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Coronavirus Pandemic and Airline Industry: Between Facts and Prospects

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ABSTRACT

The 2019 coronavirus pandemic has disrupted the business environment from all the sectors. One of the first and worst affected was tourism, in general, and airline industry, in particular. The purpose of this study is to investigate the short-term effects of coronavirus pandemic on the airline industry and the potential recovery pathways. Using an empirical approach based on the secondary data investigation, we found out that, during 2020, both airlines and airports confronted with ratings' downgrades or even bankruptcy due to the severe cash burn generated by travel restrictions. To cope with the crisis, the most common measures taken by the airlines were rationalizing the fleet, reducing staff numbers and reconfiguring their networks and capacity. In the beginning of 2021, there are signs that the industry is recovering, but the process is very slow. Meanwhile, many governments gave a high priority to the air transport industry, to protect not only the aviation itself but also the related sectors.

1. Introduction

The demand for airlines' services is, by its nature, a derived one: it results from the fact that passengers and goods need to move between different places in an efficient manner, from cost and time perspectives. Yet, as the reality has proved over time, the airline industry is very sensitive to the global downturns, such as economic crisis, natural disasters, political instability or pandemics (Sadi & Henderson, 2000). In the beginning of the 20th century, when the first commercial flights were scheduled, the airlines' sector was firstly challenged by the 1929 economic and financial crisis. After that, the oil crisis from 1973, the Iran-Iraq War in the early 80's, the Gulf Crisis in the early 90's, the Asian Financial Crisis from the end of the 1990's and the 9/11 terrorist attacks also impacted the airline industry (International Air Transport Association, 2020). In the beginning of the 21st century, this sector was vulnerable to diseases and pandemics, such as the Severe Acute Respiratory Syndrome (SARS) from 2003, the avian influenza H5N1 in 2006 and the swine influenza H1N1 in 2009 (Bowen & Laroe, 2006; Mangili & Gendreau, 2005). Yet, all these were relatively localised in extent and less epidemiologically severe compared

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to the novel Coronavirus that exploded in 2019. The outbreak of the COVID-19 pandemic has caused an unprecedented crisis for the world's airlines (Dunn, 2020, June 4). A first response came from governments, in the effort of preventing the spread of the disease and of safeguarding the effectiveness of national healthcare systems. As a consequence, all around the world, lockdowns and travel bans were imposed in order to enforce social distancing measures. A sudden drop in the demand was followed by a drastic decrease in revenues, these being the first consequences of the pandemic on the airlines industry. In the attempt of reducing as many operating costs as possible to minimize the cash burn, airlines' responses varied a lot as the crisis extended. For instance, Air France–KLM retired their A380 fleet prematurely (Dunn, 2020, May 20), while Wizz Air planned to expand into new European markets after the crisis (Reuters, 2020). Meanwhile, others reconfigured and rationalized their networks by withdrawing operations from certain airports and cutting routes. Until the end of 2020, over 60% of the world's commercial aircraft has been grounded (Hollinger, 2020), which led to a revenue drop by US$314 billion for the whole industry (IATA, March 2020; December 2020). As well as grounding aircraft, many carriers asked national Governments for financial support.

Despite the fact that the decisions taken during this crisis period could have a major impact on airlines' manoeuvring space and performance in a post-COVID-19-crisis world, the research conducted on businesses' responses to health crisis/pandemics is very limited. As mentioned in previous studies, companies' attitudes to unforeseen disruptions such as pandemics or outbreaks remain largely unexplored (Amankwah-Amoah, 2016).

The aim of this research is to investigate the short-term effects of Coronavirus pandemic on the airline industry and the potential recovery pathways. The rest of the paper is structured as follows. Section 2 reviews the literature regarding airlines and governments' responses to COVID-19 pandemic. Section 3 presents the methodological approach and the last two parts illustrate the findings and the conclusions.

The results of this study will also contribute to a better understanding of how governments, companies and international organisations not only attempt to anticipate the global health crisis, but also respond to these challenges' occurrences.

