

IMPORTANCE OF AIR TRAFFIC FOR THE DEVELOPMENT OF TOURISM: EMPIRICAL EVIDENCE FROM CROATIA

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Abstract

Tourism and traffic are interrelated, connected phenomena of exceptionally strong mutual influence. Due to significant impact in the Republic of Croatia, as well as numerous other countries, they are defined as one of the leaders of the country's economic development. It is of great importance that traffic and tourism are aligned on the basis of sustainable development, with an emphasis on preserving the environment so as not to undermine performance tourism. In response to the phenomenon of mass tourism, new trends in air traffic are emerging, eliminating the insurmountable obstacles thus far and making travels more economical, faster and more accessible. Air traffic and tourism interdependence is remarkably strong and of great importance to the economy of each country. In order for traffic to support tourism, it is necessary that, within the observed economy, there is uniformity in the development of all transport branches. The aim of the paper is to analyse the state of air traffic, its connection with tourism and to determine how air traffic can make a contribution to the development of tourism in the Republic of Croatia.

Key words: traffic, air traffic, tourism, Republic of Croatia

1. INTRODUCTION

Traffic, being one of the drivers of the economy in every country, basically represents transport of people, goods and information. However, with its growth, traffic has also played an important role in the development of mass tourism. Transport is an integral part of tourist industry, and tourism has developed over the last years mainly because of the improvements made in passenger traffic (Virkar and Mallya, 2018). Air traffic, as the youngest traffic branch, plays an important role in tourist traffic flows all over the world. Although being the youngest, the significance of air traffic has been growing considering it provides the possibility of fast and affordable travel and therein enables visits to numerous tourist destinations. Air traffic and tourism have always been interconnected, and over the last decades, this interconnectedness has become stronger. So, the advancement of air traffic has been followed by development of new tourist products and partnerships (Stoenescu, 2017).

In the framework of this paper, the theme of the influence of air traffic on tourism and the phenomenon of interdependence of tourism and traffic has been researched, with the focus on the role of air traffic in tourism. Tourism, being a complex socio-economic phenomenon, is in correlation with many economic activities, and so is the case with traffic. On the other hand, traffic and its infrastructure make the foundation of every economy, for without traffic, there are no conditions for the development of any other branch. In line with that, traffic precedes

tourism, although tourism undoubtedly influences traffic, presupposing the development of traffic capacities. The main goal of this paper is to investigate the role of air traffic in the development of tourism in the Republic of Croatia.

2. TRAFFIC AND TOURISM DEVELOPMENT INTERDEPENDENCE

It is a well-known fact that, in the past, tourism and traffic have been two interdependent and interconnected phenomena. Namely, tourism represents an area where traffic holds an important role and is crucial to the economic development of any country. While traffic influences tourism, at the same time, tourism impacts traffic by stimulating traffic system modernization, generating growth of the traffic means in use and creating the need for introducing new forms of traffic. Interdependence of traffic and tourism is complex and dynamic, and it includes a number of mutual benefits, as well as limitations. Today, much attention is given to the negative influence of traffic on tourism regarding pollution. Traffic generates noise, emission of greenhouse gas and other harmful substances and requires big surfaces for the infrastructure. This limits the development of tourism, but also creates other issues for the society and economy in general. Besides the negative influence, like pollution, traffic and its infrastructure bring some other limitations for tourism. In some areas, due to poor traffic regulation, tourist traffic is diminishing, as well as tourist demand in general, which brings multiple negative effects not just on tourism, but the economy in general. Because of the modernization, changes in construction and signalling elements, traffic infrastructure with its dimensions often visually deforms the space and takes up a lot of the surfaces which could be put to better use (Gašparović, 2011). Availability and quality of transport at the destination have remarkable influence on the tourists' experience, as on the level of their satisfaction. It is the satisfaction that is considered the most important factor in the attraction of the tourists and the length of their stay, and it is indisputable that traffic has major influence on the tourist satisfaction (Virkar and Mallya, 2018). Gržinić (2018) points out that traffic is becoming the place of maximum comfort in tourism, and at the same time, of the valorization of the travel time and the experience big tour operators offer.

On the other hand, as traffic negatively influences tourism, i.e. bears evident limitations, tourism, in some respects, also limits the development of traffic in tourist areas. In order to reduce limitations, a planned development of the traffic infrastructure leading to the tourist destination is necessary, since, in that way, possible traffic routes and the density of the infrastructure are set. For certain destinations to be ecologically preserved and to prevent spatial complementarities of the areas, often, more expensive, longer and, in some other respects, more unfavourable roads are built. By influencing traffic development with its emergence, tourism can bring negative effects as well, like organizational and security issues, and discrepancies between capacities and traffic dimensions (Mrnjavac, 2006).

