

**KRATKO ILI PRETHODNO SAOPŠTENJE / SHORT OR PRELIMINARY REPORT**

## **ECONOMIC IMPACT OF COVID-19 ON AIR TRAFFIC INDUSTRY: CHALLENGES IN CROATIA**

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**Abstract:** *By the end of September, 2020 total worldwide number of Covid-19 infections has surpassed 34 million inhabitants, while the number of deaths caused by health pandemic crisis stands at more than one million. It's predicted that the year 2020 will see about 10 percent drop in economic growth compared to the previous year. Different macroeconomic scientific and professional authors in their forecasts agree that the worse scenarios will be suffered by global and regional tourism industries together with air transport industry. The consequences of Covid-19 on air transport results in 2020 compared to results in the last three decades are analysed on four different levels - worldwide, European, South-East European and Croatian aviation achievements. Besides, the correlation between the global touristic and air carriers' results in last three decades is considered in the paper with adequate conclusions. IATA monitors developments related to the Coronavirus outbreak, publishes industry statistics and analysis of COVID-19 impacts on the financial and traffic performance and produces outlook for the global air transport industry. According to its latest forecast, full-year 2020 traffic is expected to be down by 66% compared to 2019 while revenues are expected to fall by even more than demand. ICAO has prepared few models and analyses of final business results with different magnitudes on air transport industry recovery. Special attention and business details in the paper are devoted to the Croatian air transport situation in light of Covid-19 with conclusions, suggestions and proposals for future survival and development scenarios, including appropriate actions and measures as well as state, regional or local financial support. The activities and measures taken by Croatia Airlines can be characterized as an example of good practice in the conditions of the Covid-19 pandemic and are articulated as guidelines for the operations of regional airlines in the mentioned conditions.*

**Keywords:** *COVID-19 pandemic; air transport; Croatian air transport; economic impact.*

**JEL classification:** L83, L93, R41, Z32.

## INTRODUCTION

The Coronavirus pandemic is a serious crisis situation in public health for citizens, societies and economies around the world. Businesses across industries are facing the biggest economic crisis since World War II. The crisis has had a particularly devastating effect on travels and tourism, with airlines and air transport in general being among the most affected sectors. In the past, various crises have caused a drop in air traffic performance, but as a rule, a rapid recovery would be followed. However, both the International Air Transport Association (IATA) and the International Civil Aviation Organization (ICAO) forecast that air transport will need much longer period to recover this time. In order to return the employment rates and economic activities supported by the airline industry to the pre-crisis levels as soon as possible, governments throughout the world have reached decisions to grant financial aid and support to airlines with packages including recapitalisation, state guarantees for loans, shareholder loans, etc. Such an approach helps reduce the negative effects of the pandemic crisis so that the benefits from aviation, as an important part of traffic infrastructure, could be reaped again once the pandemic gets under control. With special attention to the Croatia Airlines performance indicators, paper is considering and analysing the consequences of the pandemic on the air transport market on different levels: worldwide, Europe, Southeast Europe and Croatia.

## AIR TRANSPORT INDUSTRY IN WORLD ECONOMY

The air transport industry is powering global economic growth and employment through connectivity that enables the development of tourism and global business. In addition, important fact is that air transport industry is enabling the increase of goods and people movement across borders facilitating the development of social and economic networks. During the year 2019 nearly 1,500 airlines around the world operated a total fleet of 33,300 aircraft and carried 4.5 million passengers plus 61 million tons of freight. They serve 3,780 airports through a route network of several million kilometres managed by 160 air navigation service providers. (ATAG, 2020, p. 11).

It is important to emphasize the air transport contribution to sustainable development and continuous work to limit its impact on the environment. Analyzes done by the aircraft manufacturer Airbus show that aircraft in year 2019 were 75 percent quieter and 80 percent more fuel efficient per seat than they were when becoming a more common sight in cities around the world. Aviation contributes two to three percent of the world's manmade emissions of carbon dioxide (CO<sub>2</sub>), with transportation as a whole (cars, trains, shipping etc.) producing ~24 percent (Airbus GMF, 2019, p. 3).