2. Literature review

The complex and interconnected nature of the airlines' networks leads to the fact that any disruptive event, irrespective of the cause, has the potential to propagate at the level of the whole system, threatening the integrity of the network (Sun & Wandelt, 2018). During the last two decades, events such as changing international geopolitical relations, the introduction of new security protocols (BBC News, 2017), volcanic eruptions (Budd, Griggs, Howarth, & Ison, 2011), "natural" disasters (including monsoons, floods and earthquakes) (BBC News, 2019), fuel price rises and insecurity of fuel supplies (IATA, 2019), terrorist attacks (Blalock, Kadiyali, & Simon, 2007), security threats in host tourist nations (BBC News, 2015), IT failures

(BBC News, 2020, February 16), air traffic control delays and the global transmission of infectious disease (Warren, Bell, & Budd, 2010) significantly impacted the global airline network.

The airlines' responses to such vulnerabilities varied from reactive to proactive strategic measures. While the first ones are reactions to a disruptive event, the second type of measures is meant to anticipate, avoid or reduce as much as possible the impacts on flight operations (Wu, 2010).

During downturns, some companies may seek to preserve their key employees, market knowledge and resources, while minimizing the adverse effects of sudden changes in the business conditions (Wenzel et al., 2020). In the airline industry, an example is brought by British Airways (BA) which decided to bring forward its decision to discontinue Boeing 747 fleets, as part of its recovery strategy to COVID-19 pandemic (Flight International, 2020). The same approach of eliminating the 747 fleets was applied by other global airlines, such as Qantas (Specia, 2020). Considering the fact that the 747 fleet involved very high operating costs from both fuel-burn and maintenance perspectives, eliminating it was a decision not only cost-efficient, but also fuel-efficient (Flight International, 2020; Specia, 2020).

In order to diminish the negative consequences of COVID-19, almost all the airlines responded with different cost-reduction measures. Some of them suspended or abandoned certain routes, fired workers or encouraged some employees to work from home. For example, Emirates, one of the world's biggest long-haul airlines, implemented a temporary 25–50% basic salary reduction for employees, to avoid job losses (Cornwell, 2020; Klar, 2020). Among the European carriers, the risk of the rapid spread of the Coronavirus pandemic led to prompt responses. Thus, in the middle of March 2020, some of the biggest flag carriers, such as LOT Polish Airlines, CSA Czech Airlines or Montenegro Airlines, suspended their scheduled international and domestic passenger flying programme. By the end of the month, the number of the European airlines that suspended all their passenger services reached 18. Those airlines that remained operational have largely reduced their capacity, up to 99% compared to the same month from 2019 (Eurocontrol, 2020b).If these responses initially came as companies' strategic decisions, subsequently, they were due to government-imposed measures. Consequently, in Europe, only a few essential routes, which allowed critical travel, cargo and medical supplies, remain functional up to June 2020 (Dunn, 2020, June 4). Following the Australian government's suggestions, Qantas and Jetstar suspended up to 60% of the scheduled domestic flights and up to 90% in the case of the international ones (Cirium, 2020, March 19). In China, these measures were much earlier imposed: the government limited domestic flights for both Chinese and foreign airlines up to just one flight a week which should not to exceeded 75% of its capacity (BBC News, 2020, April 7).

The extent and duration of these restrictions on flights determined many airlines burning through cash reserves, divesting of disposable assets and diminishing their financial positions (Cirium, 2020, March 31). Up to the end of June

2020, the financial problems became very visible. For example, in June 2020, British Airways reported a loss of £20 million a day in cash (Paton, 2020) and faced a £211 million-a-month wage bill (Osborne, 2020). To avoid an even greater collapse and obtain capital, the company was seeking to sell items from its multimillion-pound art collection (Hotten, 2020).

Other airlines, such as Virgin Australia or Air New Zealand, started asking for government financial support (Cirium, 2020, March 31). Aviation is considered a sector that largely contributes to economic development and, consequently, most governments directly or indirectly support this strategic sector (Zhang & Graham, 2020). Therefore, the aviation policies also reflect a balance between the interests of consumers and of the providers of aviation services (Abate, 2016).

This was the reason why IATA, as industry group, cautioned of consequences facing the industry with global revenues from ticket sales falling as much as £215bn and turned to the governments to ask for financial support (BBC News, 2020, March 16; 2020, March 24). As proved in many other situations, the support measures are mainly aimed at ensuring the survival during the crisis period and at protecting the millions of jobs from the industry. The type of support varied from one event to another, ranging from selective subsidies to operators, manufacturers or service providers (Gossling et al., 2017), to interventions that restrict market access to potential competitors (Christidis, 2016) and create monopolistic bottlenecks (Knieps, 2014).