In the analysis of the interdependence between traffic and tourism, it is certainly important to point out the model of sustainable development of tourism and its principles that contribute to the sustainable development of the economy in general. The model of sustainable development of tourism implies development that satisfies all the needs of the tourists, tourist destinations and other participants, while simultaneously preserving tourist resources in the future, without putting in danger the possibility of their use by the future generations. Likewise, the model entails the growth of the quality of life for the people living in the area, as well as the right to tourism and the freedom for tourist mobility, satisfaction of economic, social and esthetic needs, with retaining natural and social characteristics and cultural and

historical heritage. This model of sustainable tourism enables tourists to satisfy their needs, enhance the quality of life and undergo the experience without limitations. Tourist attractions draw tourists to the specific location, and traffic is the one that enables the arrival to the destination. Traffic, therefore, has an important role in the relation between the sustainable tourism and traffic, making these two phenomena interdependent. For these reasons exactly, if the traffic infrastructure is well-organised and regulated in the specific area, that area becomes more attractive for the tourists. Not all concepts of tourism are applicable to all potential cases, and for this very reason, the model of sustainable tourism provides adjustment of specific areas to specific conditions (Lumsdon, 2000).

2.1. The role of air traffic in the development of tourism

Air traffic and tourism are two interconnected fields with significant interdependencies. The intensive development of air traffic has enabled globalization of tourism, i.e. it has provided availability and connection of all parts of the world, and quick and comfortable transport even at the longest distances. Without air traffic, some areas would not be categorized as tourist destinations, considering that air traffic is often used as a form of tourist offer. As early as in the second half of the 20th century, air traffic started generating the development of tourism, especially due to introduction of commercial jet planes (May and Hill, 2002). Air traffic and tourism are interconnected, so tourism is, in fact, the leading factor and the stimulator of the changes in the air traffic. Tourism particularly influences the development of new business models in the air traffic. For the strategic development of tourist destinations, an adequate air policy is of extreme importance (Bieger and Witmer, 2006). Air traffic is the one that contributes greatly to the global tourist mobility. Liberalization has enabled it to become available to the greater masses, which has positive effects on the development of tourism in certain countries (Gržinić, 2018).

Air traffic is a very dynamic sector, and its development over the last years has encouraged significant changes in tourist industry as well. First, air traffic is the key generator of economic growth, and, on the other hand, it is strongly connected with the development of tourism. As tourism develops in certain areas, so air lines become interested in providing their services in that area (Stoenescu, 2017). Airports oriented towards tourism can achieve much more efficiency than those not tourism-oriented. There is a very strong connection between the airport business model for attracting tourists and the efficiency of such an airport. Airports where many services are provided by low-cost airlines are, in general, more efficient (Fernández, Coto-Millán and Díaz-Medina, 2018).

Air traffic is in fact most deserving for the development of international tourism. High prices of the air transport have long put off passengers, but charter lines development, i.e. low-cost airlines, have made air travel available to almost everyone. Charter lines offer air travel at much more affordable, lower prices, and they operate almost everywhere in the world. The development of tourism in certain regions largely depends on the availability of the location and the costs of travelling there. The emergence of low-cost airlines has significantly affected the development of international tourism because air traffic is steering more and more towards mass tourism in order to utilize the capacities to the fullest. Low-cost companies influence the flow of tourism worldwide (Santos and Cincera, 2018). They offer low ticket prices and attract more passengers, and this can be done due to the savings in other business aspects. Low-cost airlines generally use smaller, secondary airports, have fewer crew members, use one airplane type and offer the possibility of booking the tickets online. This all has influenced the forming of such an affordable, low price of their transport services. One of the

most famous and successful low-cost companies is by all means Ryanair, an Irish low-cost airline with its headquarters in Dublin which, in 2017, became the first European airline that carried over 1 billion passengers (Ryanair.com., 25/07/2017). Besides Ryanair, some of the low-cost airlines that fly from Croatia are: Germanwings, Wizzair, easyJet, Norwegian, AirBerlin, TUIfly, Aer Lingus, Vueling, Jet2, Smartwings, Transavia, and many of them fly only during the summer months. Croatia is best connected with Germany and Great Britain. However, in the winter months, airline companies stop operating because the lines are not so cost-effective as during the summer when tourism is at its peak. Generally, low-cost carriers have certainly contributed to the development of international tourism by making the travels to certain destinations more affordable to many passengers. Because of the success of the charter initiator, every day there emerge new low-cost airlines on the market, trying to secure their share of the passengers. Such a market situation definitely agrees with the passengers, because, in this competition, lower price is usually used as the differentiator.

For the strategic development of a tourist destination, it is necessary to have a clear strategy of the air transport and the strategy of the access to the air transport. On the other hand, for the airline companies, evaluation and understanding of the business models of the tourist destinations is very important. Mutual development of air traffic and tourism can be divided into 4 phases (Bieger, Wittmer, 2006):

1. Tourism as a neglected trade.

A planned and regular air transport began after the World War I with postal services and services that focused primarily on the business people. But, as early as in the 1930s, with the emergence of bigger planes like DC2 and DC3, free time and tourism became an element of the passenger portfolio.

2. Tourism as an extra trade.

After the World War II, airline companies began to rely more and more on the income from the passengers that relate to tourism.