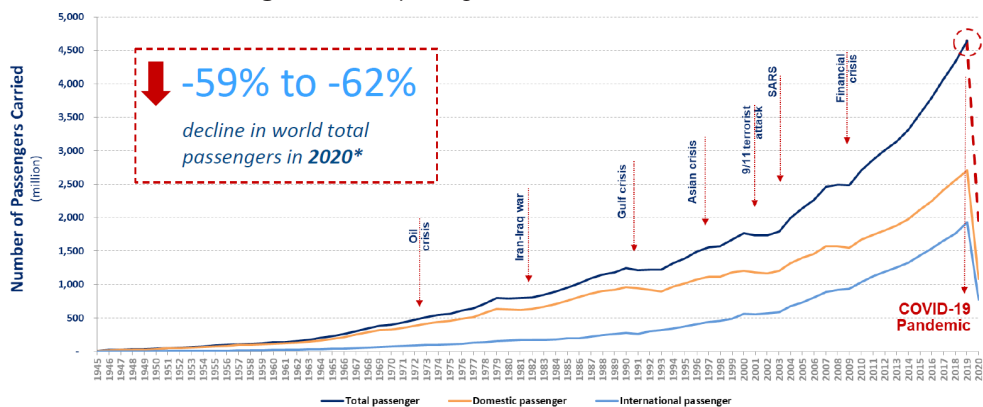
Aviation jobs are, on average, 4.3 times more productive than other jobs and before Covid-19 crisis. Air Transport Action Group (ATAG) emphasizes in its recent publication that the air transport industry supported a total of 87.7 million jobs globally, through direct, indirect, induced and catalytic impacts. Direct jobs represent 11.3 million employees including airlines, airports, air navigation and aerospace. Aviation's global economic impact (direct, indirect, induced and catalytic) is estimated to USD 3,500 billion, equivalent to 4.1 percent of world GDP<sup>1</sup>. The importance of the air transport industry is also evidenced by the facts that 58 percent of international tourists trav-

<sup>1</sup> GDP - Gross Domestic Product.

el by air and air transport carries around 35 percent of world trade by value, less than 1 percent by volume (ATAG, 2020, pp. 10-19). The significant impact of air transport is reflected in the increase in productivity of the world economy due to easier access to far more areas than other transport modes. The development of air transport in a particular country or region increases the efficiency of the supply chain, which could be a deciding factor when making investment decisions by investors (Bajić, 2020, p. 20).

Air transport industry have almost always been linked to economic cycles on global and regional level, and also depends on GDP development. During the time, this industry has also been affected by other significant factors, most notably several oil crises, Iran-Iraq war crisis, Gulf war crisis and Asian crisis. In the 21<sup>st</sup> century it was followed by World Trade Centre terrorist attack (9/11) and SARS<sup>2</sup> which had tremendously negative impact on the profitability of several major airlines (Figure 1) (Škurla Babić, Tatalović, & Bajić, Air transport competition challenges, 2017). The business year of 2020 will be marked by the evolution of a new, dangerous Coronavirus (COVID-19) that has spread throughout the world and disrupted our way of life. In order to prevent its further spread, many countries have restricted travels and suspended operations of many economic sectors by introducing limitations and strict quarantines, all in an effort to stop the spread of epidemic. The measures introduced in an attempt to stop the spread of the Coronavirus have greatly affected economic activities, pushing the world into the worst recession since the Second World War. International Monetary Fund (IMF) in its outlook of October, 2020, projected decline of global GDP in 2020 to 4.4 percent (IMF, 2020). World trade organization (WTO, 2020) prediction shows a fall of global merchandise trade volume by 9.2 percent in 2020 compared to 2019. The demand for air transport services collapses by unprecedented decline in history, caused by the global pandemic in 2020 and stops the continuous growth trends, as shown in Figure 1 (ICAO, 2020).

**Figure 1.** World passenger traffic evolution 1945 – 2020



**Source:** ICAO (2020) Effects of Novel Coronavirus (COVID-19) on Civil Aviation: Economic Impact Analysis, Montreal: International Civil Aviation Organization Air Transport Bureau, p.6.

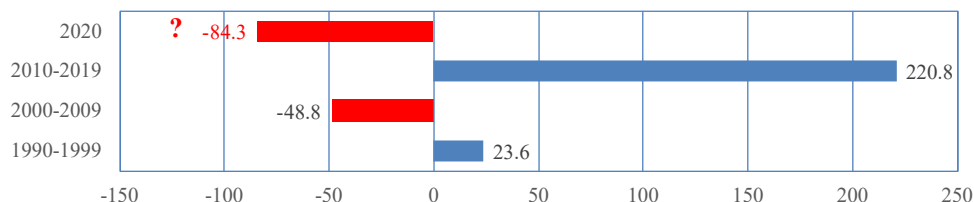
As can be seen from Figure 1 the Coronavirus pandemic has had a devastating effect on the global airline industry, which is facing the worst crisis ever.

<sup>2</sup> SARS - Severe acute respiratory syndrome.

## AIR TRANSPORT RESULTS AND CONSEQUENCES OF COVID-19 PANDEMIC

The Coronavirus has brought airlines to their knees, forcing them to put their aircraft out of operation, cancel flights and announce tens of thousands of lay-offs. According to the International Air Transport Association (IATA, 2020) global commercial airlines net loss of 84.3 billion USD is expected in the 2020, which is shown in Figure 2 compared to the financial results of airlines over the last three decades.

**Figure 2.** Global commercial airlines net profit by the decades 1990-2019 plus 2020 (billion USD)



**Source:** Prepared by authors according (Mišetić, Bajić, & Tatalović, 2018, p. 99) and (IATA, 2020).

Detailed selected airline performance indicators are presented in the Table 1.

