7%	116.2%
NL	100.0%	29.8%	33.0%	77.4%	95.1%	103.6%	109.0%
PL	100.0%	31.1%	38.9%	76.5%	97.8%	107.3%	112.6%
PT	100.0%	31.5%	41.3%	79.7%	96.8%	106.3%	112.1%
RO	100.0%	32.3%	43.2%	76.1%	96.0%	102.8%	109.1%
SE	100.0%	24.8%	27.6%	70.4%	92.8%	103.3%	110.0%
SI	100.0%	18.2%	24.8%	67.3%	90.6%	103.9%	113.0%
SK	100.0%	20.7%	28.2%	65.2%	87.4%	96.8%	104.3%
CH	100.0%	28.4%	37.5%	81.1%	96.4%	105.1%	110.5%
IS	100.0%	25.1%	30.1%	66.7%	97.7%	103.1%	111.3%
NO	100.0%	38.1%	40.2%	71.3%	92.6%	102.4%	107.8%
UK	100.0%	24.6%	27.4%	76.0%	95.4%	104.5%	110.7%

Source: Eurostat, Eurocontrol, Steer analysis

**Table D.15: Passenger recovery profiles – Extra-EU Market – High Case***Proportion of 2019 passengers*

MS	2019	2020	2021	2022	2023	2024	2025
AT	100.0%	22.3%	28.6%	74.0%	96.1%	108.3%	113.8%
BE	100.0%	25.3%	31.8%	75.8%	94.8%	105.5%	110.1%
BG	100.0%	17.3%	23.5%	63.6%	90.7%	102.9%	109.4%
CY	100.0%	11.2%	18.4%	62.7%	96.6%	112.4%	121.2%
CZ	100.0%	17.8%	22.5%	66.6%	90.8%	103.1%	109.1%
DE	100.0%	24.4%	28.4%	74.1%	95.3%	107.0%	111.9%
DK	100.0%	21.8%	23.6%	68.9%	93.0%	105.0%	110.2%
EE	100.0%	21.4%	23.2%	62.4%	91.4%	102.5%	107.9%

MS	2019	2020	2021	2022	2023	2024	2025
EL	100.0%	14.9%	22.8%	63.3%	89.6%	104.3%	111.7%
ES	100.0%	21.3%	30.6%	76.8%	96.6%	110.9%	116.3%
FI	100.0%	20.9%	22.5%	69.5%	93.9%	105.4%	110.9%
FR	100.0%	26.1%	35.5%	80.6%	98.4%	109.6%	113.7%
HR	100.0%	15.6%	23.3%	66.5%	92.3%	106.7%	113.9%
HU	100.0%	19.9%	25.5%	68.7%	93.8%	105.5%	111.4%
IE	100.0%	16.6%	18.5%	65.0%	94.4%	103.8%	110.4%
IT	100.0%	19.4%	28.2%	72.4%	93.8%	106.3%	112.0%
LT	100.0%	18.7%	22.0%	63.2%	93.5%	108.4%	115.2%
LU	100.0%	29.1%	36.5%	79.9%	97.1%	106.5%	110.1%
LV	100.0%	16.7%	18.6%	60.3%	90.9%	105.4%	112.4%
MT	100.0%	22.3%	33.2%	69.3%	99.3%	110.6%	116.2%
NL	100.0%	26.7%	30.1%	75.4%	94.9%	104.6%	109.0%
PL	100.0%	23.6%	30.2%	70.2%	95.3%	107.8%	112.6%
PT	100.0%	25.0%	33.7%	74.7%	95.4%	107.6%	112.1%
RO	100.0%	23.1%	32.0%	69.2%	93.7%	104.1%	109.1%
SE	100.0%	26.7%	30.3%	73.8%	95.8%	105.8%	110.0%
SI	100.0%	14.3%	19.9%	64.5%	90.4%	105.5%	113.0%
SK	100.0%	11.3%	15.9%	56.1%	83.6%	97.1%	104.3%
CH	100.0%	25.9%	35.0%	79.8%	96.7%	106.6%	110.5%
IS	100.0%	9.8%	12.2%	53.6%	91.0%	102.7%	111.3%
NO	100.0%	20.3%	21.7%	59.0%	86.2%	100.8%	107.8%
UK	100.0%	26.4%	30.0%	79.6%	98.4%	107.0%	110.7%

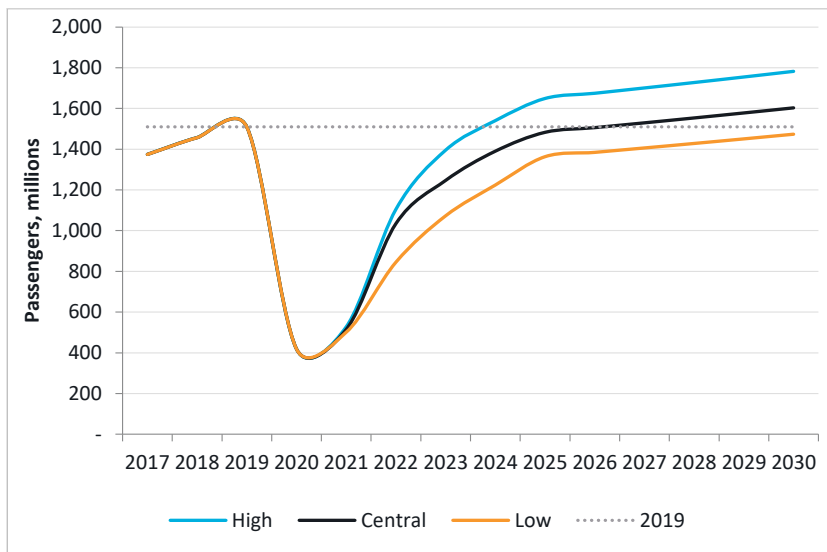
Source: Eurostat, Eurocontrol, Steer analysis

### Demand outputs

D.40 The figure below presents the passenger demand at EU27 level generated using the methodology and assumptions described above. The following tables (9) detail passenger growth by Member State for the three scenarios. The tables are arranged as follow:

- Central Case
  - Domestic and Intra-EU
  - Extra-EU
  - Total
- Low Case
  - Domestic and Intra-EU
  - Extra-EU
  - Total
- High Case
  - Domestic and Intra-EU
  - Extra-EU
  - Total

**Figure D.5: EU27 Passenger projection**



Source: Eurostat, Eurocontrol, MIX Scenario, Steer analysis and assumptions

*Application to airports*

- D.41 Market growth at Member State and market level has been applied to each airport to obtain a passenger forecast for each airport. Passenger growth by market (Domestic/Intra-EU and Extra-EU) at each airport is assumed to grow at the same rate within each Member State, however in Domestic/Intra-EU and extra-EU market size at each airport will mean that there is variation in growth rates by airport.



Table D.16: Central Case passenger forecast-Domestic and Intra-EU

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
AT	12.2	13.7	3.7	4.5	10.0	11.9	13.4	14.1	14.2	14.3	14.4	14.5	14.6
BE	13.1	13.2	3.6	4.3	9.4	11.1	12.5	13.2	13.4	13.6	13.8	14.0	14.1
BG	5.2	4.9	1.8	2.3	3.7	4.3	4.6	4.8	4.9	5.0	5.1	5.2	5.2
CY	3.9	3.9	1.0	1.5	2.8	3.6	4.0	4.3	4.4	4.4	4.5	4.6	4.6
CZ	6.5	6.7	1.5	1.8	4.4	5.4	6.2	6.6	6.7	6.7	6.8	6.9	7.0
DE	89.8	89.7	22.9	25.4	62.3	75.5	85.3	90.4	91.0	91.7	92.5	93.2	93.9
DK	15.5	15.4	4.0	4.1	10.4	13.0	14.7	15.6	15.9	16.2	16.5	16.8	17.2
EE	1.3	1.4	0.4	0.4	0.9	1.1	1.3	1.4	1.4	1.4	1.5	1.5	1.6
EL	27.9	28.5	10.3	15.1	22.8	25.9	27.9	29.1	29.3	29.6	29.8	30.1	30.4
ES	118.3	122.6	34.9	47.6	94.7	106.6	118.3	124.8	127.0	129.1	131.3	133.6	135.8
FI	10.4	10.7	2.7	2.7	7.3	9.2	10.4	11.0	11.1	11.2	11.3	11.4	11.6
FR	70.4	72.7	25.2	32.8	60.6	66.1	71.6	74.2	74.3	74.4	74.5	74.6	74.7
HR	4.7	5.1	1.0	1.4	3.3	4.1	4.8	5.2	5.2	5.3	5.3	5.4	5.4
HU	6.2	6.8	1.7	2.1	4.6	5.7	6.4	6.8	6.9	7.0	7.1	7.2	7.3
IE	15.5	16.2	3.7	3.9	10.8	14.1	15.3	16.3	16.5	16.6	16.8	16.9	17.1
IT	78.8	81.4	23.6	32.7	62.6	71.5	78.6	82.5	82.9	83.4	83.8	84.3	84.8
LT	2.6	2.6	0.8	0.9	1.8	2.3	2.6	2.7	2.8	2.9	3.0	3.1	3.2
LU	1.9	2.1	0.7	0.8	1.6	1.8	2.0	2.1	2.1	2.2	2.3	2.3	2.4
LV	2.8	3.0	0.8	0.9	2.0	2.6	2.9	3.1	3.1	3.2	3.3	3.4	3.4
MT	3.2	3.4	0.8	1.2	2.2	3.0	3.3	3.6	3.8	4.1	4.3	4.6	4.9
NL	27.4	27.8	8.3	9.0	20.3	23.8	26.7	28.0	28.3	28.7	29.1	29.4	29.8
PL	19.1	19.7	6.1	7.5	14.2	17.5	19.4	20.2	21.1	21.9	22.9	23.8	24.8
PT	24.4	25.6	8.1	10.4	19.0	22.2	24.5	25.7	26.0	26.4	26.7	27.1	27.4
RO	9.4	10.0	3.2	4.2	7.2	8.6	9.4	9.9	10.2	10.5	10.8	11.1	11.5
SE	20.7	19.7	4.9	5.0	13.0	16.5	18.9	20.1	20.4	20.7	21.0	21.3	21.7
SI	0.6	0.6	0.1	0.1	0.4	0.4	0.5	0.6	0.6	0.6	0.6	0.6	0.6
SK	1.0	1.0	0.2	0.3	0.6	0.8	0.9	0.9	1.0	1.0	1.0	1.0	1.1
CH	21.6	21.7	6.1	7.9	16.4	18.5	20.5	21.4	21.6	21.8	21.9	22.1	22.3

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
<b>IS</b>	3.4	2.8	0.7	0.8	1.8	2.6	2.8	3.0	3.0	3.0	3.1	3.1	3.2
<b>NO</b>	27.1	27.1	10.3	10.7	18.5	23.6	26.3	27.6	28.0	28.4	28.9	29.3	29.8
<b>UK</b>	110.5	111.4	27.4	29.8	80.1	95.5	105.9	111.6	112.7	113.9	115.0	116.2	117.4
<b>EU27</b>	<b>593</b>	<b>608</b>	<b>176</b>	<b>223</b>	<b>453</b>	<b>529</b>	<b>586</b>	<b>617</b>	<b>624</b>	<b>632</b>	<b>640</b>	<b>648</b>	<b>656</b>
<b>EU27+4</b>	<b>755</b>	<b>771</b>	<b>220</b>	<b>272</b>	<b>570</b>	<b>669</b>	<b>742</b>	<b>780</b>	<b>790</b>	<b>799</b>	<b>809</b>	<b>819</b>	<b>829</b>

Table D.17: Central Case passenger forecast-Extra-EU

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
<b>AT</b>	3.8	4.5	1.0	1.2	3.1	3.8	4.4	4.6	4.7	4.7	4.8	4.9	5.0
<b>BE</b>	4.2	4.5	1.1	1.4	3.2	3.8	4.3	4.5	4.5	4.6	4.6	4.7	4.7
<b>BG</b>	1.1	1.1	0.2	0.2	0.6	0.9	1.0	1.1	1.1	1.1	1.2	1.2	1.3
<b>CY</b>	1.7	1.8	0.2	0.3	1.0	1.6	1.8	2.0	2.1	2.2	2.3	2.4	2.5
<b>CZ</b>	2.5	2.7	0.5	0.6	1.7	2.2	2.5	2.6	2.7	2.7	2.8	2.8	2.8
<b>DE</b>	33.1	35.1	8.6	9.7	24.4	29.8	33.8	35.3	36.3	37.4	38.5	39.6	40.8
<b>DK</b>	2.6	2.7	0.6	0.6	1.7	2.3	2.6	2.7	2.8	2.9	3.1	3.2	3.3
<b>EE</b>	0.2	0.3	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
<b>EL</b>	3.6	3.9	0.6	0.9	2.3	3.2	3.7	4.0	4.0	4.0	4.1	4.1	4.1
<b>ES</b>	11.8	12.7	2.7	3.8	9.0	10.7	12.3	12.9	13.0	13.2	13.3	13.4	13.5
<b>FI</b>	2.3	2.5	0.5	0.5	1.6	2.1	2.5	2.6	2.7	2.7	2.8	2.8	2.9
<b>FR</b>	26.2	27.6	7.2	9.6	20.8	24.2	27.2	28.2	28.7	29.3	29.8	30.4	31.0
<b>HR</b>	0.5	0.6	0.1	0.1	0.4	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6
<b>HU</b>	1.4	1.6	0.3	0.4	1.0	1.3	1.5	1.6	1.7	1.7	1.8	1.9	2.0
<b>IE</b>	2.8	2.9	0.5	0.5	1.8	2.5	2.7	2.9	2.9	2.9	2.9	3.0	3.0
<b>IT</b>	14.1	15.4	3.0	4.2	10.4	12.9	14.8	15.6	16.1	16.6	17.1	17.6	18.1
<b>LT</b>	0.5	0.7	0.1	0.1	0.4	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7
<b>LU</b>	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
<b>LV</b>	0.7	0.9	0.2	0.2	0.5	0.7	0.9	0.9	0.9	0.9	1.0	1.0	1.0
<b>MT</b>	0.2	0.3	0.1	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4
<b>NL</b>	12.7	12.9	3.5	3.8	9.2	11.0	12.5	13.0	13.3	13.7	14.0	14.4	14.7