3. Specialized in tourism.

With the development of larger planes, there appeared a new dimension of tourism and air traffic development. The new generation of the airplanes allowed lower ticket prices due to the realised savings, and the airliners had to focus more on the free time and tourist market to fill new capacities.

4. Tourism and traffic interdependency.

The last phase of the development happened based on the deregulation of the air traffic industry in the 1980s in the United States and in the 1990s in Europe. There appeared a new business model of the airline companies, the charter companies, i.e. the low-cost airlines. With their flights, sometimes using secondary airports, at very affordable prices, this type of air transport attracted a huge number of traffic flows. New forms of tourism, like individual, short-stay tourism, city tourism or visits to friends of family, became the groundwork for the development of new offer in the airline industry.

Also, air transport can be structured according to the business models of the airline companies. Generally, business models of the airline companies can be classified into classic (traditional) carriers, regional, low-cost carriers, and new, specialized carriers for business users. The influence, i.e. the contribution of the air transport to tourism changes in line with the business model of the airline companies. Classic airline carriers mostly generate tourists with the middle-class purchasing power, which is usually a combination of the tourists that travel on business and those who travel for recreational reasons or entertainment. These carriers generally cover large geographic areas and offer many services that differ

substantially in price and quality (Tatalović, Mišetić and Bajić, 2012). Regional carriers very often fly at smaller distances. Because of smaller planes they use (20 to 100 seats), they are limited by the number of passengers, but for relatively higher prices of their services, they attract higher-class purchasing power passengers. Low-cost airline companies operate more and more at middle and long distances. This leads to a quantitatively powerful growth of the number of passengers, and consequently the growth in the number of tourists. The appearance of new quality classes on charter planes attracts new passenger segments. Low-cost carriers bring intensive, very flexible and very mixed types of passengers.

Comparing business models of tourist destinations and air carriers, it seems that all business models do not correspond with each other. Researches show that destinations with significant landmarks, like big cities or areas rich in interesting nature resources, mostly use services by classic air carriers. On the other hand, destinations intended for vacation only, without many famous landmarks, provide a good market background for low-cost carriers, like smaller towns in northern Italy (Bieger, Wittmer, 2006). It is important to note that classic airline companies still enjoy the benefits of government subsidiaries and access to large airports (Gržinić, 2018).

2.2. The analysis of tourism and traffic movement in the Republic of Croatia

According to the data displayed in Table 1, in the Republic of Croatia, most passengers use road transport. In the period from 2006 - 2016, the domination of the road transport can be explained with a highly developed and wide-spread road network in relation to other types of transport.

Table 1. Carried passengers and traffic of passengers in seaports and airports, 2006-2016 (000)

Year	Railway transport	Road transport	Seawater and coastal transport	Air transport	Traffic of passengers in seaports	Traffic of passengers in airports
2006	46.212	63.576	12.079	2.148	24.535	4.404
2007	63.131	63.144	12.723	2.288	26.296	4.895
2008	70.961	62.064	12.861	2.329	28.282	5.179
2009	73.545	58.493	12.550	2.053	28.257	4.839
2010	69.564	56.419	12.506	1.861	27.565	5.136
2011	49.983	52.561	12.926	2.078	28.292	5.585
2012	27.669	52.293	12.474	1.961	28.095	5.960
2013	24.265	54.292	12.770	1.812	28.791	6.304
2014	21.926	54.000	13.029	1.860	24.711	6.703
2015	21.683	52.126	13.082	1.919	28.513	7.176
2016	20.742	50.423	13.525	2.102	30.983	8.111

Source: Croatian Bureau of statistics (2017). *Statistical Yearbook of the Republic of Croatia* 2017, Zagreb: Croatian Bureau of statistics, p. 351

Likewise, during the period from 2006-2016, there was a drop in all types of transport, which reflected the poor market situation. The least passengers were transported by air carriers, which is a consequence of still not affordable prices and the type of transport. Besides air traffic, a smaller number of passengers used maritime/coastal transport.

In the transport of goods, road traffic is also ahead of the others, which can also be seen in Table 2. Seawater and coastal traffic is the second in line when it comes to transport of goods, but its share dropped significantly in the observed period. On the other hand, during the observed period, the share of transport in the inland water routes increased. Seawater

transport, as well as transport in the inland waters certainly should be areas of development in the future of Croatian traffic, along with the need for connecting road transport with other transport branches.

Table 2. Traffic of goods by mode of transport in Croatia, 2006-2016 (000 t)

Year	Railway transport	Road transport	Seawater and coastal transport	Inland waterway transport	Air transport	Traffic of passengers in seaports	Traffic of passengers in airports
2006	15.395	107.753	31.423	1.509	6	26.326	13
2007	15.764	114.315	32.420	1.468	6	30.097	13
2008	14.851	110.812	30.768	6.415	5	29.223	10
2009	11.651	92.847	31.371	5.381	4	23.377	10
2010	12.203	74.967	31.948	6.928	3	24.329	8
2011	11.794	74.645	30.348	5.184	3	21.862	8
2012	11.088	65.439	25.636	5.934	4	18.972	8
2013	10.661	67.500	24.744	5.823	3	19.366	8
2014	10.389	66.146	20.335	5.377	3	18.603	8
2015	9.939	66.491	21.376	6.642	3	18.930	8
2016	9.985	72.503	20.951	6.409	3	18.551	8

Source: Croatian Bureau of statistics (2017). *Statistical Yearbook of the Republic of Croatia 2017*, Zagreb: Croatian Bureau of statistics, p. 352

Road traffic plays an important role in the transport of goods, and road transport in the Republic of Croatia is also the dominant traffic branch based on the contribution to the development of tourism.

