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EMPTY SKY OVER THE WORLD – PASSENGER AIR TRANSPORT IN THE FIRST WEEKS OF THE 2020 PANDEMIC

Puste niebo na świecie – pasażerski transport lotniczy w pierwszych tygodniach pandemii 2020

Edyta Pijet-Migoń

Wrocław School of Banking, Fabryczna 29-31, 53-609 Wrocław, Poland

e-mail: edyta.migon@wsb.wroclaw.pl

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Abstract: The development of the SARS-CoV-2 virus epidemic and the associated restrictions on mobility have affected many sectors of the economy, but one of the first to suffer especially was passenger air transport. None of the previous crises in the aviation industry had been so significant and so global. At the beginning of April 2020, air passenger traffic decreased by around 70% globally and by around 90% in Europe compared to 2019. At some European airports, very few air operations were carried out, or they were even completely suspended. The loss of revenues by entities from the aviation sector caused their significant financial problems, which cannot be solved without external support. After lifting the travel restrictions, a reduction in demand for travel by air can be expected. Most likely, the carrier market will consolidate, and the connection network will be reduced, which may aggravate the problems of some already unprofitable airports.

Keywords: pandemic, passenger air transport, airports

Introduction

The dynamic development of air transport in recent years has been associated with many factors, including technological progress, economic development, changes in aviation law, globalization processes, but also lifestyle changes (Doganis, 2006; Hanlon, 2007; Trzepacz, 2007; Huderek-Glapska, 2010; Hawlena, 2012; Rucińska et al., 2012; Jankiewicz, Huderek-Glapska, 2016). There is a synergy effect between air transport and economic growth. Along with the economic development of countries and regions operating in a network of international connections, the demand for air transport was increasing (Hawlena, 2012), and at the same time air transport contributed to economic development in a direct, indirect and induced way (Pancer-Cybulska et al., 2014; Olipra, 2016; Pancer-Cybulska, Olipra, 2016).

The number of passengers and the fleet size have significantly increased on a global scale; new airports were built, and the network of connections developed, despite the fact that the development and functioning of air transport were disturbed several times by natural and non-natural factors. The events that seriously affected the functioning of air transport in the 21st century included: the terrorist attacks of September 11, 2001 (Nolan et al., 2004), the SARS epidemic in 2002, the A/H1N1 epidemic – the so-called swine influenza in 2009 (Lau et al., 2010) and the volcanic eruption of Eyjafjallajökull in Iceland in April 2010, which necessitated a temporary suspension of air connections due to hovering volcanic ash that threatened the safety of flights (Ulfarsson, Unger, 2011). A clear temporary decrease in the global demand for air transport was influenced by the financial crisis in 2008–2009 (Tłoczyński, 2012; 2018). However, none of these crises in passenger aviation caused such a severe reduction in the number of flights and a decrease in the number of passengers on a global scale as the SARS-CoV-2 pandemic.

The purpose of this article is to present chronologically the airlines' response to the development of the epidemic and to the related decisions of governments of individual countries imposing a ban on movement, which have led to the great crisis of the aviation sector. In addition, the article presents views and preliminary forecasts of the further functioning of the market of air transport and possible changes in this sector, being a direct or an indirect result of the pandemic¹.

At the time of writing, full official reports and statistical data were not yet available; therefore, the presented analysis should be treated as a preliminary one. It will need to be verified once all data is available. Its purpose is to show the problems of the aviation industry caused by the pandemic and attempts to solve or at least minimize them. The study uses, among others, official reports of the World Health Organisation (WHO), aviation organisations, including the International Air Transport Association (IATA), CAPA Centre for Aviation, the Ministry of Foreign Affairs, as well as press releases and official statements of the CEOs and managers of airlines, published on websites www.pasazer.com and www.rynek-lotniczy.pl.