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
PL	3.7	4.7	1.1	1.4	3.1	4.1	4.7	4.9	5.1	5.4	5.7	6.1	6.4
PT	3.4	4.0	1.0	1.3	2.8	3.4	3.9	4.1	4.1	4.1	4.1	4.1	4.2
RO	1.3	1.5	0.3	0.5	0.9	1.2	1.4	1.4	1.5	1.6	1.7	1.8	1.9
SE	2.5	2.5	0.7	0.7	1.7	2.1	2.4	2.5	2.6	2.6	2.7	2.8	2.8
SI	0.3	0.3	0.0	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
SK	0.4	0.4	0.1	0.1	0.2	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.5
CH	6.9	7.3	1.9	2.5	5.4	6.2	7.0	7.2	7.4	7.6	7.8	8.0	8.3
IS	1.7	1.1	0.1	0.1	0.5	0.9	1.0	1.1	1.1	1.2	1.2	1.2	1.3
NO	1.0	1.1	0.2	0.2	0.6	0.9	1.0	1.1	1.1	1.1	1.2	1.2	1.2
UK	35.2	36.4	9.6	10.6	27.3	32.0	35.3	36.5	37.4	38.3	39.3	40.3	41.3
<b>EU27</b>	<b>138</b>	<b>148</b>	<b>34</b>	<b>42</b>	<b>103</b>	<b>126</b>	<b>143</b>	<b>150</b>	<b>154</b>	<b>157</b>	<b>161</b>	<b>165</b>	<b>169</b>
<b>EU27+4</b>	<b>183</b>	<b>194</b>	<b>46</b>	<b>56</b>	<b>137</b>	<b>166</b>	<b>188</b>	<b>196</b>	<b>201</b>	<b>206</b>	<b>211</b>	<b>216</b>	<b>221</b>

Table D.18: Central Case passenger forecast-Total

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
AT	16.0	18.2	4.7	5.7	13.1	15.7	17.8	18.7	18.9	19.0	19.2	19.3	19.5
BE	17.3	17.7	4.7	5.7	12.6	14.9	16.8	17.7	17.9	18.2	18.4	18.6	18.9
BG	6.3	6.0	1.9	2.5	4.4	5.2	5.6	5.9	6.0	6.1	6.3	6.4	6.5
CY	5.5	5.7	1.2	1.8	3.8	5.2	5.8	6.3	6.4	6.6	6.8	6.9	7.1
CZ	8.9	9.4	1.9	2.4	6.1	7.6	8.7	9.2	9.3	9.5	9.6	9.7	9.9
DE	122.9	124.8	31.5	35.1	86.7	105.3	119.0	125.7	127.4	129.2	131.0	132.8	134.7
DK	18.1	18.2	4.6	4.7	12.1	15.3	17.3	18.3	18.7	19.1	19.6	20.0	20.5
EE	1.5	1.7	0.4	0.4	1.0	1.4	1.6	1.6	1.7	1.7	1.8	1.8	1.8
EL	31.5	32.4	10.9	16.0	25.1	29.1	31.7	33.0	33.3	33.6	33.9	34.2	34.5
ES	130.1	135.3	37.6	51.4	103.7	117.3	130.6	137.7	140.0	142.3	144.6	147.0	149.4
FI	12.7	13.2	3.2	3.2	8.9	11.4	12.9	13.6	13.8	13.9	14.1	14.3	14.4
FR	96.6	100.3	32.4	42.3	81.4	90.4	98.7	102.3	103.0	103.7	104.3	105.0	105.7
HR	5.2	5.6	1.1	1.5	3.6	4.6	5.3	5.8	5.8	5.9	5.9	6.0	6.0
HU	7.7	8.4	2.0	2.5	5.6	7.0	7.9	8.4	8.6	8.7	8.9	9.1	9.2

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
IE	18.3	19.1	4.1	4.4	12.5	16.5	18.1	19.3	19.4	19.6	19.7	19.9	20.1
IT	92.9	96.8	26.6	36.9	73.1	84.4	93.5	98.1	99.0	100.0	100.9	101.9	102.9
LT	3.1	3.2	0.9	1.0	2.2	2.9	3.2	3.4	3.5	3.6	3.7	3.8	4.0
LU	2.0	2.2	0.7	0.9	1.7	1.9	2.1	2.2	2.2	2.3	2.4	2.4	2.5
LV	3.5	3.9	1.0	1.1	2.5	3.3	3.8	4.0	4.1	4.2	4.3	4.3	4.4
MT	3.4	3.7	0.9	1.3	2.4	3.2	3.6	3.9	4.1	4.4	4.7	5.0	5.3
NL	40.1	40.8	11.7	12.7	29.5	34.8	39.2	41.0	41.7	42.4	43.1	43.8	44.6
PL	22.8	24.5	7.3	8.9	17.4	21.6	24.1	25.1	26.2	27.4	28.6	29.9	31.2
PT	27.9	29.7	9.1	11.7	21.8	25.6	28.4	29.7	30.1	30.5	30.8	31.2	31.6
RO	10.6	11.5	3.6	4.7	8.1	9.8	10.8	11.3	11.7	12.1	12.5	12.9	13.4
SE	23.2	22.2	5.5	5.7	14.7	18.7	21.3	22.6	22.9	23.3	23.7	24.1	24.5
SI	0.9	0.9	0.1	0.2	0.5	0.7	0.8	0.9	0.9	0.9	0.9	0.9	0.9
SK	1.4	1.4	0.3	0.3	0.8	1.1	1.3	1.3	1.4	1.4	1.5	1.5	1.6
CH	28.5	29.0	8.0	10.4	21.8	24.8	27.5	28.7	29.0	29.4	29.8	30.2	30.5
IS	5.2	3.9	0.8	1.0	2.3	3.5	3.8	4.1	4.1	4.2	4.3	4.4	4.4
NO	28.1	28.2	10.6	10.9	19.1	24.5	27.3	28.7	29.1	29.6	30.1	30.5	31.0
UK	145.7	147.9	37.1	40.4	107.4	127.5	141.1	148.1	150.1	152.2	154.3	156.5	158.6
<b>EU27</b>	<b>731</b>	<b>757</b>	<b>210</b>	<b>265</b>	<b>555</b>	<b>655</b>	<b>730</b>	<b>767</b>	<b>778</b>	<b>789</b>	<b>801</b>	<b>813</b>	<b>825</b>
<b>EU27+4</b>	<b>938</b>	<b>966</b>	<b>266</b>	<b>328</b>	<b>706</b>	<b>835</b>	<b>929</b>	<b>977</b>	<b>991</b>	<b>1,005</b>	<b>1,020</b>	<b>1,034</b>	<b>1,050</b>

Table D.19: Low Case passenger forecast-Domestic and Intra-EU

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
AT	12.2	13.7	3.7	4.3	8.0	10.0	11.5	13.1	13.2	13.2	13.3	13.4	13.5
BE	13.1	13.2	3.6	4.1	7.5	9.4	10.8	12.2	12.4	12.6	12.8	12.9	13.1
BG	5.2	4.9	1.8	2.2	2.9	3.6	4.0	4.5	4.6	4.7	4.7	4.8	4.9
CY	3.9	3.9	1.0	1.4	2.2	3.1	3.6	4.0	4.1	4.2	4.2	4.3	4.4
CZ	6.5	6.7	1.5	1.7	3.5	4.6	5.3	6.1	6.2	6.3	6.3	6.4	6.5
DE	89.8	89.7	22.9	24.7	50.8	65.0	75.2	85.7	86.4	87.0	87.7	88.4	89.0
DK	15.5	15.4	4.0	4.0	8.2	10.9	12.8	14.0	14.3	14.6	14.9	15.2	15.5

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EE	1.3	1.4	0.4	0.4	0.7	0.9	1.1	1.2	1.3	1.3	1.4	1.4	1.4
EL	27.9	28.5	10.3	14.2	18.9	22.5	24.8	27.2	27.4	27.7	27.9	28.2	28.4
ES	118.3	122.6	34.9	45.2	74.9	88.1	98.5	112.7	114.6	116.6	118.5	120.6	122.6
FI	10.4	10.7	2.7	2.6	5.9	7.8	9.2	9.9	10.0	10.2	10.3	10.4	10.5
FR	70.4	72.7	25.2	31.4	49.0	56.2	61.6	68.6	68.7	68.8	68.9	69.0	69.1
HR	4.7	5.1	1.0	1.3	2.6	3.5	4.1	4.7	4.8	4.8	4.9	4.9	5.0
HU	6.2	6.8	1.7	2.0	3.6	4.7	5.5	6.3	6.3	6.4	6.5	6.6	6.6
IE	15.5	16.2	3.7	3.7	7.9	11.8	13.8	15.7	15.8	16.0	16.1	16.3	16.4
IT	78.8	81.4	23.6	30.9	50.0	59.4	66.5	74.2	74.6	75.0	75.4	75.8	76.2
LT	2.6	2.6	0.8	0.8	1.4	1.9	2.3	2.5	2.6	2.7	2.7	2.8	2.9
LU	1.9	2.1	0.7	0.8	1.3	1.5	1.7	1.9	2.0	2.0	2.1	2.2	2.2
LV	2.8	3.0	0.8	0.9	1.6	2.1	2.6	2.8	2.9	2.9	3.0	3.1	3.1
MT	3.2	3.4	0.8	1.1	1.7	2.4	2.9	3.3	3.5	3.7	4.0	4.2	4.5
NL	27.4	27.8	8.3	8.6	16.0	20.1	23.2	25.8	26.1	26.5	26.8	27.1	27.5
PL	19.1	19.7	6.1	7.2	11.3	14.5	16.9	18.4	19.2	19.9	20.8	21.6	22.5
PT	24.4	25.6	8.1	9.9	14.9	18.3	20.9	23.4	23.7	24.0	24.3	24.6	24.9
RO	9.4	10.0	3.2	4.1	5.6	7.2	8.2	9.1	9.4	9.7	10.0	10.3	10.6
SE	20.7	19.7	4.9	4.9	10.3	13.9	16.4	17.9	18.2	18.5	18.8	19.0	19.3
SI	0.6	0.6	0.1	0.1	0.3	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6
SK	1.0	1.0	0.2	0.3	0.5	0.6	0.8	0.8	0.9	0.9	0.9	1.0	1.0
CH	21.6	21.7	6.1	7.6	13.1	15.6	17.6	19.8	20.0	20.1	20.3	20.4	20.6
IS	3.4	2.8	0.7	0.8	1.3	2.2	2.6	2.9	2.9	3.0	3.0	3.1	3.1
NO	27.1	27.1	10.3	10.6	16.1	21.4	24.3	25.9	26.2	26.6	27.1	27.5	27.9
UK	110.5	111.4	27.4	28.4	62.9	80.6	92.2	104.5	105.5	106.6	107.7	108.8	109.9
<b>EU27</b>	<b>593</b>	<b>608</b>	<b>176</b>	<b>213</b>	<b>361</b>	<b>444</b>	<b>504</b>	<b>567</b>	<b>573</b>	<b>581</b>	<b>588</b>	<b>595</b>	<b>602</b>
<b>EU27+4</b>	<b>755</b>	<b>771</b>	<b>220</b>	<b>260</b>	<b>455</b>	<b>564</b>	<b>641</b>	<b>720</b>	<b>728</b>	<b>737</b>	<b>746</b>	<b>755</b>	<b>764</b>