**Table 1.** Global commercial airlines selected performance indicators 2000-2020

Worldwide airline industry	2000	2005	2010	2015	2018	2019	2020	AAGR*
REVENUES, \$ billion	329	413	564	721	812	838	419	5.0%
Passenger, \$ billion	256	323	445	545	610	612	241	4.7%
Cargo, \$ billion	40,0	68,6	88,6	83,8	111,3	102,4	110,8	5.1%
Sched passenger numbers, millions	1,672	2,135	2,675	3,569	4,378	4,543	2,246	5.4%
Freight tonnes, millions	30.4	41.9	50.5	54.8	63.3	61.3	51.00	3.8%
World economic growth, %	4.7	3.5	4.1	2.8	3.1	2.5	-5.00	-
EXPENSES, \$ billion	318	409	536	659	766	795	517	4.9%
Fuel, \$ billion	46	91	151	175	180	188	78	7.7%
Crude oil price, Brent, \$/b	28.8	54.5	79.4	53.9	71.6	65.0	35.0	4.4%
Flights, million	21.0	24.9	27.8	34	38.1	38.9	23.1	3.3%
Break-even weight load factor, %	60.8	63.0	64.6	62.4	63.5	65.9	73.3	0.4%
Weight load factor achieved, WLF%	61.5	63.6	67.9	68.3	67.3	69.5	59.4	0.6%
Passenger load factor achieved, PLF%	71	75,2	78,9	80,5	81,9	82,5	62,7	0.8%
OPERATING PROFIT, \$ billion	10.7	4.4	27.6	62.0	45.9	43.2	-88.0	-
% margin	3.3	1.1	4.9	8.6	5.7	5.2	-23.4	-
NET PROFIT, \$ billion	3.7	-4.1	17.3	36.0	27.3	26.4	-84.3	-
% margin	1.1	-1.0	3.1	5	3.4	3.1	-21	-
per departing passenger, \$	2.2	-1.9	6.4	10.1	6.2	5.8	-37.5	-
Return on Invested Capital, %	5.0	3.3	6.2	7.9	6.5	5.8	-16.9	-

AAGR\* - Average Annual Growth Rate 2000-2019

**Source:** Prepared and modified by authors according (Škurla Babić, Tatalović, & Bajić, 2017) (IATA, 2020).

Financial losses during the first decade of a twenty first century (2000-2009) amounted to 48.8 billion USD with seven negative financial years. New positive economic and financial cycle of the global airline industry started from the year 2010. In the period from 2010 to 2019 more than 220 billion USD net profit was achieved. In the period 2000-2019 an average annual growth rate of revenues (5.0 percent), was faster compared to growth rates of expenses (4.9 percent) generating net profit of 172 billion USD. In 2020, approximately half of that amount is likely to be lost, and possibly even more, depending on the pandemic development by the end of the year.

Faced with a large drop in demand and liquidity problems airlines have responded promptly to the Covid-19 crisis with a range of operational and strategic measures. More than 60 percent of the world's commercial aircraft have been grounded and all airlines reacted immediately with retrenchment to cut costs drastically (Albers & Rundshagen, 2020). Governments throughout the world have reached decisions to financially support airlines respecting their importance for transport infrastructure and protecting the millions of jobs. The total amount of 159 billion USD refers to confirmed or proposed government support. Main implications of the growing governments presence in the sector (Abate, Christidis, & Purwanto, 2020) are:

- Implications on liberalisation and/or deregulation.
- Implications for airline ownership.
- Implications on environmental sustainability.

Generally during economic recessions, two major components of GDP consumption and investment declines, but investment is far more volatile than consumption over the business cycle (Mankiw, 2019, p. 330). Besides, broadly speaking, air travel grew each year by on average, one and a half to two times, as fast as world GDP (Doganis, 2019, p. 178). But in the case of pandemic consequences it is obviously not realistic (GDP -5 percent vs. passenger traffic at least -50 percent). Economic recession and recovery are classified in four distinct shapes (V, U, L and W) and each of these are characterized by, and how long they typically last before full recovery (Ghosh, 2020):

- V-shape: normal shape for recession with sharp decline in the economy is quickly and immediately followed by a rapid recovery.
- U-shape: economy stagnates for a few quarters and up to two years, before experiencing a relatively healthy rise back to its previous peak (Ghosh, 2020).
- L-shape: a sharp decline in the economy, followed by a slow recovery period with possibility of not returning to trend line growth (ICAO, 2020).
- W-shape: double-dip recession with "down up down up" pattern before full recovery (ICAO, 2020).

During the crisis it is important to focus on activities for future consolidation and development including several affecting factors (Vasigh, Fleming, & Tacker, 2018, p. 15):

- The economic cycle's peaks and troughs.
- Gross Domestic Product.
- Lower travel cost.
- Political factors.
- Random events.
- Trade liberalizations and open skies.

Experiences of 2020 indicate that external shock like global pandemic issue is also very important factor. Besides, the growth-related forces in aviation can be divided in two groups. In the first group there are disruptive market dynamics, explosive demand growth and transformational technology changes which stimulate rapid growth. Set of two constraints opposing forces are complexity and tyranny of technology plus regulatory and operational constraints. When these forces meet each other in different directions “*earthquakes*” happen (Taneja, 2019, p. 2).