1. The beginning of the epidemic – restricting connections to and within Asia

The city of Wuhan in the Hubei province in China is considered the place of outbreak of the epidemic, where according to the Wuhan Municipal Health Commission on December 12–29, 2019, the first cases of pneumonia of an unknown then type occurred (Fig. 1) (<http://en.nhc.gov.cn>). On December 31, 2019, information about the incidence was submitted to the World Health Organisation (WHO) (<https://www.who.int>). A week later, the Chinese authorities officially announced that a new virus has been identified, and initially named it 2019-nCov and later referred to as COVID-19 or coronavirus. The virus began to spread not only within China, but very quickly, the first cases were reported in other countries. On January 13, 2020, the first sick person was diagnosed in Thailand, two days later the first person in Japan. Both fell ill after returning from Wuhan. On January 21, 2020, the world was officially informed of the first cases of illness in Washington State in the United States. The number of patients in China was increasing very dynamically. On January 22, a decision was made to lock down the city of Wuhan and suspend all air and rail connections from that city (Fig. 1). Four days later, the China Association of Travel Services announced that all domestic and foreign trips organised by Chinese agencies would be cancelled or postponed (<https://www.chinatravelnews.com>). On January 29, 2020, due to the threat of spreading the epidemic, British Airways indefinitely cancelled connections to the serviced Chinese cities – Beijing and Shanghai (connections to Hong Kong continued). Two days later, other airlines, including Air France and Air Canada, suspended connections to China, also leaving flights to Hong Kong on offer. On February 9, 2020, Lufthansa, SAS and LOT Polish Airlines cancelled their connections to China. According to

¹ International Air Transport Organization: <https://www.iata.org/en/iata-repository/publications/economic-reports/covid-19-wider-economic-impact-from-air-transport-collapse/> [07.04.2020]

official reports, at that time the number of infected people in China exceeded 10,000. Over 70 countries closed their borders to Chinese citizens and people of other nationalities residing in the territory of that country. In February 2020, around 70% of international flights to and from China were cancelled, as were domestic flights. Passenger traffic at Chinese airports that month decreased by about 75% compared to the same period in 2019 (<https://www.oag.com/>).

There was a rapid development of the epidemic also in South Korea. In the last days of February 2020, the number of confirmed cases of infection exceeded 3,700 people (<https://www.who.int>). In the first days of March 2020, many airlines, including LOT Polish Airlines, suspended their connections to Seoul (<https://www.rynek-lotniczy.pl>).

during the epidemic in Europe. At that time, the epidemic rapidly developed in northern Italy, especially in Lombardy. The first case in this part of Italy was confirmed on February 16, 2020, and in the following days the number of cases was growing at a very fast pace. On February 29, 2020, the number of people diagnosed with the virus reached 1,128 cases (<https://www.who.int>). At the beginning of March, some European airlines, especially the low-cost ones (including Wizzair, Easy Jet, Ryanair), reduced the frequency of flights to Italy or even suspended some destinations. After the introduction of restrictions on the possibility of traveling around Italy on 8 March 2020, further airlines suspended connections to Italian ports.

At that time the epidemic was also spreading in other European countries. Most cases were recorded