Table D.20: Low Case passenger forecast-Extra-EU

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
AT	3.8	4.5	1.0	1.3	2.7	3.5	4.1	4.3	4.3	4.4	4.5	4.5	4.6
BE	4.2	4.5	1.1	1.4	2.7	3.4	4.0	4.2	4.2	4.2	4.3	4.3	4.4
BG	1.1	1.1	0.2	0.3	0.5	0.8	0.9	1.0	1.0	1.1	1.1	1.1	1.2
CY	1.7	1.8	0.2	0.3	0.9	1.4	1.7	1.9	1.9	2.0	2.1	2.2	2.3
CZ	2.5	2.7	0.5	0.6	1.4	2.0	2.3	2.5	2.5	2.5	2.6	2.6	2.6
DE	33.1	35.1	8.6	10.1	21.4	27.6	32.0	33.5	34.5	35.5	36.5	37.6	38.7
DK	2.6	2.7	0.6	0.6	1.4	2.0	2.4	2.5	2.6	2.7	2.8	2.9	3.0
EE	0.2	0.3	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3
EL	3.6	3.9	0.6	0.9	2.1	2.9	3.5	3.7	3.7	3.8	3.8	3.8	3.8
ES	11.8	12.7	2.7	3.9	7.7	9.6	11.1	11.6	11.8	11.9	12.0	12.1	12.2
FI	2.3	2.5	0.5	0.5	1.4	1.9	2.2	2.4	2.4	2.5	2.5	2.6	2.6
FR	26.2	27.6	7.2	9.9	18.1	22.1	25.1	26.1	26.6	27.1	27.6	28.1	28.7
HR	0.5	0.6	0.1	0.1	0.3	0.4	0.5	0.5	0.5	0.6	0.6	0.6	0.6
HU	1.4	1.6	0.3	0.4	0.8	1.2	1.4	1.5	1.5	1.6	1.7	1.7	1.8
IE	2.8	2.9	0.5	0.5	1.4	2.2	2.6	2.8	2.8	2.8	2.8	2.8	2.8
IT	14.1	15.4	3.0	4.3	8.8	11.4	13.3	14.0	14.5	14.9	15.4	15.8	16.3
LT	0.5	0.7	0.1	0.1	0.3	0.5	0.6	0.6	0.6	0.7	0.7	0.7	0.7
LU	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
LV	0.7	0.9	0.2	0.2	0.4	0.6	0.8	0.8	0.9	0.9	0.9	0.9	0.9
MT	0.2	0.3	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.4
NL	12.7	12.9	3.5	3.9	7.7	9.9	11.5	12.0	12.3	12.6	12.9	13.2	13.6
PL	3.7	4.7	1.1	1.4	2.6	3.5	4.2	4.4	4.7	4.9	5.2	5.5	5.8
PT	3.4	4.0	1.0	1.4	2.3	3.0	3.5	3.7	3.7	3.7	3.7	3.8	3.8
RO	1.3	1.5	0.3	0.5	0.8	1.1	1.3	1.3	1.4	1.5	1.5	1.6	1.7
SE	2.5	2.5	0.7	0.7	1.4	1.8	2.2	2.2	2.3	2.4	2.4	2.5	2.5
SI	0.3	0.3	0.0	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
SK	0.4	0.4	0.1	0.1	0.2	0.3	0.4	0.4	0.4	0.4	0.4	0.5	0.5
CH	6.9	7.3	1.9	2.6	4.6	5.7	6.5	6.7	6.9	7.1	7.2	7.4	7.6

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
<b>IS</b>	1.7	1.1	0.1	0.1	0.4	0.8	1.0	1.1	1.1	1.1	1.2	1.2	1.2
<b>NO</b>	1.0	1.1	0.2	0.2	0.5	0.8	0.9	1.0	1.0	1.1	1.1	1.1	1.2
<b>UK</b>	35.2	36.4	9.6	10.9	23.1	29.1	33.0	34.2	35.0	35.9	36.8	37.7	38.7
<b>EU27</b>	<b>138</b>	<b>148</b>	<b>34</b>	<b>44</b>	<b>88</b>	<b>114</b>	<b>133</b>	<b>139</b>	<b>142</b>	<b>146</b>	<b>149</b>	<b>153</b>	<b>156</b>
<b>EU27+4</b>	<b>183</b>	<b>194</b>	<b>46</b>	<b>57</b>	<b>116</b>	<b>150</b>	<b>174</b>	<b>182</b>	<b>186</b>	<b>191</b>	<b>195</b>	<b>200</b>	<b>205</b>

Table D.21: Low Case passenger forecast-Total

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
<b>AT</b>	16.0	18.2	4.7	5.6	10.6	13.5	15.6	17.4	17.5	17.6	17.8	17.9	18.1
<b>BE</b>	17.3	17.7	4.7	5.6	10.3	12.9	14.8	16.4	16.6	16.8	17.0	17.3	17.5
<b>BG</b>	6.3	6.0	1.9	2.4	3.4	4.4	5.0	5.5	5.6	5.7	5.8	5.9	6.1
<b>CY</b>	5.5	5.7	1.2	1.7	3.1	4.4	5.3	5.9	6.0	6.2	6.3	6.5	6.7
<b>CZ</b>	8.9	9.4	1.9	2.3	4.9	6.5	7.6	8.5	8.7	8.8	8.9	9.0	9.1
<b>DE</b>	122.9	124.8	31.5	34.9	72.1	92.6	107.2	119.2	120.8	122.5	124.2	126.0	127.7
<b>DK</b>	18.1	18.2	4.6	4.6	9.6	12.9	15.1	16.5	16.9	17.3	17.6	18.0	18.5
<b>EE</b>	1.5	1.7	0.4	0.4	0.8	1.1	1.4	1.5	1.5	1.6	1.6	1.6	1.7
<b>EL</b>	31.5	32.4	10.9	15.1	21.0	25.4	28.2	30.9	31.2	31.4	31.7	32.0	32.3
<b>ES</b>	130.1	135.3	37.6	49.1	82.6	97.8	109.6	124.3	126.4	128.4	130.5	132.7	134.8
<b>FI</b>	12.7	13.2	3.2	3.2	7.2	9.6	11.4	12.3	12.4	12.6	12.8	12.9	13.1
<b>FR</b>	96.6	100.3	32.4	41.3	67.1	78.3	86.7	94.7	95.3	95.9	96.5	97.1	97.8
<b>HR</b>	5.2	5.6	1.1	1.4	2.9	3.9	4.6	5.3	5.3	5.4	5.4	5.5	5.5
<b>HU</b>	7.7	8.4	2.0	2.4	4.4	5.9	6.9	7.7	7.9	8.0	8.2	8.3	8.5
<b>IE</b>	18.3	19.1	4.1	4.2	9.2	13.9	16.4	18.5	18.6	18.8	18.9	19.1	19.3
<b>IT</b>	92.9	96.8	26.6	35.1	58.8	70.8	79.8	88.2	89.1	89.9	90.8	91.7	92.6
<b>LT</b>	3.1	3.2	0.9	1.0	1.8	2.4	2.9	3.1	3.2	3.3	3.4	3.5	3.6
<b>LU</b>	2.0	2.2	0.7	0.8	1.3	1.6	1.8	2.0	2.1	2.1	2.2	2.3	2.3
<b>LV</b>	3.5	3.9	1.0	1.0	2.0	2.7	3.3	3.6	3.7	3.8	3.9	4.0	4.0
<b>MT</b>	3.4	3.7	0.9	1.2	1.9	2.7	3.2	3.6	3.8	4.1	4.3	4.6	4.9
<b>NL</b>	40.1	40.8	11.7	12.5	23.7	29.9	34.7	37.8	38.4	39.1	39.7	40.4	41.1
<b>PL</b>	22.8	24.5	7.3	8.7	13.9	18.1	21.1	22.8	23.8	24.9	26.0	27.2	28.4



PT	27.9	29.7	9.1	11.2	17.3	21.4	24.4	27.1	27.4	27.7	28.0	28.4	28.7
RO	10.6	11.5	3.6	4.5	6.4	8.3	9.4	10.4	10.8	11.1	11.5	11.9	12.3
SE	23.2	22.2	5.5	5.6	11.7	15.7	18.6	20.1	20.5	20.8	21.2	21.5	21.9
SI	0.9	0.9	0.1	0.2	0.4	0.6	0.7	0.8	0.8	0.8	0.8	0.9	0.9
SK	1.4	1.4	0.3	0.3	0.7	0.9	1.1	1.2	1.3	1.3	1.4	1.4	1.5
CH	28.5	29.0	8.0	10.2	17.7	21.3	24.1	26.5	26.8	27.2	27.5	27.9	28.2
IS	5.2	3.9	0.8	0.9	1.6	3.0	3.6	4.0	4.0	4.1	4.2	4.3	4.3
NO	28.1	28.2	10.6	10.8	16.7	22.1	25.3	26.9	27.3	27.7	28.2	28.6	29.0
UK	145.7	147.9	37.1	39.3	86.0	109.6	125.2	138.6	140.6	142.5	144.5	146.5	148.5
<b>EU27</b>	<b>731</b>	<b>757</b>	<b>210</b>	<b>256</b>	<b>449</b>	<b>558</b>	<b>637</b>	<b>705</b>	<b>716</b>	<b>726</b>	<b>737</b>	<b>748</b>	<b>759</b>
<b>EU27+4</b>	<b>938</b>	<b>966</b>	<b>266</b>	<b>318</b>	<b>571</b>	<b>714</b>	<b>815</b>	<b>901</b>	<b>914</b>	<b>928</b>	<b>941</b>	<b>955</b>	<b>969</b>

Table D.22: High Case passenger forecast-Domestic and Intra-EU

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
AT	12.2	13.7	3.7	4.6	10.6	13.3	14.7	15.6	15.7	15.8	15.9	16.0	16.1
BE	13.1	13.2	3.6	4.4	10.0	12.4	13.7	14.6	14.8	15.0	15.2	15.4	15.6
BG	5.2	4.9	1.8	2.3	4.0	4.9	5.1	5.4	5.5	5.6	5.7	5.8	5.8
CY	3.9	3.9	1.0	1.5	3.0	4.0	4.3	4.7	4.8	4.9	4.9	5.0	5.1
CZ	6.5	6.7	1.5	1.8	4.7	6.1	6.8	7.3	7.4	7.5	7.6	7.7	7.8
DE	89.8	89.7	22.9	26.1	66.1	84.4	94.3	100.4	101.2	102.0	102.8	103.6	104.4
DK	15.5	15.4	4.0	4.2	11.1	14.4	16.0	17.0	17.3	17.7	18.0	18.4	18.8
EE	1.3	1.4	0.4	0.4	0.9	1.3	1.4	1.5	1.5	1.6	1.6	1.7	1.7
EL	27.9	28.5	10.3	15.3	23.9	28.5	30.4	31.9	32.1	32.4	32.7	33.0	33.3
ES	118.3	122.6	34.9	48.7	102.2	120.7	134.3	142.6	145.0	147.5	150.0	152.6	155.2
FI	10.4	10.7	2.7	2.8	7.8	10.1	11.1	11.9	12.0	12.1	12.2	12.3	12.5
FR	70.4	72.7	25.2	33.5	64.5	74.0	79.6	82.6	82.8	82.9	83.0	83.1	83.3
HR	4.7	5.1	1.0	1.4	3.5	4.6	5.3	5.8	5.8	5.9	5.9	6.0	6.0
HU	6.2	6.8	1.7	2.1	4.9	6.4	7.0	7.6	7.7	7.8	7.9	8.0	8.1
IE	15.5	16.2	3.7	4.0	11.4	15.6	16.7	17.8	18.0	18.2	18.3	18.5	18.7
IT	78.8	81.4	23.6	33.4	66.6	79.5	86.4	91.2	91.7	92.2	92.7	93.2	93.7

LT	2.6	2.6	0.8	0.9	1.9	2.5	2.8	3.0	3.1	3.2	3.3	3.4	3.5
LU	1.9	2.1	0.7	0.8	1.7	2.0	2.2	2.3	2.3	2.4	2.5	2.6	2.6
LV	2.8	3.0	0.8	0.9	2.1	2.9	3.2	3.4	3.4	3.5	3.6	3.7	3.8
MT	3.2	3.4	0.8	1.2	2.3	3.3	3.6	3.9	4.2	4.4	4.7	5.1	5.4
NL	27.4	27.8	8.3	9.2	21.5	26.5	28.8	30.4	30.7	31.1	31.5	31.9	32.3
PL	19.1	19.7	6.1	7.7	15.1	19.3	21.1	22.2	23.1	24.1	25.1	26.1	27.2
PT	24.4	25.6	8.1	10.6	20.4	24.8	27.2	28.7	29.1	29.5	29.9	30.3	30.7
RO	9.4	10.0	3.2	4.3	7.6	9.6	10.3	10.9	11.3	11.6	12.0	12.3	12.7
SE	20.7	19.7	4.9	5.4	13.9	18.3	20.4	21.7	22.0	22.4	22.7	23.1	23.4
SI	0.6	0.6	0.1	0.1	0.4	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.7
SK	1.0	1.0	0.2	0.3	0.6	0.9	1.0	1.0	1.1	1.1	1.1	1.1	1.2
CH	21.6	21.7	6.1	8.1	17.6	20.9	22.8	23.9	24.1	24.3	24.5	24.7	24.9
IS	3.4	2.8	0.7	0.8	1.9	2.8	2.9	3.1	3.2	3.2	3.3	3.3	3.4
NO	27.1	27.1	10.3	10.9	19.3	25.1	27.8	29.2	29.7	30.2	30.6	31.1	31.6
UK	110.5	111.4	27.4	30.6	84.7	106.3	116.4	123.3	124.6	125.9	127.1	128.4	129.7
<b>EU27</b>	<b>593</b>	<b>608</b>	<b>176</b>	<b>228</b>	<b>483</b>	<b>591</b>	<b>648</b>	<b>686</b>	<b>694</b>	<b>703</b>	<b>712</b>	<b>721</b>	<b>730</b>
<b>EU27+4</b>	<b>755</b>	<b>771</b>	<b>220</b>	<b>279</b>	<b>606</b>	<b>746</b>	<b>818</b>	<b>866</b>	<b>876</b>	<b>886</b>	<b>897</b>	<b>908</b>	<b>919</b>