Pandemic crisis in 2020 is by far the worst blow for the air transport sector as a whole, as it has affected airlines, airports, air traffic control, aircraft and engine manufactures. In order to survive Covid-19 crisis, one of the main challenges for airlines has been controlling their cash burn until air travel demand recovers. IATA estimates that the industry burned 51 billion USD of its cash reserves in Q2 2020, and expect additional 77 billion USD in cash during the second half of 2020. Airline industry will continue to burn through cash until 2022 (IATA, 2020a). Before the crisis, according to IATA analyzes 80 percent of the listed airlines had a rating which exceeded the “*highly speculative*” grade (B+) and the median airline had a rating in the range of BB+ to BB-. The median airline rating has shifted to the “*highly speculative*” and “*extremely speculative*” credit ratings – CCC+, CCC (IATA, 2020b). As a result of the pandemic, airlines are facing structural changes in the industry, including changes in passenger behaviour. These facts call for airlines to get closer to customers which is becoming easier in the digital environment. That enables data collection and analysis of all phases of travel for better prediction of customer behaviour (Taneja, 2018, p. 17)

Airports Council International (ACI, 2020) estimates the airport industry will suffer a -60 percent reduction in passenger traffic and revenues of -104.5 billion USD. Eurocontrol predicts a traffic return to pre-covid levels in 2024 and emphasizes that in terms of space at the airports, the situation is critical. Much more space is required to manage measures of physical distance: 50 percent at check-in, 100 percent at security control and 35-50 percent in boarding gates (ARC & Desart, 2020).

A large drop in demand for air transport services caused by an unprecedented crisis worldwide strongly affected aircraft manufacturers and commercial aircraft production rates have been adapted accordingly (Airbus, 2020). It should be emphasized that Airbus appreciates the government support that has enabled the company to limit these necessary adaptation measures which includes 15,000 staff reduction. However, with air traffic not expected to recover to pre-pandemic levels before 2023 and potentially as late as 2025, aircraft manufactures now need to make additional measures to reflect the post Covid-19 industry outlook (Airbus, 2020).

Tourism industry is complementing to air transport with similar magnitude of demand decrease in 2020. Air Transport Action Group (ATAG) emphasizes that tourism industry in a broader sense is also very affected, with analysis suggesting the global pandemic crisis could cause a drop between 850 million and 1.1 billion international tourists arrivals and a loss of 910 billion USD to 1,200 billion USD in export revenues from tourism, putting 100 to 120 million direct tourism jobs at risk all around the world (ATAG, 2020, p. 5). For international tourism arrivals, air transport has become a major type of traffic and air transport plays a dominant role in inter-regional movements of tourists, which normally entails travel over long-distance. This is a particularly important trend for aviation, given that there is no alternative mode of transport which



can be used here (Graham, 2008). The growth rates of international air transport are related to the growth rates of international tourism. Table 3 shows the data of transported passengers in air transport and the number of international tourist arrivals in the period 1990-2019 on global level.

**Table 2.** Air transport passengers and international tourist arrivals in the period 1990-2019

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	AAGR
<b>Air Transport Passengers (million)</b>	1,165	1,135	1,146	1,142	1,233	1,304	1,391	1,457	1,471	1,562	3.3%
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	
	1,672	1,640	1,665	1,764	1,994	2,135	2,255	2,452	2,489	2,479	4.5%
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
2,675	2,859	2,991	3,143	3,328	3,569	3,817	4,095	4,378	4,543	6.1%	
<b>International tourist arrivals (million)</b>	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	
	440	443	480	496	520	531	561	586	602	625	4.0%
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	
	674	675	695	692	757	810	856	913	930	893	3.2%
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
	952	997	1,044	1,097	1,143	1,197	1,243	1,333	1,408	1,462	4.9%

AAGR = Annual Average Growth Rate

**Source:** Prepared by authors according (Tatalović, Mišetić, & Bajić, 2017), (IATA, 2020) and (UNWTO, 2020).

In addition to the data in Table 2, the authors included IATA estimations for passenger air transport of -51 percent, and UNWTO estimations for international tourist arrivals of -70 percent for 2020 (middle scenario).

In the context of a global pandemic, a correlation metric has been developed that analyzes the correlation between air transport passengers and international tourist arrivals. According to the definition of author Ken Black Pearson correlation coefficient “ $r$ ” is a measure of the linear correlation of two variables (Black, 2019, pp. 739-741):

$$r = \frac{\Sigma(x-\bar{x})(y-\bar{y})}{\sqrt{\Sigma(x-\bar{x})^2 \Sigma(y-\bar{y})^2}} = \frac{\Sigma xy - \frac{(\Sigma x \Sigma y)}{n}}{\sqrt{\left[ \Sigma x^2 - \frac{(\Sigma x)^2}{n} \right] \left[ \Sigma y^2 - \frac{(\Sigma y)^2}{n} \right]}} \quad (1)$$

Analysing the data from Table 2 and additional 2020 predictions, it is possible to create correlation matrix for two different 30-year periods (Fraser, 2016, pp. 267-268). Based on correlation matrix results are visible in Table 3.