Table 3. Air passenger and cargo traffic in Croatia, 2006-2016

Year	Total passenger kilometers (mln)	Passenger kilometers in international transport	Total cargo carried (t)	Cargo carried in international transport (t)
2006	2.148	1.698	5.637	3.769
2007	2.288	1.796	5.648	3.572
2008	2.329	1.775	5.136	3.369
2009	2.053	1.561	3.828	2.542
2010	1.861	1.418	3.197	2.148
2011	2.078	1.571	3.347	2.230
2012	1.961	1.460	3.567	2.612
2013	1.812	No data	3.246	2.504
2014	1.860	1.373	3.095	2.376
2015	1.919	1.428	2.732	2.112
2016	2.102	1.579	2.591	2.025

Source: Croatian Bureau of statistics (2017). *Statistical Yearbook of the Republic of Croatia 2017*, Zagreb: Croatian Bureau of statistics, p. 361

The data from Table 3 points to the fact that total air passenger transport is dynamic. In other words, air passenger transport from 2006 -2016 dropped by 2.15%, which can be explained by the crisis that emerged in 2008 and 2009, but also by unaffordable prices of this type of transport. In the period from 2013–2016, the number of passengers was rising, which probably correlated with the appearance of low-cost carriers and the growth of their popularity in the Republic of Croatia. Similar situation happened in the international air transport. Table 3 also contains data on air transport of goods in tons in the period from 2006 – 2016. In the observed period, air traffic was declining and, compared to road transport of goods (Table 2), it is evident that the quantity of the transported goods by air transport was drastically less than in the road transport. In 2016, 72,503 thousand tons of goods were transported by roads, while only 2,591 tons were transported by air.

2.3. Influence of low-cost airline companies on tourism

The strong connection of tourism and air traffic suggests that there is also a connection between tourism and low-cost airlines. Low-cost airlines have affirmed themselves on the market as successful exactly because of their capability to adjust to the market. Low-cost carriers entered the European market in the 1990s, after the deregulation of the European airline market, and this meant a dramatic change of the European airline market. Today, there are almost 50 low-cost carriers in Europe flying different routes, and it all started with Ryanair in the summer of 1995. (Reisinger, 2018). Namely, low-cost airlines play an important role in tourism development, since they offer low prices and enable price-sensitive passengers to travel all over the world more often than usual. Air charters have been lately more and more replaced by low-cost carriers. Low-cost carriers are trying to adjust their business models to longer flights, so they could cover all-inclusive travels air charters offer (Rodriguez and O'Connell, 2017). Due to affordable prices, low-cost carriers have provided accessibility to some destinations that could not be accessed before, and in this way, they have directly influenced the development of tourism in those areas. Many customers are attracted by low ticket prices, and it is possible for some low-cost carriers to offer this because they have cut their administration costs by providing only credit card payments (Reisinger, 2018).

Low-cost airlines influence tourism development through three basic characteristics (Vojvodić, 2006):

1. **opening of new markets** – low-cost carriers have enabled access to otherwise inaccessible destinations, and so directly influenced the development of tourism in those areas.
2. **lowered tourism seasonality** – low-cost carriers provide flexibility regarding the travelling period, unlike classic, traditional airlines that have operated mostly during the usual seasons, which has certainly influenced the development of tourism.
3. **traffic stimulation** – low-cost carriers stimulate the use of air transport due to low prices of the service, access to new or stimulated demand, and in so doing, they influence the growth of tourism directly. They do not relocate tourism from one region to another, but rather create and stimulate its development within the region.

To conclude, tourism has multiple benefits from low-cost airline companies, and by continually lowering the prices due to the competition, low-cost airlines further influence the promotion and development of tourism in certain regions.

3. RESEARCH ON THE ROLE OF AIR TRAFFIC IN THE DEVELOPMENT OF TOURISM IN THE REPUBLIC OF CROATIA

3.1. Overview of the existing research

The topic of the influence of air traffic on tourism in the Republic of Croatia is not enough represented in domestic scientific literature. The first significant paper on the similar subject (Bukvić, 2003) is based on the analysis of the influence of air traffic on tourism development of Dubrovnik area. The paper analysed the number of overnight stays in Dubrovnik area before and after the Croatian War of Independence and the relation of the number of passengers in Dubrovnik airport. Also, the author investigated the structure of the existing

tourist capacities as the basis for the evaluation of potential demand in air traffic. By using a simple linear regression model, a positive linear connection between the overnight stays of foreign tourist and international arrivals by plane was established. The Muir model was used to predict future traffic in Dubrovnik airport. With the analysis of the origin of foreign tourists, the issue of decrease in the number of international arrivals was emphasized, as well as the need for connecting with more remote emissive markets that were dominant before the War of Independence.