Table D.23: High Case passenger forecast-Extra-EU

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
AT	3.8	4.5	1.0	1.3	3.3	4.3	4.9	5.1	5.2	5.3	5.3	5.4	5.5
BE	4.2	4.5	1.1	1.4	3.4	4.3	4.7	5.0	5.0	5.1	5.1	5.2	5.2
BG	1.1	1.1	0.2	0.3	0.7	1.0	1.1	1.2	1.2	1.3	1.3	1.4	1.4
CY	1.7	1.8	0.2	0.3	1.1	1.7	2.0	2.2	2.3	2.4	2.5	2.6	2.7
CZ	2.5	2.7	0.5	0.6	1.8	2.5	2.8	3.0	3.0	3.0	3.1	3.1	3.2
DE	33.1	35.1	8.6	10.0	26.0	33.4	37.5	39.2	40.4	41.6	42.8	44.0	45.3
DK	2.6	2.7	0.6	0.6	1.9	2.5	2.9	3.0	3.1	3.2	3.3	3.5	3.6
EE	0.2	0.3	0.1	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
EL	3.6	3.9	0.6	0.9	2.5	3.5	4.1	4.4	4.4	4.4	4.4	4.5	4.5
ES	11.8	12.7	2.7	3.9	9.7	12.2	14.0	14.7	14.9	15.0	15.2	15.3	15.5

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
FI	2.3	2.5	0.5	0.6	1.8	2.4	2.7	2.8	2.9	2.9	3.0	3.0	3.1
FR	26.2	27.6	7.2	9.8	22.3	27.2	30.3	31.4	32.0	32.6	33.3	33.9	34.6
HR	0.5	0.6	0.1	0.1	0.4	0.5	0.6	0.7	0.7	0.7	0.7	0.7	0.7
HU	1.4	1.6	0.3	0.4	1.1	1.5	1.7	1.8	1.9	1.9	2.0	2.1	2.2
IE	2.8	2.9	0.5	0.5	1.9	2.7	3.0	3.2	3.2	3.2	3.2	3.2	3.2
IT	14.1	15.4	3.0	4.4	11.2	14.5	16.4	17.3	17.8	18.3	18.9	19.5	20.0
LT	0.5	0.7	0.1	0.1	0.4	0.6	0.7	0.8	0.8	0.8	0.8	0.8	0.8
LU	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
LV	0.7	0.9	0.2	0.2	0.5	0.8	1.0	1.0	1.0	1.0	1.1	1.1	1.1
MT	0.2	0.3	0.1	0.1	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4
NL	12.7	12.9	3.5	3.9	9.8	12.3	13.5	14.1	14.5	14.8	15.2	15.6	16.0
PL	3.7	4.7	1.1	1.4	3.3	4.5	5.1	5.3	5.7	6.0	6.3	6.7	7.0
PT	3.4	4.0	1.0	1.4	3.0	3.9	4.3	4.5	4.6	4.6	4.6	4.6	4.6
RO	1.3	1.5	0.3	0.5	1.0	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1
SE	2.5	2.5	0.7	0.7	1.8	2.4	2.6	2.7	2.8	2.9	2.9	3.0	3.1
SI	0.3	0.3	0.0	0.1	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4
SK	0.4	0.4	0.1	0.1	0.2	0.4	0.4	0.5	0.5	0.5	0.5	0.6	0.6
CH	6.9	7.3	1.9	2.6	5.8	7.1	7.8	8.1	8.3	8.5	8.7	9.0	9.2
IS	1.7	1.1	0.1	0.1	0.6	1.0	1.1	1.2	1.2	1.2	1.3	1.3	1.3
NO	1.0	1.1	0.2	0.2	0.6	0.9	1.1	1.1	1.2	1.2	1.2	1.3	1.3
UK	35.2	36.4	9.6	10.9	29.0	35.9	39.0	40.3	41.4	42.4	43.4	44.5	45.6
<b>EU27</b>	<b>138</b>	<b>148</b>	<b>34</b>	<b>44</b>	<b>110</b>	<b>141</b>	<b>159</b>	<b>167</b>	<b>170</b>	<b>174</b>	<b>179</b>	<b>183</b>	<b>187</b>
<b>EU27+4</b>	<b>183</b>	<b>194</b>	<b>46</b>	<b>58</b>	<b>146</b>	<b>186</b>	<b>208</b>	<b>217</b>	<b>222</b>	<b>228</b>	<b>233</b>	<b>239</b>	<b>245</b>

Table D.24: High Case passenger forecast-Total

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
AT	16.0	18.2	4.7	5.9	14.0	17.7	19.6	20.7	20.9	21.1	21.2	21.4	21.6
BE	17.3	17.7	4.7	5.8	13.5	16.7	18.5	19.5	19.8	20.0	20.3	20.6	20.8
BG	6.3	6.0	1.9	2.6	4.7	5.9	6.3	6.6	6.7	6.9	7.0	7.1	7.3

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
<b>CY</b>	5.5	5.7	1.2	1.9	4.1	5.7	6.4	6.9	7.1	7.3	7.4	7.6	7.8
<b>CZ</b>	8.9	9.4	1.9	2.4	6.5	8.6	9.6	10.3	10.4	10.6	10.7	10.9	11.0
<b>DE</b>	122.9	124.8	31.5	36.1	92.1	117.8	131.8	139.7	141.6	143.6	145.6	147.6	149.7
<b>DK</b>	18.1	18.2	4.6	4.9	12.9	17.0	18.9	20.0	20.5	20.9	21.4	21.9	22.4
<b>EE</b>	1.5	1.7	0.4	0.5	1.1	1.5	1.7	1.8	1.8	1.9	1.9	2.0	2.0
<b>EL</b>	31.5	32.4	10.9	16.2	26.4	32.0	34.5	36.2	36.5	36.9	37.2	37.5	37.8
<b>ES</b>	130.1	135.3	37.6	52.6	111.9	133.0	148.4	157.3	159.9	162.5	165.2	167.9	170.7
<b>FI</b>	12.7	13.2	3.2	3.4	9.5	12.5	13.8	14.7	14.8	15.0	15.2	15.4	15.6
<b>FR</b>	96.6	100.3	32.4	43.3	86.8	101.2	109.8	114.1	114.8	115.5	116.3	117.0	117.8
<b>HR</b>	5.2	5.6	1.1	1.5	3.9	5.2	5.9	6.4	6.5	6.5	6.6	6.7	6.7
<b>HU</b>	7.7	8.4	2.0	2.5	6.0	7.9	8.7	9.4	9.5	9.7	9.9	10.1	10.3
<b>IE</b>	18.3	19.1	4.1	4.5	13.2	18.3	19.7	21.0	21.2	21.4	21.5	21.7	21.9
<b>IT</b>	92.9	96.8	26.6	37.8	77.8	94.0	102.8	108.4	109.5	110.5	111.6	112.7	113.8
<b>LT</b>	3.1	3.2	0.9	1.0	2.3	3.2	3.5	3.7	3.8	4.0	4.1	4.2	4.3
<b>LU</b>	2.0	2.2	0.7	0.9	1.8	2.1	2.3	2.4	2.5	2.6	2.6	2.7	2.8
<b>LV</b>	3.5	3.9	1.0	1.1	2.6	3.7	4.1	4.4	4.5	4.6	4.7	4.7	4.8
<b>MT</b>	3.4	3.7	0.9	1.3	2.5	3.5	3.9	4.2	4.5	4.8	5.1	5.5	5.8
<b>NL</b>	40.1	40.8	11.7	13.1	31.3	38.7	42.4	44.5	45.2	46.0	46.7	47.5	48.3
<b>PL</b>	22.8	24.5	7.3	9.1	18.4	23.8	26.3	27.5	28.8	30.0	31.4	32.8	34.2
<b>PT</b>	27.9	29.7	9.1	11.9	23.4	28.7	31.6	33.3	33.7	34.1	34.5	34.9	35.3
<b>RO</b>	10.6	11.5	3.6	4.8	8.6	11.0	11.8	12.5	12.9	13.4	13.8	14.3	14.8
<b>SE</b>	23.2	22.2	5.5	6.2	15.7	20.7	23.0	24.4	24.8	25.2	25.6	26.1	26.5
<b>SI</b>	0.9	0.9	0.1	0.2	0.6	0.8	0.9	1.0	1.0	1.0	1.0	1.0	1.0
<b>SK</b>	1.4	1.4	0.3	0.3	0.9	1.2	1.4	1.5	1.5	1.6	1.7	1.7	1.8
<b>CH</b>	28.5	29.0	8.0	10.7	23.4	27.9	30.6	32.0	32.4	32.8	33.3	33.7	34.1
<b>IS</b>	5.2	3.9	0.8	1.0	2.4	3.7	4.0	4.3	4.4	4.5	4.5	4.6	4.7
<b>NO</b>	28.1	28.2	10.6	11.1	20.0	26.0	28.9	30.4	30.9	31.4	31.9	32.4	32.9
<b>UK</b>	145.7	147.9	37.1	41.5	113.7	142.2	155.4	163.7	165.9	168.2	170.6	172.9	175.3
<b>EU27</b>	<b>731</b>	<b>757</b>	<b>210</b>	<b>272</b>	<b>592</b>	<b>732</b>	<b>807</b>	<b>852</b>	<b>865</b>	<b>877</b>	<b>890</b>	<b>903</b>	<b>917</b>

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EU27+4	938	966	266	336	752	932	1,026	1,083	1,098	1,114	1,130	1,147	1,164

## Market development overlays

- D.42 Market overlays have been developed for 2019, 2020 and 2021 from historical data as discussed in the Historical passenger data section. To enable projected passenger demand to be suitably allocated out between airlines and geographical market from each airport, the development of hypothesised market development overlays is required to best reflect market development to 2030.

### Development of market overlays

- D.43 Information gathered from the market analysis (through answering questions on clusters 1, 4, 5 and 6) together with information from stakeholder responses has been used to influence the development of market overlays by year between 2022 and 2030. These overlays determine the structure of the market at each airport, allocating passengers out by airline and also by destination group. Individual overlays are created for the domestic, intra-EU+4 and extra-EU+4 market at each airport.

### Market composition

- D.44 Market development overlays are created for each year by defining the assumed influence of the 2019-2021 market structure in the years 2022-2030. The table below presents the assumptions used in the current version of the model.

Table D.25: Market structure definition – 2022

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
2019	100%			25%	50%	80%	80%	80%	80%	80%	80%	80%
2020		100%		25%	20%	10%	10%	10%	10%	10%	10%	10%
2021			100%	50%	30%	10%	10%	10%	10%	10%	10%	10%

- D.45 The inputs assume that the composition of the market at each airport will gradually return to a profile more influenced by the 2019 structure of the industry. From 2024 onwards, 80% of the market composition at all airports is based on the 2019 structure as it is assumed that airlines, particularly with slot portfolios are congested airports, will seek to re-establish themselves in their pre-COVID-19 forms as much as possible. At the same time, it is important to recognise that some airlines expanded their presence at other airports during the COVID-19 pandemic, and provided they have been able to secure long term access, will likely remain operating to these airports if it has been a commercial success.

### Passenger outputs

- D.46 Outputs based on the current airport allocation and airline and geographical market share methodologies are shown below to provide an indication of the outputs from the model. The calculations and structure will be refined to ensure full alignment between the overall passenger forecast and the disaggregated outputs
- D.47 The follow outputs are presented for reference and are based on the central case passenger projections:
1. Passengers by route type;
  2. Passenger by airline; and
  3. Third country market structure.