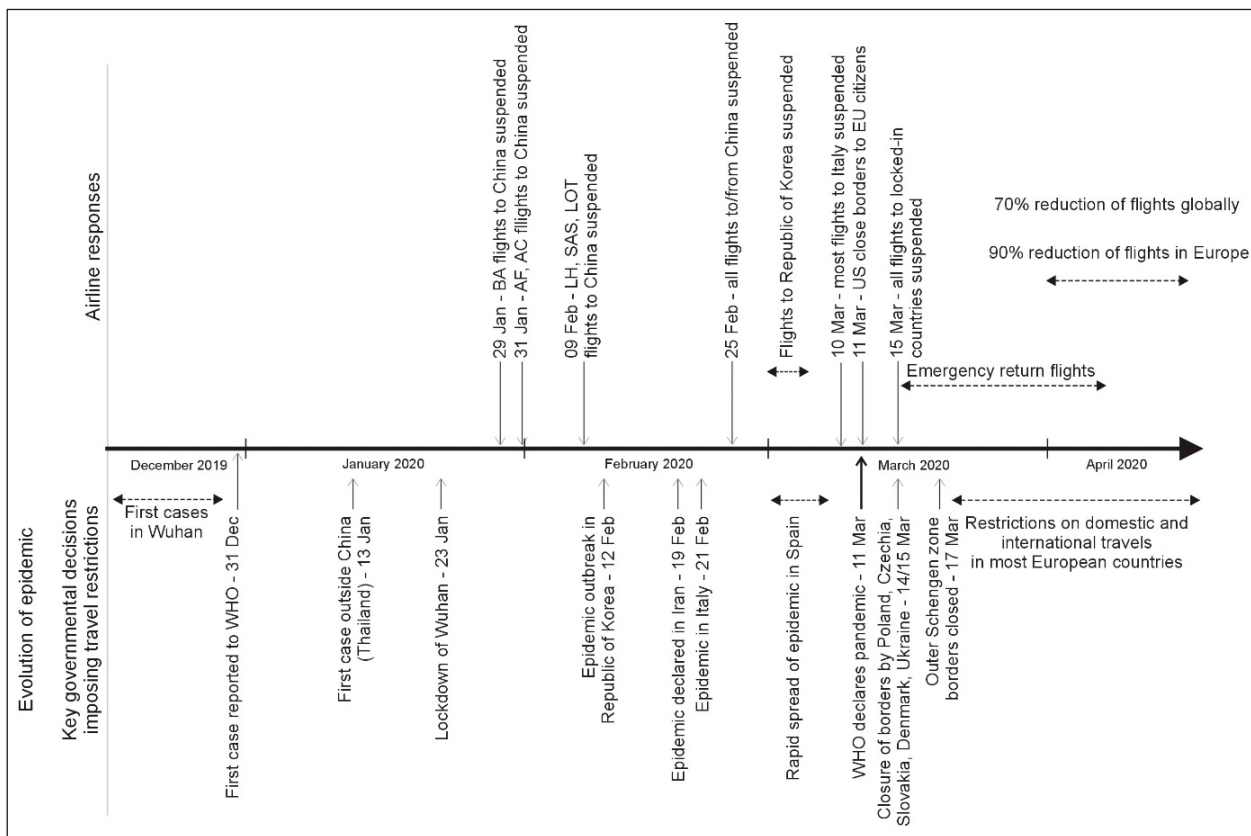


Fig. 1. Timeline – development of the epidemic and restrictions on mobility introduced by national governments and response from airlines.

Source: own work

2. The development of the epidemic in Europe – reduction of the European connections network

The first two cases of COVID-19 in Europe were discovered in Italy in Rome on January 31, 2020, in a pair of Chinese tourists. On February 14, 2020, the first Chinese tourist who had previously been diagnosed with COVID-19 died in France. It was the first death

in Spain, France and Germany, but no European country was able to protect itself against infections. Due to the fear of a further rapid increase in infections, the governments of Denmark, Poland, the Czech Republic, Slovakia and Ukraine decided on March 13, 2020 to close their borders from March 15, 2020 (Ukraine closed its borders on March 16) and to restore border crossings between countries of the Schengen zone. In the case of Poland, this meant immediately suspend-

ing all international air connections and maintaining only charter flights that Polish citizens could use to return to the country. All persons returning from abroad had to undergo a 14-day home quarantine.

On March 17, 2020, all European Union countries associated under the Schengen Agreement decided to close external borders. In the case of internal borders, individual countries took independent decisions on this matter. In total, 12 EU countries reinstated internal border controls within Schengen (<https://www.pap.pl>).

3. Announcing the pandemic and restrictive actions taken by states

On March 11, 2020, a few days before the decision of many European countries to close their borders, the World Health Organisation (WHO) announced a pandemic. This information influenced the introduction of further regulations aimed at limiting the mobility of the population and thus limiting the spread of coronavirus. On the same day, President Donald Trump introduced a ban on coming to the US for citizens of 26 Schengen countries. This ban was extended a few days later to Great Britain and Ireland as well.

In the second half of March 2020, more countries closed their borders, which led to the largest mass quarantine in history at the end of this month – it is estimated that over 1/3 of the world's population was subject to travel restrictions. They concerned not only international travel, but also national and local one. China, India, New Zealand, Israel, Italy, Spain, France, the Czech Republic, Poland and later Great Britain were among the countries that introduced the greatest restrictions related to people's mobility.