In the context of the global COVID-19 pandemic, the government support to their aviation sector included in seven ways: government-backed commercial loans and government guarantees, recapitalisation through state equity, flight subsidies or nationalisation, deferral and/or waiver of taxes and charges, grants and private equity. The US government committed to a $25 billion bailout package (Rushe, 2020), while South Korean state-owned banks offered $971 million to support Korean Air (Lee & Yang, 2020). In Europe, the Dutch, French, German and Italian governments, supported by the European Commission and justified by the unprecedented magnitude of the SARS CoV-2-induced crisis, were handing out billions of Euros to their national airlines (Patel & Wilkes, 2020).

3. Research methodology and data

As mentioned before, the purpose of the present study is to investigate the short-term effects of coronavirus pandemic on the airline industry and the potential recovery pathways. In order to achieve this objective, we have used an empirical approach, based on the secondary data investigation.

The data sources for our analysis were IATA reports and, especially, Eurocontrol statistics. While the first ones offered a global picture of the airline industry, the second ones presented the evolution of this sector at the European level. We have chosen IATA and Eurocontrol because of the veracity and credibility of these sources. While IATA is a trade association for the world's airlines, Eurocontrol is a network manager for Europe and its statistics are used by a wide range of

international aviation and political stakeholders. However, to ensure that our dataset is complete and accurate, we have also investigated the official airlines' press releases, the national newspaper reports as well as the statistics of the global flight monitoring organization, such as Flightradar24.

We have focused our attention especially on Europe because its aviation market is relatively mature and liberalized, the inter-European network is dense and it includes a wide range of carriers: low cost, charter and legacy, which are usually owned by private-sector investors.

4. Results and discussions

Since 11th of March 2020, when COVID-19 was declared a pandemic by the World Health Organization (WHO), the number of flights, fleets and workforce involved in the airline industry was considerably affected.

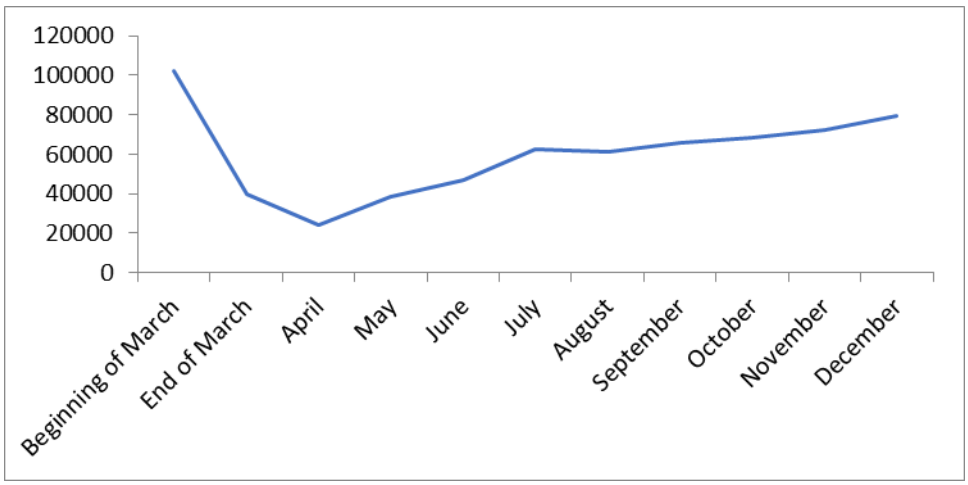

Fig. 1. Monthly average values (except for March) of commercial flights in the world, in 2020
Source: Own calculations based on Flightradar24 (2021), Eurocontrol (2020a, 2020b) and IATA (March 2020; December 2020; 2020, January 31)

As it can be seen in Fig. 1, from 102,116 commercial flights across the world on 11th of March 2020, in December 2020 this number was close to 80,000, in a slight rise from the lowest level reached in April: 24,049. The traffic improvements from the end of 2020 could be attributed to vaccines' approvals in various countries worldwide.

In Europe, the evolution of the commercial flights was similar to the global one (see Fig. 2): in the end of March their number significantly decreased, reaching the lowest value in April and, since June, after the lift of many restrictions, they have started to slightly increase, until September. The increase of the infection rates after the summer season led to new restrictions in many European states. These caused a sharp decline in the air traffic between September and November 2020.