Gašparović (2011) investigates the topic of interconnectedness of air traffic and tourism in the area of Primorska Hrvatska (coastal Croatia) based on the analysis of the data on the number of passengers in airports and airfields, correlating them to the number of tourist arrivals and overnight stays. The findings confirm the correlation between the number of transported tourists and the the number of arrivals, i.e. the number of overnight stays during the year. Likewise, the existence of high seasonality in the number of passengers in airports and maritime ports was confirmed, along with the fact that most passenger traffic happens during the summer months. The author precisely analyses the data for 2008, 2009 and 2010, when the number of passengers in airports and airfields differentiates by the months in 4 categories: passengers on conventional airlines, low-cost carrier passengers, air charter passengers and general airlines passengers. The paper highlights the growing importance of low-cost carriers in air traffic of coastal Croatia, holding them deserving for expansion of emissive tourist markets. Using the statistical method of linear correlation, the author sees statistical correlation between traffic and tourism, and concludes that air traffic in coastal Croatia is mostly directed towards servicing tourist needs.

Besides the above-mentioned, other authors (Happ, Vidović and Krpan, 2001; Prebežac and Jurčević, 2001; Pašalić, 2001; Perić, Šantić and Perić., 2003; Jurčević, Madunić and Tolušić., 2006; Mrnjavac, 2006; Horak, 2007; Horak 2014) mainly deal with this topic only partially, i.e., they analyse the topic of interdependence between tourism and traffic only in general terms, without a detailed analysis of the influence of air traffic on tourism. However, most authors point out the existence of interdependence of air traffic and tourism, globally, and in the Republic of Croatia.

Unlike domestic literature, foreign scientific papers often analyse the topic of air traffic and tourism interdependence. One of the most important books is „Aviation and tourism“, edited by Graham, Papatheodorou and Forsyth (2008), which covers the theme of air traffic and tourism correlation. In the book, the authors analyse mutual influence of recreational tourism and influence of air traffic on the environment. The contribution of air traffic to tourism is a topic generally covered by Papatheodorou (2002) and Graham (2006), while other authors (Abeyratne, 1993; Sainz-Gonzalez, Núñez-Sánchez and Coto-Millán, 2011) also analyse the prices of the airline tickets and fees. Furthermore, Lumsdon (2000) studies the sustainable tourism development model and investigates the ways in which negative travelling influences, including air traffic, on environment can be minimized. As an ideal model, he highlights the cyclical, circular tourism for relaxing holidays in a natural environment that does not imply the overuse of means of transport.

There are many authors that deal with the research on the interdependence of air traffic and tourism with the accent on the growing contribution of low-cost carriers (O'Connell and Williams, 2005; Bieger and Wittmer, 2006; Dobruszkes, 2006; Duval, 2007; Davison and Ryley, 2010; Costa, Almeida and Conceição, 2017; Spasojević, Lohmann and Scott, 2017; Stoenescu, 2017; Santos and Cincera, 2018; Pan and Truong, 2018; Virkar and Mallya, 2018).

Bieger and Wittmer (2006) analyse the interdependence of air traffic and tourism, and, due to the appearance of low-cost airlines, define tourism as the stimulator of the changes in air traffic, while air traffic is seen as the carrier of development of new destinations and new forms of tourism. In his paper, Dobruszkes (2006) analyses European low-cost carriers and their networks at the beginning of the 21st century. According to his research, low-cost carriers already occupied a significant place in Western Europe in that period, especially easyJet and Ryanair, and the accession of the 10 new member states to the EU in 2004, automatically opened new air routes, since those are countries with lower living standards, lower salaries and weak representation of low-cost carriers. The accession of the 10 new members will have a great impact on the low-cost airlines' operations in Europe, and their offer will be attractive to the migrants in Northern Europe area. Likewise, from the example of Luton and Stansted airports, the author concludes that the effect of European liberalization bears most significance to the airports, where airport managers no longer have to plan in line with the government guidelines, but rather their goal is to attract airlines to generate profit. The paper also shows the contribution of low-cost carriers in „point-to-point“ travels, which have, since their emergence, been almost neglected by conventional airline companies. O'Connell and Williams (2005) start with the fact that low-cost carriers have changed traditional business model of airline companies and influenced the dynamics of the very industry. Their research of the two contrasting markets, liberalized Europe and non-liberalized Asia, points to the fact that there are differences between passengers flying with low-cost carriers and conventional airlines, but the attitudes and perceptions of the passengers on both continents are identical. The research findings show that the price-sensitive group of passengers is of younger age and that it is them who are prone to more often choose low-cost carriers for their travels. Furthermore, the results show that reputation, the image of a low-cost airline company, is exceptionally important to the passengers when they choose the airline. Santos and Cincera (2018) analyse demand, low-cost carriers and the role of specific European institutions on the example of Brussels based on the data on the landings in Brussels for the period from 2000 - 2015. European institutions influence the reduction of the air fare costs, especially for business people. The authors have come to the conclusion that low-cost carriers have more modest effect on tourists travelling for business purposes than on the specific case of Brussels. Pan and Truong (2018) have conducted research on passengers' intentions to use low-cost carrier services. The research was conducted on 596 passengers in the two main airports in China. The findings show that the price is the critical factor for decision-making on which low-cost carrier to choose, while the second place is reserved for the quality of the service. The respondents pointed out that low-cost carriers should work on improving marketing activities and service offer.