Closing borders and suspending connections required the governments of individual countries to organise so-called repatriation flights for tourists and many others who were abroad when the borders were closed. In Poland, bringing citizens to Poland was called "flight (originally "LOT", as LOT means 'flight' in Polish) home". This action was entrusted to only one carrier – LOT Polish Airlines. It was conducted from March 16 to the first days of April 2020. During this time, over 320 special flights were organised, and over 47,500 Poles and about 800 citizens of other countries were transported (<https://www.gov.pl/web/dyplomacja>).

4. Air transport crisis

The closure of borders and the introduced restrictions on mobility first hit the transport sector, and the most severely the air transport sector and the

closely related tourism industry. According to IATA statistics, the overall plunge in passenger services reached 70% globally at the beginning of April 2020, while in Europe it was as much as 90%.

According to Eurocontrol data, in the first days of April 2020, all European airlines suffered from drastic declines in the number of conducted operations. Ryanair recorded a decrease of 97%, Lufthansa, SAS, Air France and KLM – 96%, IAG (British Airways and Iberia) – 95%; among smaller lines – Portuguese TAP – 100%, TUI – 99%, Wizzair – 95%, LOT – 99%, Wideroe – 70%. Most of Europe's largest airports in the first half of April 2020 had about 92% fewer flight operations compared to the same period in 2019 (for example, London City – decreased by 92%, Gatwick – 98%, Heathrow – 94%, Manchester – 99%, Barcelona – 95%, Vienna – 96%, Munich – 95%) (<https://www.gov.pl/web/dyplomacja>).

The Lufthansa airline group limited the route offer to 5% of the original schedule for all destinations in April. About 700 aircraft from 763 planes of the group were temporarily grounded (<https://www.pasazer.com>). One of the runways at Frankfurt Airport was turned into a parking lot for more than 20 wide-body aircraft. In the first half of April 2020, only a few medium-haul flights and three flights a week from Frankfurt to New York (Newark airport) were operated by Lufthansa.

Low-cost airlines, including the European leader Ryanair, were also in a very difficult situation. The airline's management said it expected minimal or even complete lack of passenger traffic in April and May 2020 due to the pandemic that led to travel bans in almost all of Europe. In March 2020, the airline recorded a decline in passenger numbers of around 50% after Italy and other European countries closed their borders (<https://www.businesstraveller.com>). The Italian market was among the key ones for this airline as it offered both international connections to 27 Italian cities and it served many Italian domestic routes using the EU right to full cabotage (Pijet-Migoń, 2016). In March 2020, the Ryanair Group transported only 5.7 million passengers, which accounted for 48% of the number of passengers in March 2019 (<https://centreforaviation.com>). That month, the entire Ryanair group operated 33,000 flights, just over half of the planned number, including a series of rescue, repatriation and medical flights commissioned by governments of various European Union countries.

Passenger traffic also significantly decreased in Poland, especially at regional airports, where in the second half of March and in April in many cases it even dropped to zero. Some airports only operated special traffic – medical, governmental and cargo. In Poland, in March 2019, the volume of passenger traf-

fic at all airports exceeded 3 million people, while in the same month in 2020 it amounted to only 251,000 (Table 1).

Tab. 1. A comparison of passenger traffic in Polish airports in the first quarter of 2019 and 2020.

Month	2019	2020
January	3,019,376	2,759,952
February	2,973,562	907,330
March	3,338,548	250,924

Source: own work based on data from www.pasazer.com

After closing the borders and introducing restrictions on movement, traffic in regional airports in Poland practically froze. According to the Association of Regional Airports, in the period from March 16 to April 5, 2020, a 90% decrease in aviation operations was recorded at thirteen Polish regional airports (<http://zrpl.pl>) (Table 2). According to data from the Polish Air Navigation Services Agency, during the first three weeks of flight bans, 1,184 air operations (take-offs and landings) took place in all regional airports in Poland. In the corresponding period of 2019, the number of such operations amounted to 12,553 (<https://www.pansa.pl>).

Such a significant decrease translates into a very large reduction in revenues for airports. According to the Association of Regional Airports, 30,000 people are directly employed at regional airports, and the effect of the airports' catalytic impact on the labour market is estimated at around 80,000 jobs.