**Table 3.** Correlation metrics - Air Transport Passengers and International tourist arrivals

1990-2019	Passengers	Tourist	1991-2020	Passengers	Tourist
Passengers	1		Passengers	1	
Tourist	0.996185562	1	Tourist	0.969600004	1

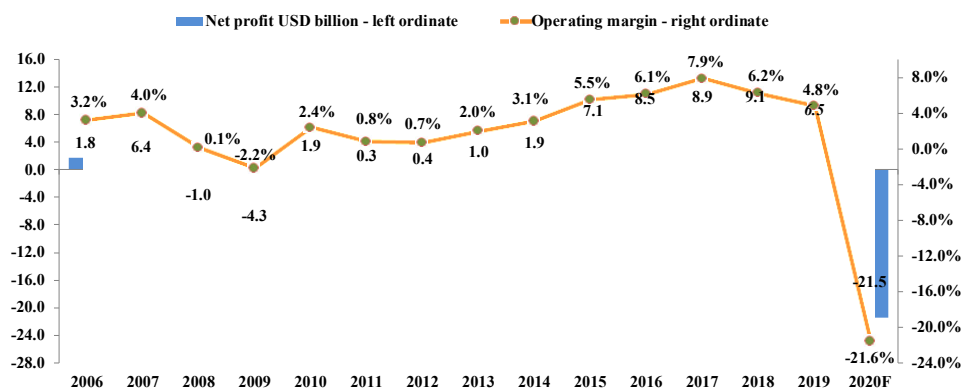
Source: Prepared by authors

Correlation analysis is indicating almost perfect correlation between two analysed parameters.

### EUROPEAN AIRLINE INDUSTRY IN A PANDEMIC ENVIRONMENT 2020

According to IATA, in 2020 the European airlines will generate losses of \$21.5 billion, with an operating margin of -21.6% (Figure 3). Passenger traffic expressed in revenue passenger kilometres will decline by 56.4% compared to 2019 (IATA, 2020). A gradual opening of the European airspace and the resuming of interregional travels in June have stimulated recovery amidst lifting of strict quarantine measures. Most travel restrictions were lifted in early July, except for the citizens of certain countries where the virus was still spreading rapidly. However, with the second wave of the pandemic affecting Europe, the recovery of air traffic by the end of the year is no longer certain.

**Figure 3.** Net profit and EBIT margin of European airlines in the period from 2006 to 2020



Source: Prepared and modified by authors according (Škurla Babić, Tatalović, & Bajić, 2017) (IATA, 2020).

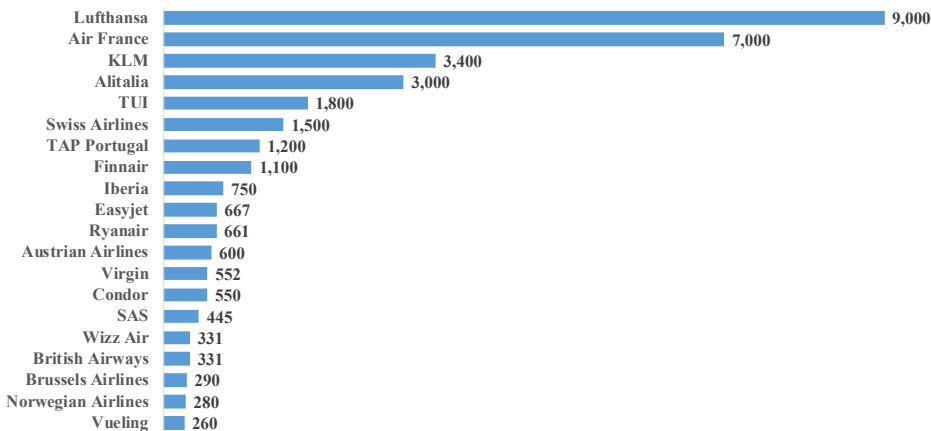
The airlines affected by the crisis are also facing passenger demands related to cancellation refunds, which represents an additional pressure on their already aggravated situation. The European Commission has also addressed the issue of passenger rights by approving the temporary use of vouchers when cancelling a flight, pointing out that the companies are required to comply with Regulation (EC) No 261/2004 (European Commission, 2004). Due to the major negative consequences of the COVID-19 pandemic on the economy, the European Commission has eased state aid rules, and the document “Temporary Framework for State Aid Measures to Support the Economy in the Current Covid Pandemic 19” (European Commission, 2020) allows coordinated economic intervention by European Union member states in overcoming the crisis. In



addition, a decision was made that airlines retain the right to coordinated airport slots, which allowed them to make financially sound decisions on whether to fly, in order to avoid empty flights. Under normal circumstances, operators must use 80 percent of the airport slots allocated to secure this allocation for next season.

The European airlines are receiving huge support from their governments to mitigate these negative repercussions on the European Union economy (Figure 4). Response measures include loans, loan guarantees, credit guarantees, government shares or takeover. This is opposite from the airline privatization processes in Europe before 2020 crisis (Tatalović, Bajić, & Šupuković, 2017). The highest amount was granted to Lufthansa, followed by Air France and KLM. Among other European airlines, five leading low-cost carriers received in total 2.2 billion EUR (Easyjet, Ryanair, Wizz Air, Norwegian and Vueling).