In his paper, Stoenescu (2017) investigates a new perspective of the relation between air traffic and tourism. He emphasises the existence of several dimensions of the air traffic and tourism relation, those being:

1. Transport represents a significant part of tourism, and so it follows that air traffic represents a significant part of the tourist product.
2. There is a strong connection between air traffic and development of destinations. Low-cost carriers have enabled the arrival of international air transport to regional and secondary airports.
3. Air traffic has significantly influenced the changes in the conduct of a modern tourist.

Spasojević, Lohmann and Scott (2017) made an overview of the existing research for the period from 2000 – 2014 on the interaction of air traffic and tourism. Principally, they emphasise the lack of attention given to the study of their interaction and the fact that many

existing researches focus on the analysis of low-cost carriers and tourism correlation, passenger satisfaction and the implications of the long-distance flights. Costa, Almeida and Conceição (2017) analyse the relation between airports and evolution of international peripheral tourism, mostly on the case of international airport in the north of Portugal - Oporto. The results show that Oporto airport has, over the last years, recorded a significant increase of the traffic, which has largely affected the development of international tourism in the nearby area. It was confirmed that the airport itself was the key element of attractiveness in forming this part of Portugal an attractive tourist region. In their paper, Virkar and Mallya (2018) give an overview of key factors of tourist travels that influence their satisfaction. In their conclusion they state the following:

1. Transporting services available to the tourists are generally adapted within the existing public transport offer.
2. Most of the previous researches have in their analysis primarily highlighted the relation between public transport and tourists, while the analysis of the relation with other transport possibilities has been neglected.
3. It is recommended that future researches include motivational variables in their analysis.
4. It would be necessary to also pay attention to measuring important travelling characteristics like time, expenses and ways of choosing means of transport.
5. In literature, there are researches of the relation between the quality of public transport service and tourist satisfaction, but there is no research on satisfaction with other types of transport. It is also necessary to broaden the factors through which the quality of public transport service is evaluated, and it is recommended to observe it through the staff quality, vehicle cleanliness, vehicle fitting and equipment and availability.

3.2. Methodology of the research

3.2.1. Research instrument

The respondents filled out the *Survey on the importance of air traffic in the development of tourism in the Republic of Croatia*, created for the purpose of this research, following the conducted foreign and domestic scientific research. The survey comprised of three parts: the first part related to 4 close-ended questions, the second was comprised of 12 statements about airports and air traffic in the Republic of Croatia, where the respondents had to express their level of agreement or disagreement on the 5-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree and 5 = strongly agree). In the third part, the respondents filled out their socio-demographic characteristics (age, gender, nationality, city and state where they live and the level of education).

The survey was used as the research instrument and the primary research was conducted in September 2017. The survey was posted and filled out online, at the SurveyMonkey platform, and was distributed via social networks and e-mail.

3.2.2. The goal of the primary research

The goal of the research was to establish:

- Ad 1.* the principal reason for travelling within the territory of the Republic of Croatia;
- Ad 2.* most common used means of transport for travelling in the Republic of Croatia;
- Ad 3.* airports in the Republic of Croatia that the respondents have visited on their travels;

Ad 4. the respondents' perceptions on air transport in the Republic of Croatia;
Ad 5. advantages of air transport in the Republic of Croatia;
Ad 6. whether there are differences in the attitudes of the respondents on airports and air transport in the Republic of Croatia according to the socio-demographic characteristics of the respondents.

3.2.3. Respondents sample

194 respondents participated in the research and their structure is presented in Table 4 in more detail.

Table 4. The structure of the respondents based on their socio-demographic characteristics

Socio-demographic characteristics of the respondents		N	%
Age	under 18	74	38.1
	18 to 25	72	37.1
	26 to 35	28	14.4
	36 to 45	15	7.7
	46 to 55	5	2.6
	over 56	0	0.0
	TOTAL	194	100.0
Gender	male	48	24.7
	female	146	75.3
	TOTAL	194	100.0
Level of education	no school qualification/unfinished primary school	0	0.0
	finished primary and secondary education	0	0.0
	finished vocational school, higher vocational school, a three-year secondary school	5	2.6
	finished higher vocational school or gymnasium (4 years)	38	19.6
	student	49	25.3
	higher expertise (college), high expertise (university)	92	47.4
	Master's or Doctoral degree	10	5.2
	TOTAL	194	100.0

Source: own research

In line with the acquired answers, most respondents, 38.1%, are younger than 18, 37.1% are between 18 and 25, and 14.4% are between 26 and 35, which shows that the respondents were mostly from the younger age group. Table 1 also displays the gender structure of the respondents;

75% of them are female, and 25% male. Regarding educational level, most respondents, 47.4% of them, have higher education (a college or a university degree). Likewise, a significant percentage of the respondents, even 25.3%, are still studying, while the share of the respondents with a finished three-year secondary school is only 2.6%.