**Table D.26: Passengers by route type– EU27+4 – Central Case**

		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EU27+4	Regional	8.4	2.7	2.5	5.4	6.8	7.9	8.3	8.4	8.4	8.5	8.6	8.7
EU27+4	EU+ Short (HSR)	68.1	20.7	23.1	48.9	58.0	65.0	68.3	68.9	69.6	70.2	70.9	71.5
EU27+4	EU+ Short (NoCo)	339.6	99.8	108.4	237.0	283.6	321.6	338.3	342.0	345.7	349.5	353.4	357.4
EU27+4	EU+ Long	355.4	96.7	137.8	278.3	320.6	347.2	365.7	370.6	375.6	380.6	385.8	391.1
		-	-	-	-	-	-	-	-	-	-	-	-
Extra-EU	Africa	27.4	7.5	9.8	21.9	25.2	27.2	28.4	29.0	29.6	30.2	30.9	31.5
Extra-EU	Asia	18.5	4.4	3.8	11.2	14.4	17.3	18.0	18.5	19.0	19.4	19.9	20.4
Extra-EU	China	6.3	0.8	0.3	2.1	3.5	5.3	5.5	5.6	5.8	5.9	6.1	6.2
Extra-EU	E. Europe	28.1	7.0	7.8	19.8	25.0	28.6	30.0	30.8	31.7	32.5	33.4	34.3
Extra-EU	Middle East	31.8	8.0	9.2	23.0	27.8	30.9	32.3	33.1	34.0	34.8	35.7	36.7
Extra-EU	North America	43.1	8.2	10.5	26.8	34.0	40.2	42.0	42.9	43.9	44.9	46.0	47.0
Extra-EU	Regional	-	-	-	-	-	-	-	-	-	-	-	-
Extra-EU	South America	16.2	4.5	5.9	13.1	15.0	16.2	16.9	17.2	17.5	17.8	18.2	18.5
Extra-EU	W. Europe	22.9	5.7	8.7	18.8	21.4	22.3	23.3	24.0	24.6	25.2	25.9	26.6
<b>Total</b>	<b>Total</b>	<b>966</b>	<b>266</b>	<b>328</b>	<b>706</b>	<b>835</b>	<b>930</b>	<b>977</b>	<b>991</b>	<b>1,005</b>	<b>1,020</b>	<b>1,035</b>	<b>1,050</b>

**Table D.27: Passengers by airline (millions) – EU27+4 – Central Case**

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
AFKLM	104.4	33.2	44.4	87.9	97.8	104.2	108.7	110.0	111.4	112.8	114.2	115.6
Air Baltic	5.0	1.4	1.8	3.9	4.8	5.1	5.4	5.5	5.6	5.7	5.8	5.9
easyJet	92.3	22.8	27.8	62.6	74.3	84.3	88.5	89.4	90.3	91.2	92.2	93.1
IAG	122.0	32.8	36.8	85.6	102.0	115.8	121.7	123.4	125.1	126.9	128.7	130.5
Lufthansa Group	145.8	31.4	44.9	99.9	120.7	138.3	145.6	147.5	149.5	151.6	153.6	155.7
Ryanair	146.4	47.0	65.1	129.3	144.0	148.5	156.4	158.6	160.8	163.1	165.4	167.8
SAS	29.6	8.4	8.6	18.8	24.2	28.0	29.5	30.0	30.5	31.0	31.6	32.1
SATA	0.6	0.3	0.3	0.5	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7
TAP	17.4	4.8	5.8	12.1	14.6	16.6	17.4	17.5	17.7	17.9	18.1	18.2
Widerøe	3.3	1.9	1.6	2.7	3.3	3.4	3.5	3.6	3.7	3.7	3.8	3.9



	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Wizz	40.1	20.1	17.3	38.3	43.1	42.6	44.8	45.8	46.9	48.0	49.2	50.3
EU_Other FSC	119.3	30.3	34.7	78.2	96.9	112.4	118.0	120.2	122.5	124.8	127.2	129.6
EU_Other LCC	46.5	11.8	12.3	26.7	34.7	42.3	44.5	45.1	45.7	46.4	47.0	47.7
EU_Other Leisure	56.8	12.9	16.3	37.6	46.1	53.5	56.2	57.1	58.0	59.0	60.0	61.0
EU_Other Regional	15.1	3.6	3.6	8.0	10.6	13.4	14.1	14.3	14.5	14.7	14.8	15.0
<b>EU Carriers</b>	<b>944.8</b>	<b>262.6</b>	<b>321.3</b>	<b>692.1</b>	<b>817.6</b>	<b>909.0</b>	<b>955.0</b>	<b>968.8</b>	<b>982.9</b>	<b>997.4</b>	<b>1,012.1</b>	<b>1,027.2</b>
Non-EU_FSC	163.6	36.7	43.9	111.0	138.0	158.6	166.0	169.8	173.7	177.8	182.0	186.2
Non-EU_LCC	16.5	4.4	4.9	11.8	14.2	15.7	16.4	16.8	17.3	17.7	18.1	18.6
Non-EU_Leisure	25.9	4.5	8.9	19.0	22.3	24.6	25.8	26.3	26.8	27.4	27.9	28.5
Non-EU_Regional	9.5	4.0	4.6	9.1	9.7	9.8	10.2	10.3	10.4	10.5	10.7	10.8
<b>Non-EU Carriers</b>	<b>215.5</b>	<b>49.6</b>	<b>62.3</b>	<b>151.0</b>	<b>184.2</b>	<b>208.7</b>	<b>218.3</b>	<b>223.2</b>	<b>228.2</b>	<b>233.4</b>	<b>238.7</b>	<b>244.1</b>
<b>Total</b>	<b>1,160.3</b>	<b>312.3</b>	<b>383.6</b>	<b>843.0</b>	<b>1,001.8</b>	<b>1,117.7</b>	<b>1,173.3</b>	<b>1,192.0</b>	<b>1,211.2</b>	<b>1,230.8</b>	<b>1,250.8</b>	<b>1,271.3</b>

Table D.28: Third Country market share by airline – EU27+4

Total	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Africa	23.5	6.3	8.3	18.4	21.4	23.2	24.3	24.8	25.3	25.8	26.3	26.9
Asia	12.3	2.8	2.2	6.9	9.2	11.4	11.9	12.2	12.5	12.8	13.1	13.5
China	5.1	0.6	0.3	1.7	2.9	4.3	4.5	4.6	4.7	4.8	4.9	5.1
E. Europe	25.1	5.9	6.7	17.3	22.2	25.6	27.0	27.7	28.4	29.2	30.0	30.8
Middle East	23.0	5.4	6.4	16.0	19.7	22.2	23.3	23.9	24.5	25.1	25.7	26.4
North America	27.6	5.2	7.2	17.5	22.0	25.9	27.1	27.6	28.2	28.9	29.5	30.2
Regional	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South America	13.5	3.8	4.5	10.4	12.1	13.3	13.9	14.2	14.4	14.7	14.9	15.2
W. Europe	18.2	4.2	6.7	14.5	16.6	17.5	18.3	18.8	19.3	19.8	20.4	20.9
<b>Total</b>	<b>148.2</b>	<b>34.2</b>	<b>42.3</b>	<b>102.6</b>	<b>126.1</b>	<b>143.4</b>	<b>150.2</b>	<b>153.7</b>	<b>157.4</b>	<b>161.1</b>	<b>165.0</b>	<b>168.9</b>
<b>EU Airlines</b>												
Africa	15.0	3.9	5.3	11.7	13.6	14.8	15.5	15.8	16.1	16.5	16.8	17.1
Asia	6.4	1.6	1.3	3.9	5.1	6.1	6.3	6.5	6.7	6.9	7.0	7.2
China	2.2	0.2	0.1	0.7	1.2	1.8	1.9	1.9	2.0	2.0	2.1	2.1

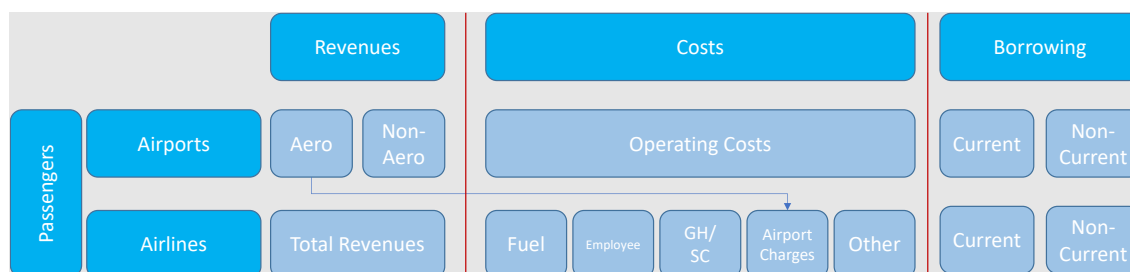
Total	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
E. Europe	12.5	3.6	4.2	9.8	11.7	12.4	13.0	13.4	13.8	14.2	14.6	15.0
Middle East	12.4	2.7	3.4	8.2	10.3	11.8	12.4	12.7	13.1	13.4	13.8	14.1
North America	15.5	3.1	4.0	9.9	12.5	14.6	15.3	15.6	16.0	16.3	16.7	17.1
Regional	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South America	11.4	3.3	4.0	9.0	10.5	11.4	11.9	12.1	12.3	12.5	12.8	13.0
W. Europe	4.9	1.0	1.5	3.4	4.1	4.6	4.8	4.9	5.0	5.2	5.3	5.5
<b>Total</b>	<b>80.2</b>	<b>19.4</b>	<b>23.9</b>	<b>56.7</b>	<b>68.8</b>	<b>77.4</b>	<b>81.1</b>	<b>83.0</b>	<b>84.9</b>	<b>87.0</b>	<b>89.1</b>	<b>91.2</b>
<b>EU Airline Market Share</b>												
Africa	64%	62%	64%	63%	63%	64%	64%	64%	64%	64%	64%	64%
Asia	52%	58%	59%	57%	55%	53%	53%	53%	53%	53%	54%	54%
China	42%	31%	47%	40%	41%	42%	42%	42%	42%	42%	42%	42%
E. Europe	50%	61%	63%	56%	53%	48%	48%	48%	48%	49%	49%	49%
Middle East	54%	49%	53%	51%	52%	53%	53%	53%	53%	53%	53%	54%
North America	56%	59%	56%	57%	57%	57%	56%	57%	57%	57%	57%	57%
Regional	-	-	-	-	-	-	-	-	-	-	-	-
South America	85%	88%	89%	87%	86%	85%	85%	85%	85%	85%	86%	86%
W. Europe	27%	24%	23%	24%	25%	26%	26%	26%	26%	26%	26%	26%
<b>Total</b>	<b>54%</b>	<b>57%</b>	<b>56%</b>	<b>55%</b>	<b>55%</b>	<b>54%</b>	<b>54%</b>	<b>54%</b>	<b>54%</b>	<b>54%</b>	<b>54%</b>	<b>54%</b>

## Financial inputs and sustainability

### Overview

- D.48 Data analysis and stakeholder inputs from cluster 3 were used to establish the financial situation by stakeholder group between 2019 and 2021 and also to develop unit rates to drivers from which financial projections could be generated. 2021 was used as the baseline year from which financial projections are estimated to 2030. Financial projections have been developed for airports and airlines.
- D.49 The table below presents the structure of financial calculations. Due to the availability of revenue, cost and borrowing data for airport and airlines, estimations of operational profitability can be projected. Data for groundhandling companies and slot coordinators was less detailed and instead revenue projections have been produced. The table below shows the constituent parts of the financial calculations for each stakeholder and the links between them.

Figure D.6: Structure of calculations



- D.50 Operational profitability results are presented in terms of EBITDA (earnings before interest, taxes, depreciation and amortisation), which measure profit without considering financial costs (such as interest), accounting practises (depreciation and amortisation) or tax. It therefore provides a measure of operational profitability by considering only costs and revenues associated with “day-to-day” operations. Whilst in many cases airports and airlines will appear profitable from an EBITDA perspective, many will not be in net profit terms, which includes all incurred expenses (interest cost and depreciation charges).
- D.51 Full year 2021 financial data is still in the process of being published and it is hoped that the complete set of 2021 financial information will be available for submission of the final report. The text below outlines the structure of the model and calculations. Where 2021 data this has been included and estimates for 2021 have been generated where unavailable.

### Airports

- D.52 Aeronautical revenues, non-aeronautical revenues, and operating cost data for the period 2019 to 2020/2021 were collected for a selection of 23 European airports<sup>191</sup> and airport groups. These airports and airport groups cover 62% of total passengers through EU27+4 airports and they were selected to ensure that a range of different sized airports from across Europe were included in the projection tool.

<sup>191</sup> Schiphol Group, Groupe ADP, AENA, Fraport, Zurich, Malta, Riga, Copenhagen, Eindhoven, Heathrow Airport Holdings, Flughafen München GmbH, Ivy Holdco Limited, Aeroporti di Roma, DAA, Flughafen Wien AG, ANA Portugal, Manchester Airports Group, SEA Milan, Brussels Airport, Swedavia, Athens, Dusseldorf, Billund, Bratislava, Stuttgart, HIAL airports

- D.53 Revenues and costs were converted to 2019 prices and into Euros where necessary using inflation and exchange rates sourced from Eurostat<sup>192</sup>.
- D.54 Average revenues and costs per passenger at each airport were then calculated for the period 2019-2021. As presented in the Market analysis section, the impact of reduced passengers due to COVID-19 generally resulted in metrics such as average aeronautical and non-aeronautical revenues per passenger increasing in 2020 and 2021.
- D.55 It is initially assumed that costs and revenues per passenger return to 2019 levels in 2025, with values between 2022 and 2025 being driven by the rate of passenger growth in this period (i.e. linear interpolation has not been used and changes in charges/revenues respond to changes in traffic). As a baseline, average costs and revenues per passenger are initially assumed to remain constant between 2025 and 2030.
- D.56 Financial information at airports for which data has been collected is directly applied to these airports. At the other airports included in the model estimates for costs and revenues per passenger are derived from averages of the 23 airports/airport groups included, based on the airport size groupings. The table below present the average aeronautical and non-aeronautical revenues per passenger included in the model.