**Figure 4.** Government support for selected European airlines in 2020



**Source:** Prepared by authors according (De Best, 2020).

**Southeast Europe (SEE)** air transport market is also strongly affected with Covid-19 crisis. Region is still undeveloped with weak connections within the region and increasing competition on the main traffic directions to Western Europe. Traffic, economic and political criteria for categorization of the airports is starting from the capitals and main cities of the region, together with minimum traffic volume of at least 500,000 passengers a year (Bajić, Mišetić, & Tatalović, 2016). In the period 2006 – 2019, number of passengers on dominant Southeast Europe airports increased from 22 million to 68 million with achieved average annual growth rate of 9.1 percent (Table 4).

**Table 4.** Passengers on dominant airports in the SEE region 2006-2019 (thousands)

Airport	Passengers (Thousand)					AAGR %	2020
	2006	2010	2015	2018	2019		
Bucharest OTP	3,514	4,803	9,283	13,820	14,697	11.6	-62%
Sofia SOF	2,209	3,297	4,089	6,962	7,107	9.4	-55%
Belgrade BEG	2,222	2,699	4,776	5,641	6,159	8.2	-68%
Zagreb ZAG	1,728	2,072	2,588	3,336	3,436	5.4	-70%
Tirana TIA	906	1,537	1,977	2,947	3,338	10.6	-59%
Split SPU	1,096	1,220	1,955	3,124	3,302	8.9	-79%
Chisinau KIV	548	938	2,219	2,829	2,996	14.0	-60%
Cluj Napoca CLJ	244	1,029	1,488	2,782	2,924	21.0	-60%
Dubrovnik DBV	1,120	1,270	1,694	2,539	2,896	7.6	-88%
Burgas BOJ	1,702	1,873	2,360	3,277	2,886	4.1	-60%
Prishtina PRN	883	1,306	1,579	2,166	2,374	7.9	-60%
Skopje SKP	542	681	1,456	2,158	2,360	12.0	-69%
Varna VAR	1,400	1,199	1,399	2,281	2,084	3.1	-60%
Ljubljana LJU	1,334	1,389	1,438	1,812	1,721	2.0	-70%
Timisoara TSR	754	1,138	924	1,517	1,597	5.9	-60%
Tivat TIV	451	542	889	1,246	1,367	8.9	-80%
Iasi IAS	71	160	377	1,257	1,314	25.2	-60%
Podgorica TGD	382	652	749	1,209	1,297	9.9	-70%
Sarajevo SJJ	466	563	773	1,047	1,144	7.1	-78%
Zadar ZAD	65	275	488	604	801	21.3	-85%
Pula PUY	209	324	352	709	778	10.6	-90%
Sibiu SBZ	64	199	312	700	744	20.8	-60%
Tuzla TZL			259	585	592	-	-59%
Total	21,912	29,163	43,425	64,549	67,914	9.1	-68%

**Source:** Prepared by authors according (Bajić, Mišetić, & Tatalović, 2016), (Škurla Babić, Mišetić, & Bajić, 2017) and (anna.aero, 2020).

Unfortunately, actual 2020 crisis turn the score to 2006 achievement which means a drop of 68 percent.

### CROATIA AIRLINES COVID-19 CHALLENGES

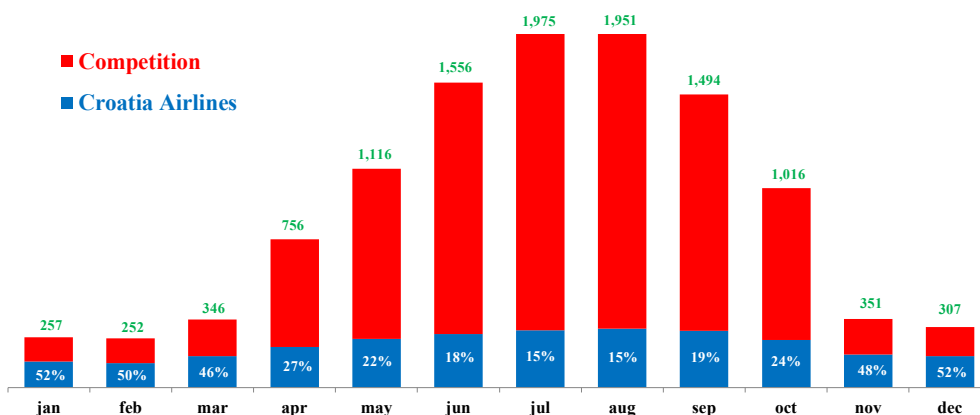
The Croatian economy is expected to see a nine percent decline in 2020, which is the sharpest fall estimated by the International Monetary Fund for the emerging and developing European economies. The expected unemployment rate in 2020 is estimated to 9.3 percent and inflation should be to 0.3 percent (Table 5).