3.3. Research results and discussion

3.3.1. Research results on transport behaviour

The survey opened with a group of questions that give insight into the most common reasons for travelling inside the Republic of Croatia, the most commonly used means of transport on those travels and what airports the respondents had visited in the Republic of Croatia.

The first question aimed at establishing the most frequent motif, i.e. the reason why the respondents opt for travelling within the territory of the Republic of Croatia. According to the findings, most respondents, almost 74.7% travel to go on holiday or for entertainment, while the fewest respondents, only 2%, travel for some other, subjective reasons, like conferences, university obligations etc. Furthermore, only 5.7% of the respondents travel for work. The findings point to the fact that in Croatia, people travel the least because of work, which can be correlated with the poor situation on the labour market. The second question related to establishing the main means of transport for travels inside the Republic of Croatia. Most respondents, 77.8% answered that they most often use automobiles for those travels. After the automobiles, most commonly used means of transport, according to the research, is the bus (20.1% of the respondents). These answers only confirm the fact that the road transport in the Republic of Croatia is the most dominant, the most developed and the most used traffic branch, but it is also the most affordable to all. 1.00% of the respondents travel by train; while the fewest respondents answered they travelled by plane or a ship, only 0.5%. The share of respondents travelling by plane within the territory of the Republic of Croatia is disappointing, and it suggests that this type of transport is still well under-used and poorly accepted, which is probably a consequence of the discrepancy between the price of the transport and the standard of living. An equally low percentage of respondents that travel by ships can be explained with the fact that most respondents use ships in the summer months to reach the islands, i.e. tourist destinations on the Adriatic coast.

With the third question, the researchers tried to establish which of the seven Croatian airports is most frequented. The findings show that respondents often use more than one airport; most frequented is Zagreb airport, visited by 88.1% of respondents, then there is Dubrovnik (19.1%), Split (16.5%) and Zadar (13.4%). The smallest number of respondents visited Osijek airport, only 1.5%. The acquired results point to the fact that the assumption on the correlation between tourism and air traffic is correct. Namely, airports that have been visited by most respondents are situated in the most developed and important tourist destinations of the Republic of Croatia. Zagreb airport is absolutely the leading one, and besides being the capital city of Croatia, it is also the country's most prominent continental tourist destination.

3.3.2. Research results on the perception of respondents about the importance of air traffic for the development of tourism

Table 5 shows the descriptive statistics of the statements about the importance of air traffic in the development of tourism in the Republic of Croatia.

Table 5. Descriptive statistics of the statements

Statements	x	SD
If the prices of the airplane tickets were lower, I would use this means of transport more often.	4.45	.987
If the competition for a specific destination would be higher, ticket prices would be significantly reduced, which would motivate me to travel.	4.20	1.004
The number of the subsidized tickets should rise in the future.	4.11	1.048
If there were more low-cost carriers in Croatia, I would use this means of transport more often when I travel within the territory of Croatia.	4.08	1.028
I find it justified that some tourist destinations subsidise the plane tickets for their residents.	4.05	1.012
If there were more airline companies in Croatia, I would use this means of transport more often when I travel within the territory of Croatia.	3.54	1.166
I think that reintroduction of seaplanes would influence more frequent air travels for getting to the tourist destination.	3.53	1.003
If there were more airfields on the islands, I would visit the destinations I would otherwise	3.44	1.283

probably never (due to very long distance or high prices).		
If airline companies in Croatia would offer transport by the most modern and safest airplanes, I would use this means of transport more often when I travel within the territory of Croatia.	3.28	1.202
If there were more airline routes in Croatia, I would more often use air transport when I travel.	3.11	1.257
If airline companies in Croatia paid more attention to protecting the environment, I would use this means of transport more often when I travel within the territory of Croatia.	3.01	1.178
If there were more airports in Croatia, I would more often use air transport when I travel.	2.75	1.313
TOTAL		194

Source: own research

By observing the Table, it is evident that respondents expressed their highest level of agreement for the statements relating to the airline ticket price: *"If the prices of the airplane tickets were lower, I would use this means of transport more often ($x=4.45$, $SD=.987$); " If the competition for specific destinations would be higher, ticket prices would be significantly reduced, which would motivate me to travel" ($x=4.20$, $SD=1.004$); " The number of the subsidized tickets should rise in the future" ($x=4.11$, $SD=1.048$); " If there were more low-cost carriers in Croatia, I would use this means of transport more often when I travel within the territory of Croatia" ($x=4.08$, $SD=1.028$) and with the statement "I find it justified that some tourist destinations subsidise the plane tickets for their residents" ($x=4.05$, $SD=1.012$), and the lowest level of agreement with the statement " If there were more airports in Croatia, I would more often use air transport when I travel" ($x=2.75$, $SD=1.313$). In order to ascertain the respondents' estimates in more detail, a factor analysis was conducted by the method of the main components with the *Guttman-Kaiser* criterion and a varimax rotation. With the data analysis, three factors with the characteristic root over one (Guttman-Kaiser criterion) were extracted, which together explain 66.232% of the variance. It is important to note that the lowest and the highest results of all particles ranged from 1 to 5. Table 6 shows the matrix of the factorial structure.*