**Table D.29: Aeronautical revenue, non-aeronautical revenue and operating cost per passenger assumptions, 2019 prices (EUR, 2019 prices)**

		Aeronautical			Non – Aeronautical and other revenues			Operating Costs		
		2019	2020	2021	2019	2020	2021	2019	2020	2021
1	Major Hub	€ 25	€ 31	€ 32	€ 25	€ 43	€ 42	-€ 28	-€ 80	-€ 68
2	Hub	€ 25	€ 31	€ 30	€ 23	€ 49	€ 46	-€ 28	-€ 78	-€ 73
3	Major	€ 14	€ 17	€ 13	€ 14	€ 29	€ 27	-€ 16	-€ 51	-€ 41
4	Medium	€ 16	€ 25	€ 25	€ 20	€ 64	€ 64	-€ 24	-€ 93	-€ 93
5	Regional	€ 22	€ 32	€ 32	€ 26	€ 129	€ 129	-€ 46	-€ 170	-€ 170

Source: Airport financial reports, Steer analysis

- D.57 The user is able to change future aeronautical and non-aeronautical traffic revenues per passenger on the dashboard for the period 2025-2030 so that the impact of changes across industry stakeholders can be estimated. These changes are inputted as a percentage change relative to 2019 values. The results presented below however assume no changes are made to future revenues and costs per passenger.
- D.58 The aeronautical revenue, non-aeronautical revenue and operating costs per passenger series at each airport are then multiplied through by the passenger forecast at each airport so that total revenues and operating costs and EBITDA in each calendar year can be calculated.
- D.59 The tables and figures below present airport EBITDA projections by Member State and by airport size.

<sup>192</sup> Inflation - PRC\_HICP\_AIND – Harmonised Index of consumer prices

**Table D.30: Airport EBITDA by Member State (EURm, 2019 prices) – Central Case**

Assumes aeronautical revenue, non-aeronautical revenue and operating costs per passenger return to 2019 levels in 2025 and are held constant.

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
AT	383	42	56	215	294	362	394	397	397	400	403	410
BE	51	-7	-3	18	32	45	50	51	46	46	47	54
BG	99	-16	40	71	85	92	97	98	98	100	102	106
CY	69	-5	-4	24	48	66	77	78	78	80	82	87
CZ	180	4	7	76	120	157	176	179	178	180	183	189
DE	2,254	-458	81	883	1,354	1,764	1,955	1,983	1,978	2,007	2,037	2,103
DK	344	13	15	153	240	314	347	355	354	362	370	389
EE	18	6	6	12	16	17	18	18	18	19	19	20
EL	711	-26	388	572	649	697	724	730	731	737	744	756
ES	2,767	718	666	1,805	2,220	2,616	2,817	2,863	2,861	2,907	2,955	3,055
FI	226	-0	4	95	157	208	232	235	234	237	239	247
FR	2,189	63	739	1,639	1,898	2,134	2,234	2,251	2,249	2,266	2,284	2,323
HR	44	-6	-9	8	23	38	45	46	45	46	46	48
HU	164	5	8	72	114	147	164	167	166	169	173	180
IE	306	-139	-146	-49	99	240	309	312	311	313	316	322
IT	1,389	-131	-127	517	902	1,246	1,407	1,421	1,416	1,430	1,445	1,482
LT	31	-5	-5	8	19	29	33	34	33	34	35	38
LU	27	-3	-3	9	17	24	27	27	27	28	29	31
LV	39	-0	-0	14	26	36	40	41	41	41	42	44
MT	61	4	23	42	55	61	65	69	69	73	78	89
NL	716	-277	310	599	660	703	719	732	726	739	751	783
PL	348	-17	-8	140	240	322	357	373	367	383	400	445
PT	593	47	61	305	435	544	595	602	603	610	617	631
RO	96	-24	-20	26	57	82	95	98	95	98	102	112
SE	194	-18	-18	57	117	172	197	200	196	200	203	214
SI	19	-3	8	16	18	19	19	20	20	20	20	21
SK	7	-3	-4	-2	1	5	6	6	6	6	6	7
CH	809	185	295	613	694	768	801	811	810	821	832	856
IS	44	-5	-2	14	30	40	47	48	47	48	49	51
NO	386	-31	-14	145	260	351	392	398	395	401	407	424
UK	3,699	-29	-47	1,547	2,511	3,329	3,705	3,764	3,763	3,823	3,884	4,011
<b>EU27</b>	<b>13,324</b>	<b>-235</b>	<b>2,063</b>	<b>7,325</b>	<b>9,898</b>	<b>12,136</b>	<b>13,198</b>	<b>13,387</b>	<b>13,342</b>	<b>13,534</b>	<b>13,729</b>	<b>14,184</b>
<b>EU27+3</b>	<b>14,563</b>	<b>-86</b>	<b>2,342</b>	<b>8,097</b>	<b>10,882</b>	<b>13,295</b>	<b>14,438</b>	<b>14,645</b>	<b>14,594</b>	<b>14,804</b>	<b>15,018</b>	<b>15,515</b>

Source: Projection tool [May 2022]

**Table D.31: Airport EBITDA by airport size (EURm, 2019 prices) – Central Case**

Scenario assumes:

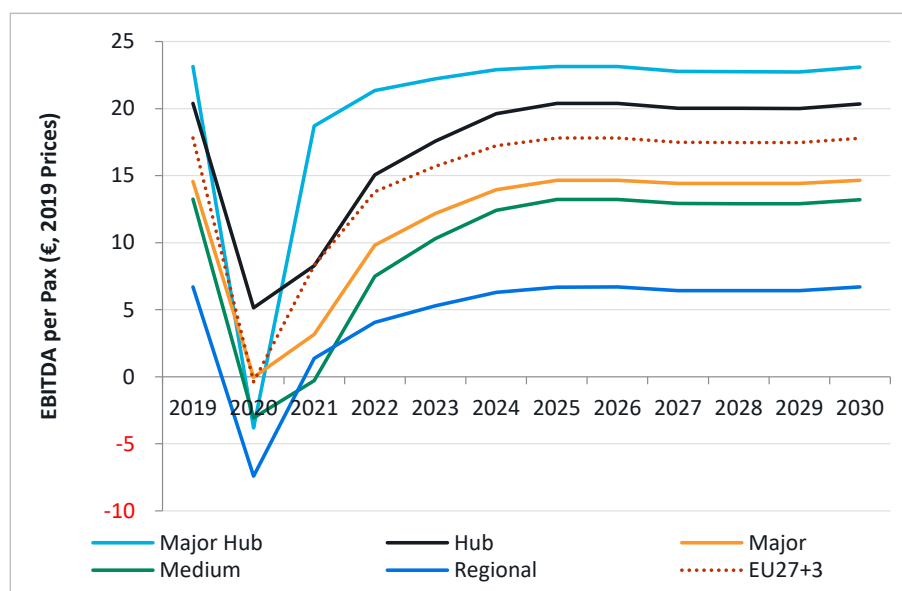
- Aeronautical revenue, non-aeronautical revenue and operating costs per passenger return to 2019 levels in 2025 and are held constant.

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Major Hub	4,867	-211	1,337	4,279	5,528	6,629	7,131	7,232	7,224	7,326	5,137	5,294
Hub	5,583	372	725	3,935	5,721	7,270	8,003	8,114	8,097	8,211	5,609	5,789

Major	2,974	-3	240	2,027	3,002	3,843	4,249	4,312	4,307	4,371	3,080	3,179
Medium	546	-37	-4	341	561	749	838	853	850	866	585	610
Regional	592	-207	45	588	924	1,215	1,355	1,374	1,356	1,375	607	644
<b>Total</b>	<b>14,563</b>	<b>-86</b>	<b>2,342</b>	<b>11,169</b>	<b>15,735</b>	<b>19,706</b>	<b>21,576</b>	<b>21,885</b>	<b>21,835</b>	<b>22,149</b>	<b>15,018</b>	<b>15,515</b>

Source: Projection tool [May 2022]

Figure D.7: Airport EBITDA per passenger by airport size (EUR, 2019 prices) – Central Case



Source: Projection tool [May 2022]

- D.60 Current borrowing and non-current borrowing were also collated from airport financial reports for the 23 selected airport/airport groups so that the impact of accrued debt and subsequent repayments can also be quantified. Data for the selected airports was applied directly to these airports, whilst borrowing estimates for other European airports were developed derived on a per passenger basis, based on the average borrowing per passenger in 2019. Different levels of borrowing per passenger were calculated based on the different airport size groupings. Debt per passenger was multiplied by 2019 passenger levels at each airport to estimate total debt levels in 2019.
- D.61 Debt increases across the different airport size groups between 2019 and 2021 were indexed and these rates of growth applied to airports to determine their levels of debt. The table below outlines the parameters used to estimate levels of borrowing at European airports by size category. 2019 debt levels at each airport were then multiplied by these indices to obtain estimates of debt in 2020 and 2021.

Table D.32: Airport current and non-current debt assumptions

		2019 Borrowing per passenger		Borrowing Growth (Indexed 2019=1.0)			
		Current	Non-Current	Current		Non-Current	
				2020	2021	2020	2021
1	Major Hub	-€ 9.8	-€ 102.1	2.1	0.8	1.3	1.6
2	Hub	-€ 9.0	-€ 40.0	1.2	0.6	1.3	1.4
3	Major	-€ 3.6	-€ 1.9	2.1	1.2	0.4	1.5

		2019 Borrowing per passenger		Borrowing Growth (Indexed 2019=1.0)			
		Current	Non-Current	Current		Non-Current	
				2020	2021	2020	2021
4	Medium	-€ 7.3	-€ 61.3	0.8	1.0	1.2	1.6
5	Regional	-€ 7.6	-€ 109.3	0.7	0.5	0.7	0.8

Source: Airport annual reports, Steer analysis

- D.62 The model user has the ability to define payment terms of the accrued borrowing in terms of assumed interest and average term of the loan. Different real interest rates have been assigned based on the airport size categories, representing the different levels of risk associated. It is assumed that airports will seek to return to 2019 levels of borrowing over a seven-year average term based on airports acquiring debt in the form of a mix of short and medium term loans (five to 10 years) and longer term bonds. The table below presents the different real rates of interest applied by airport size.

**Table D.33: Interest rates (real) by airport size category**

	Airport Size Category	Interest Rate
1	Major Hub	0.5%
2	Hub	1.0%
3	Major	1.5%
4	Medium	1.5%
5	Regional	1.5%

- D.63 For the purposes of modelling, current and non-current debt were combined for the repayment calculations. Whilst non-current liabilities are typically earmarked to be repaid within the next 12 months, repaying all 2021 levels of non-current debt in 2022 would generate a significant repayment resulting in an overall negative EBITDA in 2022 for airports. It has been assumed that this profile is smoothed through the acquisition of additional longer-term debt to prevent this. The table below presents the levels of debt estimated by Member State together with estimated repayments required to reduce debts to 2019 levels in the projections.

**Table D.34: Airport current and non-current debt assumptions – Central Case**

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
AT	-183	-444	-606	63	63	63	63	63	63	63	-	-
BE	-18	-11	-22	1	1	1	1	1	1	1	-	-
BG	-92	-449	-560	71	71	71	71	71	71	71	-	-
CY	-35	-40	-64	4	4	4	4	4	4	4	-	-
CZ	-103	-126	-151	7	7	7	7	7	7	7	-	-
DE	-1,884	-8,026	-10,153	1,209	1,209	1,209	1,209	1,209	1,209	1,209	-	-
DK	-272	-1,496	-1,650	205	205	205	205	205	205	205	-	-
EE	-32	-131	-197	25	25	25	25	25	25	25	-	-
EL	-1,040	-4,341	-5,308	644	644	644	644	644	644	644	-	-
ES	-2,177	-9,784	-9,250	1,050	1,050	1,050	1,050	1,050	1,050	1,050	-	-
FI	-166	-179	-218	8	8	8	8	8	8	8	-	-

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
FR	-3,228	-13,221	-11,991	1,285	1,285	1,285	1,285	1,285	1,285	1,285	-	-
HR	-121	-109	-147	4	4	4	4	4	4	4	-	-
HU	-105	-131	-157	8	8	8	8	8	8	8	-	-
IE	-235	-1,658	-1,215	146	146	146	146	146	146	146	-	-
IT	-1,320	-4,977	-4,034	400	400	400	400	400	400	400	-	-
LT	-75	-74	-103	4	4	4	4	4	4	4	-	-
LU	-52	-62	-88	5	5	5	5	5	5	5	-	-
LV	-8	-24	-	-1	-1	-1	-1	-1	-1	-1	-	-
MT	-	-	-	-	-	-	-	-	-	-	-	-
NL	-825	-4,844	-5,071	620	620	620	620	620	620	620	-	-
PL	-363	-393	-524	24	24	24	24	24	24	24	-	-
PT	-583	-1,775	-2,316	260	260	260	260	260	260	260	-	-
RO	-190	-123	-175	-2	-2	-2	-2	-2	-2	-2	-	-
SE	-237	-850	-1,308	160	160	160	160	160	160	160	-	-
SI	-17	-86	-106	13	13	13	13	13	13	13	-	-
SK	-8	-5	-6	-0	-0	-0	-0	-0	-0	-0	-	-
CH	-456	-2,607	-2,039	235	235	235	235	235	235	235	-	-
IS	-10	-6	-13	0	0	0	0	0	0	0	-	-
NO	-605	-591	-756	23	23	23	23	23	23	23	-	-
UK	-7,208	-30,501	-39,807	4,764	4,764	4,764	4,764	4,764	4,764	4,764	-	-
<b>EU27</b>	<b>-13,370</b>	<b>-53,358</b>	<b>-55,420</b>	<b>6,212</b>	<b>6,212</b>	<b>6,212</b>	<b>6,212</b>	<b>6,212</b>	<b>6,212</b>	<b>6,212</b>	-	-
<b>EU27+3</b>	<b>-14,441</b>	<b>-56,563</b>	<b>-58,228</b>	<b>6,471</b>	<b>6,471</b>	<b>6,471</b>	<b>6,471</b>	<b>6,471</b>	<b>6,471</b>	<b>6,471</b>	-	-

D.64 The EBITDA calculations and the additional debt repayments incurred due to the COVID-19 pandemic are then combined to permit a view of airport financial sustainability to be developed. The tables and figure below present the impact of COVID-19 related debt repayments on airport EBITDA at Member State level and also in airport size groupings.