**Table 5.** Selected Croatian economy indicators 2018 - 2025

Indicator	2018	2019	2020	2021	2022	2023	2024	2025
GDP percent change (%)	2.7	2.9	-9.0	6.0	4.4	3.5	3.1	3.0
Inflation rate (%)	1.5	0.8	0.3	0.8	1.1	1.8	2.2	2.1
Unemployment rate (%)	9.9	7.8	9.3	10.3	9.6	8.8	8.0	7.1

**Source:** Prepared by authors according (IMF, 2020a).

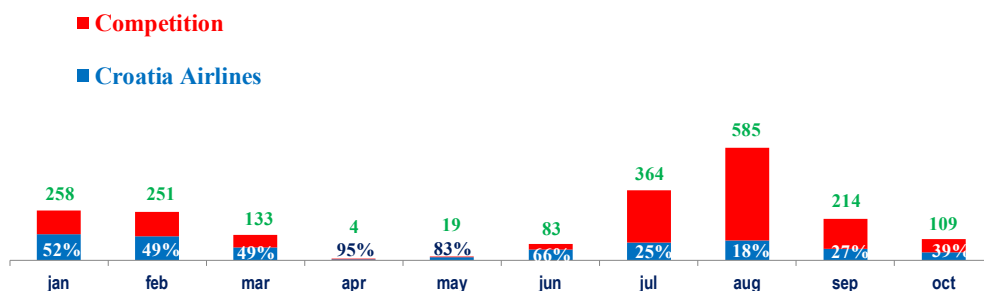
Tourism revenues have an exceptionally high share in Croatia's GDP, and the tourism, transport and hospitality sectors are among the most affected ones by the Covid-19 pandemic. The pre-season lost, with the pandemic gravely affecting the main tourist season. The European countries, in particular Germany, Slovenia, Italy and Austria, as the key feeder markets for Croatia's tourism, are severely affected by the negative economic trends. Furthermore, as the European Union countries are Croatia's major export markets, it is beyond doubt that exports will face a strong decline. Croatian air transport market is characterised by high seasonality, with a high level of competition in the summer months. More than half of all passengers on the market are transported in the third quarter, when nearly 100 airlines operate, while the competition in the winter period is minimal (Croatia Airlines, 2020). Top traffic results in 2019 on the Croatian air transport market (Figure 5) due to Covid-19 crisis according to actual forecasts will not be reached again before 2024.

**Figure 5.** Passengers (000) in Croatian Air Transport Market 2019 (Croatia Airlines vs competition)

**Source:** Prepared by authors according (DZS RH, 2020) and (Croatia Airlines, 2020) internal data.

In 2019 Croatian airports saw an 8 percent rise in the passenger numbers compared to 2018, with a total of 11.4 million passengers and Croatia Airlines market share was 23 percent.

**Figure 6.** Passengers (000) on Croatian Air Transport Market 2020 (Croatia Airlines vs competition)



**Source:** Prepared by authors according to (DZS RH, 2020a) and (Croatia Airlines, 2020) internal data.

Due to the Coronavirus pandemic and restricted flights and travels, the Croatian airports recorded a great fall in the number of passengers, ranging between 70 and 90 percent in the first nine months of 2020, compared to the same period of 2019. According to the data of the Croatian Bureau of Statistics, in nine months of 2020, Croatia's airports recorded 1,697 thousand passengers, what is 80% decline compared to the same period of 2019. Croatia Airlines market share in the observed period was 34 percent. According to the internal Croatia Airlines data for the period January-October, 2020 number of flights decreased by 57 percent, number of passengers carried decreased by 70 percent and passenger load factor dropped by 23.2 percentage points.

According to the projections of financial results for 2020, made by Croatian Chamber of Economy and prepared for the Croatian Government, the air traffic operators in the Republic of Croatia (airports, air traffic control and Croatia Airlines) will record a total financial loss of 1.3 billion HRK in 2020, with a revenue loss in the first nine months estimated to 1.6 billion HRK. (Croatian Chamber of Economy, 2020).

Despite the extraordinary circumstances in early March of 2020, Croatia Airlines continued with its operations on a reduced schedule, adhering to the decisions of both public health and aviation authorities, while the majority of foreign carriers suspended all their flights to Croatia as early as mid-March. The COVID-19 crisis has reaffirmed Croatia Airlines importance for the transport infrastructure of the Republic of Croatia. Since the beginning of the crisis and until the May of 2020, Croatia Airlines has enabled about 23,000 Croatian citizens to return home. Furthermore, Croatia Airlines put at disposal to the Croatian Government capacities for the transport of humanitarian aid, return of Croatian soldiers from Afghanistan and operating several repatriation flights from various parts of Europe.