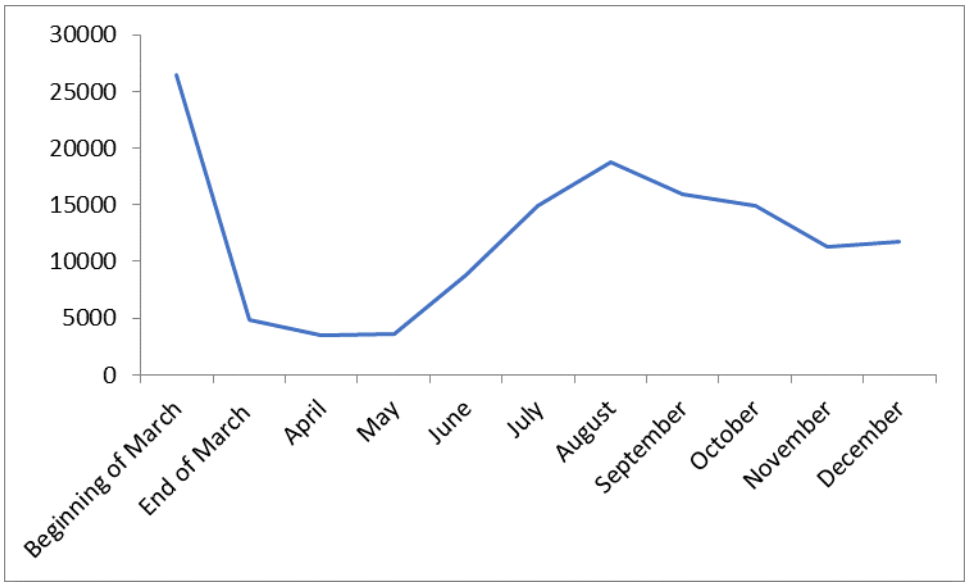

Fig. 2. Monthly average values (except for March) of commercial flights in Europe, in 2020
Source: Own calculations based on Eurocontrol (2020a)

The leading European airlines have also been hit very hard by the pandemic situation. The top 10 companies registered a decline in the number of flights between 45% and 67% (Eurocontrol, 2020a). Moreover, 2020 crisis situation generated some changes in the top 10 airlines, compared to 2019. Eurowings went down from 9th position to 14th, with a 69% loss in the number of flights, its place being taken in 2020 by Wizzair. Norwegian Air Shuttle have also struggled in 2020, despite the bankruptcy protection received in Norway and Ireland, moving from 10th place to 16th place, with a drop of 73% in the number of flights. It was replaced by Pegasus Airlines, which was supported by the strong domestic demand in Turkey.

The reduction in the number of flights was accompanied by the low loading level. The highest percentage was reached in December – 58%, while the lowest was in April – 27%. Despite the fact that the number of flights had a slight increase during the 2020 summer months, the recovery in the number of passengers has been much weaker. All these contributed to a loss of 1.7 billion passengers in Europe, in 2020.

Among the states, the worst affected was Ireland, with a 63% traffic loss in 2020 compared to 2019, and the lowest influence was felt by Norway, with 40% traffic loss. In 2020, domestic flows predominated in almost all the European states. The intra-European traffic dropped by 54%, as well as the flows between Europe and other regions of the world (approximately 57%).

If we look at the airlines' responses to COVID-19 in 2020, we can depict three major categories: responses involving suspension of all their operations or reduction of a large part of their capacity, responses related to reduction or rationalization of their fleet and responses regarding the reductions in the size of their workforce.

When referring to the first type of response, we can see that the major reduction of the capacity was decided by Air France and KLM – 90%. According to Eurocontrol statistics, among the European airlines, the shortest period for which a company suspended all flights was 53 days and the longest 101 days. Those airlines

that benefited from many domestic operations have generally suspended only the international passenger flights. For example, Sunexpress of Turkey and Eurowings of Germany cancelled all their international services but maintained a part of the domestic ones. The least affected capacity was registered in the case of Norwegian regional operator Widerøe, who continued to fly among the airports within Norway. Other airlines drastically reduced both international and national services. For example, between March and May 2020, Finnair flew only 4 domestic and 10 European routes, while TAP Air Portugal operated 4 domestic and two European routes. Yet, this unprecedented disruption to European services started to ameliorate since June 2020.