**Table D.35: Airport EBITDA + COVID-19 related Debt repayment by Member State (EURm, 2019 prices) – Central Case**

Scenario assumes:

- Aeronautical revenue, non-aeronautical revenue and operating costs per passenger return to 2019 levels in 2025 and are held constant;
- 7 Year average debt repayment term

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
AT	383	42	56	153	232	299	331	334	334	337	403	410
BE	51	-7	-3	18	31	44	50	50	45	46	47	54
BG	99	-16	40	0	14	21	26	28	28	29	102	106
CY	69	-5	-4	20	43	62	72	74	74	76	82	87
CZ	180	4	7	69	113	150	169	171	171	173	183	189
DE	2,254	-458	81	-326	145	555	746	774	770	799	2,037	2,103
DK	344	13	15	-53	35	108	142	150	149	157	370	389
EE	18	6	6	-13	-9	-8	-7	-7	-7	-6	19	20
EL	711	-26	388	-73	5	53	80	86	87	93	744	756
ES	2,767	718	666	755	1,169	1,566	1,767	1,813	1,810	1,857	2,955	3,055
FI	226	-0	4	88	150	200	224	227	226	229	239	247
FR	2,189	63	739	354	613	849	949	967	964	981	2,284	2,323



	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
HR	44	-6	-9	4	19	34	41	42	41	42	46	48
HU	164	5	8	64	106	139	156	159	159	162	173	180
IE	306	-139	-146	-195	-46	94	164	166	165	168	316	322
IT	1,389	-131	-127	117	502	846	1,007	1,021	1,016	1,030	1,445	1,482
LT	31	-5	-5	4	15	25	29	30	29	30	35	38
LU	27	-3	-3	4	12	18	21	22	22	23	29	31
LV	39	-0	-0	16	27	37	41	42	42	43	42	44
MT	61	4	23	42	55	61	65	69	69	73	78	89
NL	716	-277	310	-21	40	83	100	112	107	119	751	783
PL	348	-17	-8	116	216	297	333	349	342	359	400	445
PT	593	47	61	45	175	284	335	342	343	350	617	631
RO	96	-24	-20	28	59	85	97	100	97	100	102	112
SE	194	-18	-18	-104	-43	11	37	40	36	39	203	214
SI	19	-3	8	3	5	5	6	6	6	7	20	21
SK	7	-3	-4	-1	2	5	6	7	6	6	6	7
CH	809	185	295	378	459	533	565	576	575	586	832	856
IS	44	-5	-2	13	30	40	46	47	47	48	49	51
NO	386	-31	-14	123	237	328	370	376	372	378	407	424
UK	3,699	-29	-47	-3,218	-2,253	-1,436	-1,059	-1,000	-1,002	-942	3,884	4,011
<b>EU27</b>	<b>13,324</b>	<b>-235</b>	<b>2,063</b>	<b>1,112</b>	<b>3,685</b>	<b>5,923</b>	<b>6,986</b>	<b>7,175</b>	<b>7,129</b>	<b>7,321</b>	<b>13,729</b>	<b>14,184</b>
<b>EU27+3</b>	<b>14,563</b>	<b>-86</b>	<b>2,342</b>	<b>1,626</b>	<b>4,411</b>	<b>6,824</b>	<b>7,967</b>	<b>8,174</b>	<b>8,123</b>	<b>8,333</b>	<b>15,018</b>	<b>15,515</b>

**Table D.36: Airport EBITDA + COVID-19 related Debt repayment by airport size (EURm, 2019 prices) – Central Case**

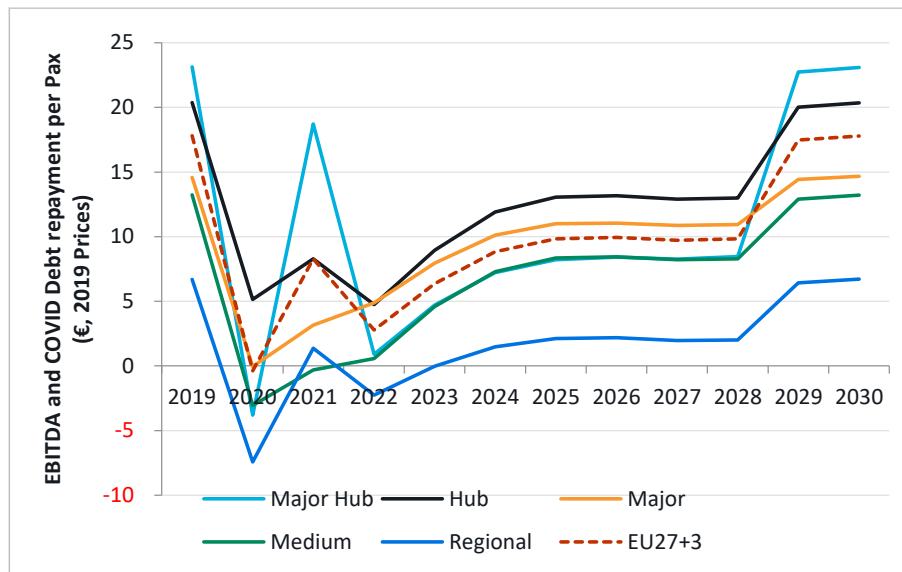
Scenario assumes:

- Aeronautical revenue, non-aeronautical revenue and operating costs per passenger return to 2019 levels in 2025 and are held constant.

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Major Hub	4,867	-211	1,337	140	853	1,469	1,752	1,821	1,813	1,884	5,137	5,294
Hub	5,583	372	725	892	2,017	2,994	3,458	3,533	3,516	3,592	5,609	5,789
Major	2,974	-3	240	724	1,379	1,943	2,217	2,260	2,255	2,300	3,080	3,179
Medium	546	-37	-4	17	165	292	352	362	359	369	585	610
Regional	592	-207	45	-147	-2	126	189	198	180	189	607	644
<b>Total</b>	<b>14,563</b>	<b>-86</b>	<b>2,342</b>	<b>1,626</b>	<b>4,411</b>	<b>6,824</b>	<b>7,967</b>	<b>8,174</b>	<b>8,123</b>	<b>8,333</b>	<b>15,018</b>	<b>15,515</b>

Source: Projection tool [May 2022]

**Figure D.8: Airport EBITDA + COVID-19 related Debt repayment per passenger by airport size (EUR, 2019 prices) – Central case**



Source: Projection tool [May 2022]

### Airlines

- D.65 Airline financial data was selected for a range of European airlines for application in the projection tool where detailed information was publicly available and also ensure that a variety of carrier business models and sizes were included in the model. Data from 11 airlines was collated and included in the model<sup>193</sup>, which represented 75% of the total European airline passengers.
- D.66 The following cost lines were extracted from financial reports between 2019 and 2021.
- Revenues;
  - Employee costs;
  - DOCs;
    - Fuel Costs;
    - Airport charges;
    - Other (Handling/ATC);
  - Other costs;
  - Current borrowing; and
  - Non-Current borrowing.
- D.67 Financial Data was converted into 2019 prices and into Euros where necessary using inflation and exchange rates from Eurostat. Where possible and required, all financial data was converted to a January-December reporting cycle to assist with integrating into the calendar structure in the model.
- D.68 Estimates for non-selected airline revenues, costs and borrowing were developed on a per passenger basis. Average revenues, costs and borrowing levels per passenger were developed for the different airline groups (Network, LCC, Regional, Leisure) and there were applied to the remaining European airlines in the model. The table below presents the average revenue per

<sup>193</sup> Air France KLM, Air Baltic, easyJet, IAG, Lufthansa Group, Ryanair, SAS, SATA, TAP, Widerøe, Wizz

passenger data included in the model together with the derived assumed revenues for non-specified airlines. It was assumed that Leisure and LCC airline passenger revenues (and costs) are the same owing to absence of leisure airline financial data.

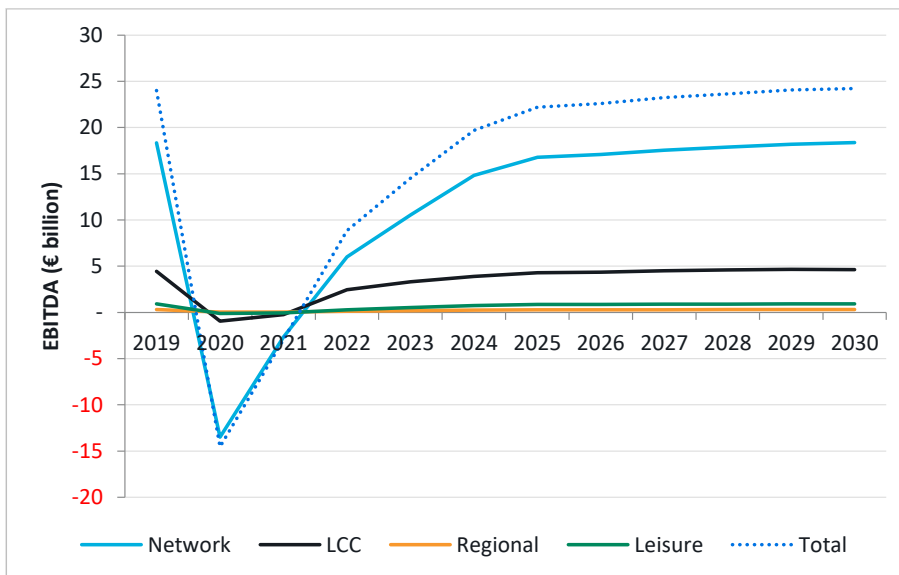
**Table D.37: Average Revenue per passenger, EUR, 2019 prices**

Group	Airline	2019	2020	2021
LCC	easyJet	79	149	63
LCC	Ryanair	59	58	60
LCC	Wizz	69	37	53
<b>LCC</b>	<b>Other EU_LCC</b>	<b>69</b>	<b>82</b>	<b>58</b>
<b>Leisure</b>	<b>Other EU_Leisure</b>	<b>69</b>	<b>82</b>	<b>58</b>
Network	AFKLM	260	336	334
Network	Air Baltic	100	102	78
Network	IAG	209	240	238
Network	Lufthansa Group	250	435	388
Network	SAS	149	235	165
Network	TAP	192	226	190
<b>Network</b>	<b>Other EU_FSC</b>	<b>193</b>	<b>262</b>	<b>232</b>
Regional	SATA	65	81	83
Regional	Widerøe	132	146	194
<b>Regional</b>	<b>Other EU_Regional</b>	<b>99</b>	<b>113</b>	<b>139</b>

Source: Airline annual report, Steer analysis

- D.69 It is initially assumed that costs and revenues per passenger return to 2019 levels in 2025, with values between 2022 and 2025 being driven by the rate of passenger growth in this period. Average costs and revenues per passenger are initially assumed to remain constant between 2025 and 2030. The model user then has the ability to define changes to cost and revenue lines based on information from the market analysis and stakeholder consultation workstreams and well as to include the factors of variable external factor, such as increases in fuel prices. The ability to change fuel prices also permits the impact of fuel price increases due to Fit for 55 to be estimated from the model.
- D.70 Costs and revenues are multiplied by their respective drivers to obtain projections of European airline revenues, costs and EBITDA to 2030. The figure below presents these outputs. It is estimate that the European Airline industry made an operating profit of €23.3bn in 2019, however this fell to an operating loss of -€14.1bn in 2020, primarily driven by losses incurred by network airlines. The airline industry is projected to reach a positive EBITDA in 2022.