Tab. 2. Comparison of the number of operations at regional airports in Poland during the first three weeks of the ban on flights with the same period in 2019.

Airport	Number of operations made from 16 Mar until 05 Apr 2020	Number of operations made from 16 Mar until 05 Apr 2019	Change in the number of operations
Bydgoszcz	23	214	-89%
Gdańsk	221	2259	-90%
Katowice	296	1653	-82%
Cracow	215	3269	-93%
Lublin	0	164	-100%
Lodz	13	171	-92%
Modlin	72	1144	-94%
Olsztyn-Szymany	8	79	-90%
Poznań	137	1098	-87%
Rzeszów	28	521	-95%
Szczecin	15	322	-95%
Wrocław	156	1616	-90%
Zielona Góra	0	23	-100%

Source: based on data from the Polish Air Navigation Services Agency (www.pansa.pl)

5. Problems of the aviation industry and uncertain future

5.1. Airlines during the crisis

The suspension of passenger flights in many regions of the world has led to a completely unusual situation in the history of aviation. The crowded airspace over many countries just a few months earlier now began to be almost empty. According to data from the Flightradar24 website showing the real-time location of aircraft on a map, the average number of commercial flights (calculated on a weekly basis) performed daily in the first week of April 2020 was 31,214, while in January 2020 it was still 110,000 (<https://www.flightradar24.com>) (Fig. 2).

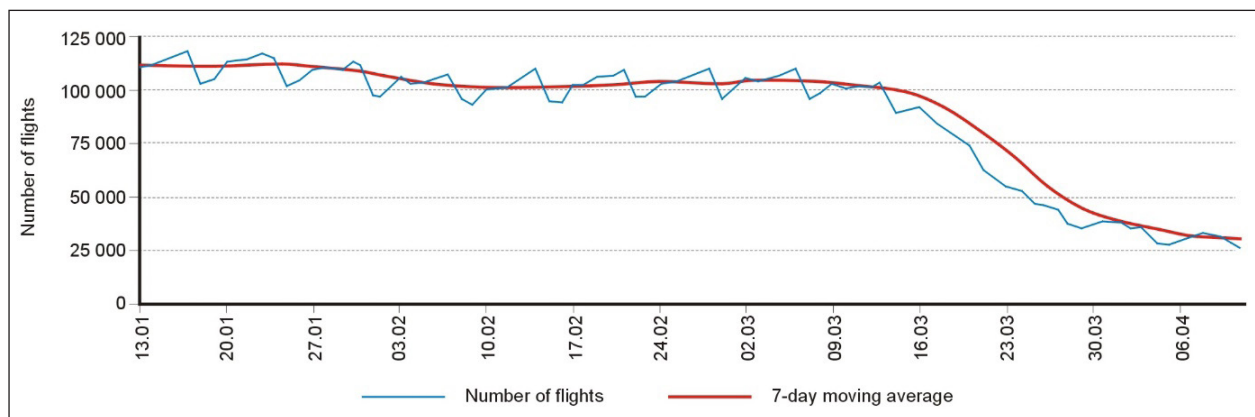


Fig. 2.. Number of commercial flights, including scheduled passenger, cargo, charter flights and some business flights.

Source: own work based on Flightradar24

IATA (the International Air Transport Association) estimates airline losses due to the pandemic at \$250 billion (<https://www.iata.org>). The collapse of demand for air transport may lead the aviation industry to a deeper crisis than all the previous ones, especially as it will be exacerbated in the near future by the expected huge economic crisis resulting from the development of the epidemic caused by the COVID-19 virus.

The accurate extent of the future crisis is currently difficult to estimate because there are still many unknown affecting factors, including the most important – the duration of the pandemic and of the restrictions on the mobility and organisation of major events. At the moment, no one can predict how long returning to pre-pandemic passenger traffic may take and whether it is at all possible in a relatively short time, or whether it will take several or more years to return to the previously noted level of passenger volume. According to IATA, the pandemic crisis might result in closing 25 million jobs worldwide. Already

in March 2020, some airlines reduced the number of employees (e.g. Qantas, Air Canada, Norwegian Air Shuttle, West Jet); some employees had to use over-due or start new holidays. American Delta airlines suggested early retirement to some personnel. In some airlines (Finnair, Lufthansa), part of the cabin crew with medical training were reassigned to help in medical facilities. In many companies (e.g. in the Ryanair group) employees were offered reduced salaries or unpaid holidays.