Table 6. Matrix of the factorial structure

FACTORS AND PARTICLES	FACTOR LOADINGS		
	1	2	3
1. AIRPORTS AND AIRLINE COMPANIES			
If there were more airports in Croatia, I would more often use air transport when I travel.	.856		
If there were more airline routes in Croatia, I would more often use air transport when I travel.	.790		
If airline companies in Croatia would offer transport by the most modern and safest airplanes, I would use this means of transport more often when I travel within the territory of Croatia.	.775		
If there were more airfields on the islands, I would visit the destinations I would otherwise probably never (due to very long distance or high prices).	.690		
If airline companies in Croatia paid more attention to protecting the environment, I would use this means of transport more when I travel within the territory of Croatia.	.684		
If there were more airline companies in Croatia, I would use this means of transport more often when I travel within the territory of Croatia.	.598	.499	
I think that reintroduction of seaplanes would influence more frequent air travels for getting to the tourist destination.	.527		
2. AIRLINE TICKET PRICE			
If the prices of the airplane tickets were lower, I would use this means of transport more often.		.865	
If there were more low-cost carriers in Croatia, I would use this means of transport more often when I travel within the territory of Croatia.		.820	
If the competition for a specific destination would be higher, ticket prices would be significantly reduced, which would motivate me to travel.		.799	

3. AIRLINE TICKET SUBSIDIES			
I find it justified that some tourist destinations subsidise the plane tickets for their residents.			.933
The number of the subsidized tickets should rise in the future.			.902

Source: own research

As evident in Table 6, the acquired factors could be best described as: (1) *airports and airline companies*, (2) *airline ticket price* and (3) *airline ticket subsidies*. The reliability of the obtained subscales, tested with Cronbach's Alpha coefficient, is satisfactory. The reliability for the statements relating to the factor *airports and airline companies* is .856. The statements that relate to the 2nd factor, i.e. *the airline ticket price factor*, have the reliability of .828, while the reliability for the statements relating to the 3rd factor, i.e. *airline tickets subsidies*, is .873.

3.4. Limitations and recommendations for further research

From the analysis of the research conducted on the sample of 194 respondents of younger age, mostly female and with high level of education, it is possible to conclude that it is a highly price-sensitive group of consumers regarding the price of airline tickets when travelling within the territory of the Republic of Croatia. The research has also shown that the respondents use air transport possibilities very rarely for their travels inside the borders of Croatia, and that they would change that if the airline ticket prices were lower and if the low-cost carriers would have more presence on the Croatian market. Observing the results of the research, the existing limitations should be certainly taken into account. The main limitation of the research relates to the sample of the respondents. Namely, the research was conducted on a random sample of respondents, which, as it has proved, do not use air transport often on their travels within the territory of Croatia. Likewise, the acquired results cannot be generalized on an international level, since the research had the goal of establishing the role of air traffic in the development of tourism in the Republic of Croatia. Due to the established limitations and shortcomings of the conducted research, future research on these and similar topics should be conducted on a targeted sample of respondents who use air transport more often on their travels within the territory of Croatia.

4. CONCLUSION

Interdependency of traffic and tourism is indisputable, and therefore, today, it is widely believed that they are, analytically, two inseparable phenomena. In the Republic of Croatia, traffic and tourism are initiators of economic growth, so there are attempts to coordinate them on the basis of sustainable development in order to eliminate potential drawbacks.

Likewise, traffic and all its branches can also be seen as influential factors in the tourism development of every country, the Republic of Croatia alike. Air traffic, being the youngest traffic branch, plays a very important role in tourist flows worldwide and its significance is continually growing, since it provides people with the possibility of a quick and affordable travel, which enables them to visit a number of tourist destinations. In other words, air traffic is responsible for the development of international tourism and globalization process in tourism. But, in order for the traffic to provide tourism with all its benefits, it is necessary to ensure a balanced development of traffic branches within a specific economy.

Based on the conducted research, it has been established that in the Republic of Croatia, road traffic still is the dominant branch for those who plan the trip in the country. Air traffic for

travellers within the country is not so popular for different reasons. Namely, due to poor living standard, high unemployment rate and poor development in general, the population is very price-sensitive and is primarily guided by the lowest prices possible when choosing the means of transport. Air traffic undoubtedly contributes to tourism development in the Republic of Croatia, especially in the coastal region, however, this contribution can be intensified with the presence of more low-cost airlines and with lower ticket prices and/or more subsidies for the airline tickets.

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