Apart from reducing the capacity, many airlines decided to ground some or all of their fleet of aircrafts. In this context, some carriers re-evaluated their current and future aircraft requirements. Therefore, in Europe, 13 airlines changed their fleet size and/or composition. For instance, while Virgin Atlantic withdrew only seven of its B747-400 aircrafts, KLM and BA announced the retirement of all their remaining B747-400 fleet. Some companies decided to change the number of the aircrafts not only in the context of COVID-19 pandemic, but also for a longer period. By 2022, Austrian Airlines planned to reduce their total fleet to 60 aircraft, and by 2021 Blue Air wants to halve the number its aircrafts.

Given the fact that labour represents a major component of airlines' costs, it was inevitable for the companies to decrease the size of their workforce. The job losses at British Airways, TUI, SAS and Ryanair, considered together, amounted 28,000. Meanwhile, other companies decided only to make use of technical unemployment for the duration of the carriers' grounding, as it was the case of Brussels Airlines. Decisions with a lower impact on employees included changes in the working hours. For example, Lufthansa reduced the working hours for 77% of its staff until July 2020, while Austrian Airlines decided a shorter time working for 7000 employees until at least 2022.

All these medium term decisions were probably related to the forecasts regarding the evolution of the COVID-19 pandemic in 2021 and its consequences for the airline industry. The worst scenario foreseen by IATA (2021, February 24a) refers to a global airline industry cash burn of 95 billion dollars in 2021. This pessimistic view is related to the fact that governments have tightened the travel restrictions in the end of 2020, in response to new COVID-19 variants. Moreover, in February 2021 the bookings of flight tickets for the summer months were 78% below the levels of the same month, in 2019 (IATA, 2021, February 24b).

Even if these predictions are worrying, they are, unfortunately, supported by the situation from the airlines industry during the first three months of 2021. In Europe, the number of transported passengers in first trimester of 2021 was over 80% lower compared to the same period of 2019 (Eurocontrol, 2021a). The largest decrease was registered in the low-cost segment (85%), while the legacy carriers faced a 70% reduction of the transported passengers in 2021 compared to January-March 2019.

According to Eurocontrol (2021b) statistics, in the first half of March, the air traffic decreased by 66% compared to the same period of 2019. Moreover, it should be considered that a significant proportion of flight operations are actually non-commercial, being related to training flights and circular flights to maintain pilot ratings. The company that registered most of the flights was Turkish Airlines and the busiest airport in terms of arrivals and departures was IGA Istanbul Airport, all these being determined by the increase in the domestic traffic. In March, a strong increase in air traffic was noticed in Austria, Latvia and Slovenia, while Poland, Bulgaria, Italy and Slovakia registered decreases.

After reaching a minimum level in the 2nd week of February, the European traffic has shown a positive steady evolution over the last month (Eurocontrol, 2021a). Yet, despite the signs indicating that the industry is recovering, the process is very slow and it may take a few more years until the industry will regain the profitability from 2019.

5. Conclusions

COVID-19 pandemic caused an unprecedented cash-flow for airlines worldwide. Travel bans led to a drop in the demand, which was followed by a drastic decrease in airlines' revenues.

To minimize the negative consequences of COVID-19, airlines' responses varied a lot: from rationalizing networks, cutting routes, fleet retirements to firing workers or encouraging some employees to work from home. All these measures were meant to reduce the costs. However, since only a few essential routes for critical travel, cargo and medical supplies remained functional in Europe up to June 2020, the financial problems became very visible in the middle of the summer 2020.

In this context, to avoid an even greater collapse and obtain capital, many companies started asking for government financial support. Many governments gave a high priority to the air transport industry, to protect not only the aviation itself but also the related sectors. The aid included government-backed commercial loans and government guarantees, recapitalisation through state equity, flight subsidies or nationalisation, deferral and/or waiver of taxes and charges, grants and private equity. Yet, as proved in other similar situations, the support measures are mainly aimed at ensuring the survival during the crisis period and at protecting the millions of jobs from the industry.

Despite the forecasts regarding the evolution of the COVID-19 pandemic in 2021 and its consequences for the airline industry, there are signs that the industry is recovering, but the process is very slow.

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