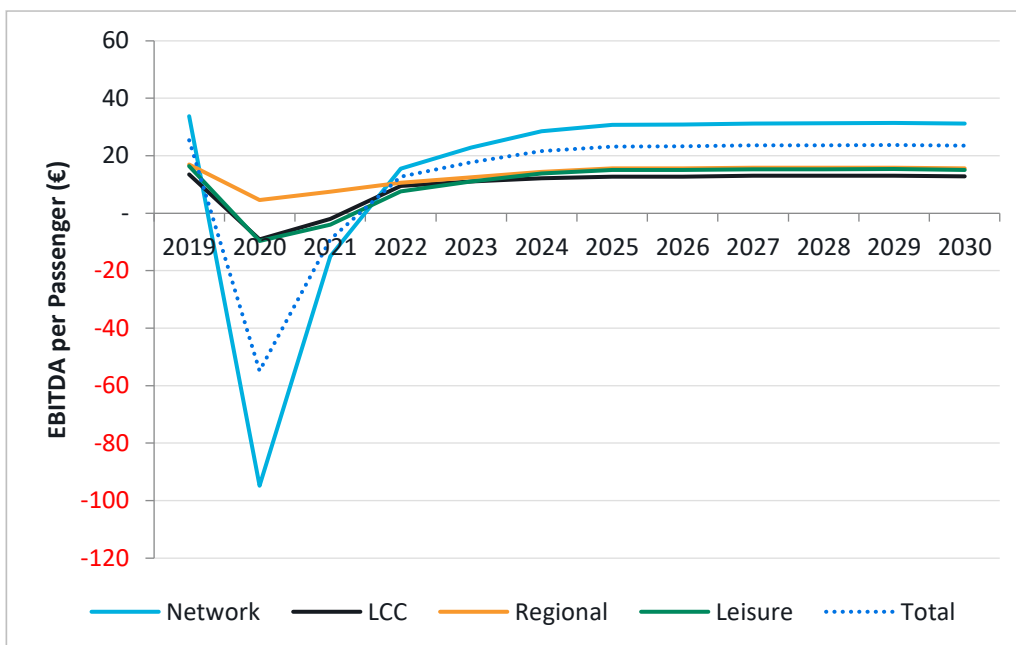
Figure D.9: European airline EBITDA projections, €bn, 2019 prices



Source: Steer projection tool

D.71 The figure below presents the same projection in per passenger terms.

Figure D.10: European airline EBITDA projections per passenger, €, 2019 prices



Source: Steer projection tool

D.72 Current borrowing and non-current borrowing were also collated for the 11 selected airlines/airline groups so that the impact of accrued debt and subsequent repayments can also be quantified. Data for the selected airlines was applied directly, whilst borrowing estimates for other European airlines were developed derived on a per passenger basis, based on the average borrowing per passenger in 2019. Different levels of borrowing per passenger were calculated based on the different airport size groupings. Debt per passenger was multiplied by 2019 passenger levels at each airport to estimate total debt levels in 2019.

- D.73 Debt increases across the different airport size groups between 2019 and 2021 were indexed and these rates of growth applied to airports to determine their levels of debt. The table below outlines the parameters used to estimate levels of borrowing at European airports by size category. 2019 debt levels at each airport were then multiplied by these indices to obtain estimates of debt in 2020 and 2021.

**Table D.38: Airport current and non-current debt assumptions**

		2019 Borrowing per passenger		Borrowing Growth (Indexed 2019=1.0)			
		Current	Non-Current	Current		Non-Current	
				2020	2021	2020	2021
1	FSC	-€ 7.9	-€ 59.6	3.2	3.2	1.3	1.4
2	LCC	-€ 3.4	-€ 28.1	3.2	1.2	1.2	1.8
3	Leisure	-€ 3.4	-€ 28.1	3.2	1.2	1.2	1.8
4	Regional	-€ 10.0	-€ 97.1	1.3	1.4	0.8	0.9

Source: Airport annual reports, Steer analysis

- D.74 The model user has the ability to define payment terms of the accrued borrowing in terms of assumed interest and average term of the loan. In the model a +1.5% per annum interest rate (real terms) has been assumed. It is assumed that airlines will seek to return to 2019 levels of borrowing over a seven-year term based on airports acquiring debt in the form of a mix of short- and medium-term loans (five to 10 years) and longer term bonds.

**Table D.39: Airline current and non-current debt assumptions**

	Debt			Estimated repayments									
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	
Network	-36,409	-51,486	-67,890	4,864	4,864	4,864	4,864	4,864	4,864	4,864	-	-	
LCC	-8,382	-9,527	-15,346	1,076	1,076	1,076	1,076	1,076	1,076	1,076	-	-	
Leisure	-1,598	-1,947	-3,085	230	230	230	230	230	230	230	-	-	
Regional	-1,711	-1,435	-1,908	30	30	30	30	30	30	30	-	-	
<b>Total European Airlines</b>	<b>-48,099</b>	<b>-64,395</b>	<b>-88,229</b>	<b>6,200</b>	<b>6,200</b>	<b>6,200</b>	<b>6,200</b>	<b>6,200</b>	<b>6,200</b>	<b>6,200</b>	<b>6,200</b>	<b>-</b>	<b>-</b>

Source: Steer Projection tool

- D.75 The EBITDA calculations and the additional debt repayments incurred due to the COVID-19 pandemic are then be combined to permit a view of the impact of these debts on cashflow to be quantified.

**Table D.40: Airport EBITDA + COVID-19 related Debt repayment by Member State (EURm, 2019 prices)**

Assumes aeronautical revenue, non-aeronautical revenue and operating costs per passenger return to 2019 levels in 2025 and are held constant.

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
<b>Network</b>	18,334	-13,506	-2,661	1,126	5,675	9,955	11,923	12,225	12,687	13,006	18,197	18,369
<b>LCC</b>	4,433	-948	-252	1,383	2,228	2,810	3,216	3,283	3,434	3,506	4,655	4,642
<b>Regional</b>	319	26	39	84	145	215	249	252	260	264	298	297
<b>Leisure</b>	931	-125	-66	56	280	515	616	631	661	677	923	924
<b>Total</b>	<b>24,017</b>	<b>-14,553</b>	<b>-2,939</b>	<b>2,649</b>	<b>8,328</b>	<b>13,495</b>	<b>16,004</b>	<b>16,391</b>	<b>17,042</b>	<b>17,453</b>	<b>24,074</b>	<b>24,233</b>

## E Additional Data

Table E.1: Estimation of slot valuation by airline

MS	Airport		Movements	Slots	Utilisation	Value	IAG	AFKLM	LH Group	easyJet	Ryanair	Wizz	Aegean	SAS	TAP	Alitalia	LOT	Finnair	Norwegian	Other-EU	Other-Non-EU	Total
DE	Frankfurt	FRA	485	596	81.4%	€ 1.5	14	11	480	3	24	3	3	6	4	7	3	2	0	87	73	720
NL	Amsterdam	AMS	483	500	96.6%	€ 2.5	38	427	23	57	5	0	1	8	4	8	3	2	4	60	60	699
UK	London	LHR	473	480	98.6%	€ 10.0	381	16	52	0	0	0	3	15	6	7	3	6	0	62	133	684
FR	Paris	CDG	468	621	75.4%	€ 1.0	37	351	31	54	0	0	5	7	0	10	3	5	8	61	112	685
DE	Munich	MUC	399	526	75.8%	€ 1.0	18	11	384	14	4	0	5	4	3	2	3	2	4	79	40	573
ES	Madrid	MAD	396	564	70.3%	€ 1.0	280	13	16	16	56	6	1	0	8	6	1	1	10	109	50	574
ES	Barcelona	BCN	327	491	66.6%	€ 0.5	238	17	30	36	69	9	1	0	8	3	1	2	15	24	45	497
IT	Rome	FCO	309	526	58.7%	€ 0.0	52	13	24	18	28	5	2	3	5	215	0	2	8	38	61	473
UK	London	LGW	281	288	97.4%	€ 2.5	102	0	0	191	10	4	0	0	4	0	0	0	39	52	23	424
AT	Vienna	VIE	259	350	74.1%	€ 1.0	21	8	237	12	22	17	1	0	2	0	3	2	1	24	34	384
DK	Copenhagen	CPH	251	485	51.9%	€ 0.0	10	12	23	16	21	2	1	142	2	0	4	5	55	45	20	357
CH	Zurich	ZRH	243	385	63.0%	€ 0.5	17	10	224	9	0	0	2	4	5	2	2	2	0	54	28	359
NO	Oslo	OSL	238	444	53.6%	€ 0.0	5	8	13	1	3	2	0	130	1	0	2	4	120	36	10	335
IE	Dublin	DUB	225	250	90.0%	€ 1.5	145	10	11	0	125	0	0	3	2	0	0	1	3	19	21	341
SE	Stockholm	ARN	221	491	45.0%	€ 0.0	7	9	20	4	0	0	0	60	1	0	3	7	32	2	1	146
FR	Paris	ORY	218	250	87.3%	€ 1.5	35	165	0	28	0	0	0	0	11	5	0	0	2	53	27	326
DE	Dusseldorf	DUS	217	257	84.4%	€ 1.5	15	10	158	7	14	0	3	7	2	3	3	2	2	65	26	317
PT	Lisbon	LIS	217	223	97.1%	€ 2.5	18	15	13	24	28	4	1	1	175	0	0	1	1	16	18	314
IT	Milan	MXP	215	409	52.7%	€ 0.0	20	11	33	77	21	5	2	4	6	39	3	2	1	56	48	328
EL	Athens	ATH	215	-	-	€ 0.0	8	12	15	6	20	3	153	2	0	7	0	0	2	68	29	327
BE	Brussels	BRU	208	422	49.4%	€ 0.0	14	5	80	2	14	0	2	5	4	6	3	3	0	6	1	145
ES	Mallorca	PMI	205	385	53.3%	€ 0.0	63	5	54	36	84	0	0	3	0	1	0	0	10	105	3	365
UK	Manchester	MAN	193	320	60.4%	€ 0.5	18	9	16	41	49	0	0	6	2	0	0	2	1	135	18	298



MS	Airport		Movements	Slots	Utilisation	Value	IAG	AFKLM	LH Group	easyJet	Ryanair	Wizz	Aegean	SAS	TAP	Alitalia	LOT	Finnair	Norwegian	Other-EU	Other-Non-EU	Total
DE	Berlin	BER	269	456	59.1%	€ 0.0	16	13	95	84	12	0	1	3	2	1	3	4	0	20	17	271
FI	Helsinki	HEL	184	463	39.7%	€ 0.0	1	4	7	2	0	0	0	11	1	0	0	182	25	12	11	257
PL	Warsaw	WAW	180	269	67.2%	€ 0.5	2	6	14	2	0	23	1	2	1	1	168	3	2	9	14	248
UK	London	STN	172	269	64.0%	€ 0.5	1	0	1	29	181	0	0	1	0	0	0	0	0	41	3	258
FR	Nice	NCE	148	292	50.6%	€ 0.0	17	27	17	26	2	1	1	2	2	3	1	1	5	3	0	108
CH	Geneva	GVA	144	210	68.5%	€ 0.5	16	14	52	74	0	1	1	2	5	4	2	2	0	8	20	201
DE	Hamburg	HAM	140	280	49.9%	€ 0.0	10	9	104	8	15	2	1	7	2	0	3	2	2	26	11	202
IT	Milan	LIN	94	105	89.5%	€ 1.5	15	3	8	7	0	0	0	1	0	95	0	0	0	44	0	173
<b>Total</b>						<b>€ 1.4</b>	<b>€ 5,044</b>	<b>€ 1,975</b>	<b>€ 2,433</b>	<b>€ 940</b>	<b>€ 582</b>	<b>€ 62</b>	<b>€ 61</b>	<b>€ 214</b>	<b>€ 570</b>	<b>€ 278</b>	<b>€ 143</b>	<b>€ 91</b>	<b>€ 153</b>	<b>€ 1,746</b>	<b>€ 2,103</b>	<b>€ 16,393</b>







## Control Information

### Prepared by

---

14-21 Rushworth Street  
London  
SE1 0RB  
14-21 Rushworth Street  
London  
SE1 0RB  
+44 20 7910 5000  
[www.steergroup.com](http://www.steergroup.com)

### Prepared for

---

European Commission  
Rue de Mot  
Brussels  
Belgium

### Steer project/proposal number

---

24104101

### Client contract/project number

---

MOVE/E1/SER/2021-361/SI2.854630

### Author/originator

---

Clémence Routaboul

### Reviewer/approver

---

Stephen Wainwright

### Other contributors

---

Rob Quincey, Stefan Kouris, Mark Tolley, Karim Serhal

### Distribution

---

Client: EC                      Steer:  
Team

### Version control/issue number

---

V1

### Date

---

09 December 2022



## GETTING IN TOUCH WITH THE EU

### In person

All over the European Union there are hundreds of Europe Direct information centres. You can find the address of the centre nearest you at: [https://europa.eu/european-union/contact\\_en](https://europa.eu/european-union/contact_en)

### On the phone or by email

Europe Direct is a service that answers your questions about the European Union. You can contact this service:

- by freephone: 00 800 6 7 8 9 10 11 (certain operators may charge for these calls),
- at the following standard number: +32 22999696 or
- by email via: [https://europa.eu/european-union/contact\\_en](https://europa.eu/european-union/contact_en)

## FINDING INFORMATION ABOUT THE EU

### Online

Information about the European Union in all the official languages of the EU is available on the Europa website at: [https://europa.eu/european-union/index\\_en](https://europa.eu/european-union/index_en)

### EU publications

You can download or order free and priced EU publications at: <https://publications.europa.eu/en/publications>. Multiple copies of free publications may be obtained by contacting Europe Direct or your local information centre (see [https://europa.eu/european-union/contact\\_en](https://europa.eu/european-union/contact_en)).

### EU law and related documents

For access to legal information from the EU, including all EU law since 1952 in all the official language versions, go to EUR-Lex at: <http://eur-lex.europa.eu>

### Open data from the EU

The EU Open Data Portal (<http://data.europa.eu/euodp/en>) provides access to datasets from the EU. Data can be downloaded and reused for free, for both commercial and non-commercial purposes.



Publications Office  
of the European Union

doi: 10.2832/779263

ISBN 978-92-68-06105-3