Immediately at the beginning of the crisis in March of 2020, Croatia Airlines introduced rigorous measures in all business segments, which, together with the signing of agreements with unions on reducing collective bargaining rights and agreements with a large number of suppliers, resulted in significant savings in 2020. The most important measures are the cancellation of the short-term seasonal lease of the CRJ1000 aircraft, cancellation of the long-term dry lease of the Q400 aircraft and the agreement with the lessor of the A319 aircraft which will be used on „power by the hour“(PBH)

bases until the beginning of the summer season 2021. Out of the current thirteen aircraft and engine rental contracts, eleven contracts have been agreed with lessors to reduce the cost of monthly rental instalments using the PBH calculation. Investments decreased, seasonal employment was cancelled, promotional campaigns were postponed and promotion costs were reduced in all markets, business travel budgets and training of non-operational staff were reduced. Due to the crisis caused by the Coronavirus pandemic and the preservation of liquidity, Croatia Airlines has fulfilled its obligation to hand over greenhouse gas emission units for 2019 by using free emissions for 2020. Part of the reduction in outflows is related to the reduction of costs directly related to the operation due to the reduction in the volume of traffic. Besides, in the period April-June, 2020 a deferral of credit obligations was agreed with commercial banks, measures of the Croatian Government were used to defer payment of taxes and contributions on salaries and other various membership fees. However, all those measures could not compensate revenue losses. In the period from April to September, 2020, the revenue decreased by more than 70 percent compared to the same period of 2019. Besides, Croatia Airlines continues to apply a reporting system in accordance with quality procedures in order to stabilize all management and decision-making processes. The list of selected reports includes: weekly and monthly booking profile, booking profile of selected flights, booking class list report, profitability by aircraft types and traffic types, route profitability, profitability by markets, daily profitability, cost committee report, revenue committee report etc (Tatalović, Mišetić, & Bajić, 2012, p. 768).

On 21<sup>st</sup> February, 2019, the Croatian Government reached a decision to initiate the procedure of seeking a strategic partner and to establish a commission to implement the procedure and propose the selection of a strategic partner for Croatia Airlines. During the process two non-binding offers from Aegean Airlines (Greece) and Air Nostrum (Spain) were received. However, the procedure was suspended due to the outbreak of the COVID-19 crisis, and in March of 2020 the Commission in Charge of Implementing the Procedure and Proposing a Strategic Partner for Croatia Airlines decided to put it on hold amidst the unfavourable situation and force majeure. In line with the goals of the Croatian Government Croatia Airlines has prepared a business plan for 2020-2025, setting out in detail the strategic, financial and operational goals of overcoming the Covid-19 crisis. This plan, therefore, includes the state financial support measures compliant with the European Commission's Temporary Framework for State Aid Measures to Support the Economy in the Current COVID-19 Outbreak.

## CONCLUSION

At the beginning of November 2020, total worldwide number of Covid-19 infections has surpassed 50 million inhabitants. Public health, social and economic crisis all around the world caused the deepest crisis ever for air transport industry. The same scenario was experienced by the tourism industry since the performances of international tourist arrivals and passenger air transport are in an almost perfect correlation. According to the latest ICAO and IATA forecasts, drop of air passenger traffic is expected on the level close to 60 percent. Having in mind consequences and economic impact of pandemic crisis on air transport results, the governments on global level decided to support airlines surviving processes with a wide range of financial measures in amount of 159 billion USD. Consequently, European Commission also has

eased state aid rules. In Croatia drop in air passenger traffic is higher than 70 percent which is among deepest negative magnitude compared to the rest of the world. Croatia Airlines introduced rigorous savings measures in all segments as early as March 2020, when the crisis began. Croatia Airlines Business Plan 2020 - 2025 includes necessary measures and presumptions for sustainable business in the future. It is reasonable to assume that traffic volumes recorded in 2019 on the Croatian air transport market will not be reached before 2024 due to Covid-19 crisis. The activities and operational measures taken by Croatia Airlines can serve as guidelines for regional airlines in coping with the Covid-19 pandemic and ensuring business continuity. They were introduced in all business segments and included carefully reducing the number of flight operations and frequencies while anticipating changes in passenger demand caused by pandemic, restructuring and cancellation of aircraft leasing arrangements, proactive measures to maintain passenger confidence i.e. easy cancelling, rescheduling and ticket refunding, quickly development of new airport procedures and in-flight services adhering to the decisions of both public health and aviation authorities. Moreover, cost cutting measures, signing of agreements with unions on reducing collective bargaining rights and agreements with many suppliers brought important savings in 2020. To recover and succeed in the post-pandemic era, the aviation industry has to acquire data on both the economic standard of its passengers and their willingness to travel again and the expansion of COVID-19 and its variants and use predictive analytics to forecast recovery patterns. losses accurately. To facilitate airline management in preparing for the Post-COVID-19 era, future research should adapt various predictive and diagnostic analytics for real-time data analysis to predict demand and behaviour of potential passengers and identify changes in markets. Recovery data from previous crises should be analysed to determine recovery patterns of different market segments and to comprehend how pandemic affected different route areas around the world. States are becoming increasingly involved in air traffic - either as creditors or as part of the administration. Research should be conducted to determine the potential for negotiating better and fairer business conditions in the future, in particular ensuring financial stability to make airlines more resilient to future crises and recessions and a more balanced distribution of values between airlines, airports and air traffic management organizations.

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