Airlines will be forced to take various measures to prevent liquidity loss. Obtaining financial support from the state will be very important. The previous financial situation and the amount of reserves held will affect the condition of individual airlines and the possibility to survive the crisis. Aviation market ana-

lysts expect an acceleration and deepening of the market consolidation process that has been ongoing for several years now (<https://www.cnbc.com>). Already at the beginning of the fall in demand for air connections in February and March 2020, two airlines that were already struggling with financial problems went bankrupt – Air Italy (bankruptcy announced on February 25, 2020) and a British regional carrier Flybe (bankruptcy announced on March 4, 2020).

5.2. Demand for transport services

Having a large fleet in comparison to the demand will be a serious problem for airlines in the near future. Therefore, it can be expected that airlines will withdraw older machines or those too large in relation to demand. Already in March and April 2020, Dutch KLM airlines announced the termination of operating Boeings 747, Emirates began using Boeing 777 on several routes formerly operated by A380 double-deck Airbus, the board of the Lufthansa Group decided

on April 7, 2020, to limit flights and withdraw from operations six Airbus A380, seven Airbus A340-600, five Boeing 747-400 and eleven Airbus A320 (<https://www.businessstraveller.com>).

In times of reduced demand for passenger transport, airlines began to use, to a limited extent, passenger planes (after appropriate adaptation) for freight, especially light and urgently needed medical goods (e.g. Cathay Pacific, Air Canada, Lufthansa, Emirates, Tarom). Many airlines (incl. Easy Jet, Emirates) cancelled previous large purchase orders for a new fleet (<https://centreforaviation.com>). Serious reductions of orders may aggravate the already existing problems of aircraft manufacturers, especially Boeing.

The ongoing pandemic and the imminent economic crisis will affect the activities of most enterprises. It can be expected that they will be forced to cut costs of running their businesses. As with previous crises, one can expect a reduction in business travel (Hanlon, 2007) and an increase in the popularity of online meetings and conferences, which have become greatly popular at a time of reduced mobility and social isolation. Nowadays, it is difficult to predict clearly how the pandemic will affect individual travel habits. In times of a crisis or economic slowdown, when the so-called disposable fund is reduced, a lot of people cut tourism and travel expenses, especially to more distant destinations (Holloway, 2008). Because there is a synergy effect between tourism and air transport (Graham et al., 2008), it can be expected that in the future airlines may limit connections to regions considered as peripheral or even cancel them. Thus, a reduction of tourist traffic in these areas may be expected.

It is possible that the pandemic will also affect many people's mental state (Lau et al. 2010) and for some time may cause a fear of the unknown, fears related to exposure to health hazards as a result of travel, especially to more exotic destinations, resulting in a decrease in demand for air travel.

Expected market consolidation, a reduction in the number of carriers, and thus reduced competition on many routes, may cause an increase in air fares. The reduction of connection networks announced by many airlines and the closure of less popular routes may most severely affect smaller regional ports, which may have a problem in the future with restoring the pre-pandemic offer and the increase in passenger traffic.

Conclusions

The SARS-Cov-2 virus pandemic has affected many sectors of the economy, but aviation was one of the first to suffer. Closing borders and restrictions on mobility imposed by many countries will most likely

mean that passenger air transport will not return to its former level of functioning for a long time. None of the earlier crises that affected the aviation industry after World War II was so significant and none was so global. The loss of revenues during suspension of flights and the expected decline in demand for air transport may cause that many entities from the air transport sector – airlines, airports and flight control companies – will not be able to cope without external support of the state or additional financial support from regional budgets in the case of regional airports. However, even short-term government aid may not prevent smaller financially troubled enterprises or companies from going bankrupt. The future of many entities in the air transport sector will depend not only on the ability to adapt to the changed market situation, but also on the transport and tourism policy of countries and organisations.

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