

## Abstract

Beside the economic effects air transport influences society by several direct and indirect ways. This paper analyses how air transport affects the regions, how it influences the sustainable development and finally it explains its role in promoting tourism. The article presents the preferences of customers, the change of social demand and summarizes the negative impacts of aviation.

## Keywords

air transport · society · regions · customer value

## 1 Introduction

Direct, indirect, induced and catalytic effects of aviation generate more than 7.5 billion workplaces. As a direct impact it accounts for 8% of the European Gross Domestic Product (GDP). Beyond the direct employment effects we can expect that by being connected business and work possibilities come into existence in isolated regions. Effective air connections spur productivity and inspire innovation. Air transport is fundamental in achieving European integration, since such links insure the connection not only between the single regions, but between Europe's political and economic centers, and fortify Europe's cohesion with the rest of the world. The aim of this study is to analyze the airlines, the intentions of the air passengers and the airports.

## 2 Effects of air transport on the society

### 2.1 Functions of air transport

The primary social role of air transport is to serve mobility claims, just as well as to assist the integration of the society and the state. Its political role is to support the self-reliance in transportation and foreign policy and it plays an important role in the countries' protection, and this cannot be neglected. Its role played in the recovery is unquestionable, which can be attributed to its contribution to the GDP and its workplace-creating ability in the national and global economy (Fig. 1). Beyond direct economic effects we have to mention indirect, catalytic and induced effects too.

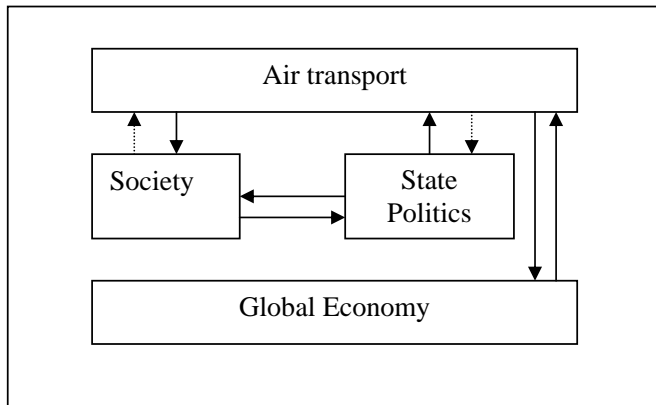
### 2.2 Contribution of air transport to sustainable development

Air transport contributes to sustainable development significantly through the promotion of international tourism. Tourism is capable of reducing poverty by its positive effects on economy and job creation. By increasing tourism tax, revenues may increase and can insure the development and the saving of protected areas. This is especially important in Africa, where 15% of the world's protected areas can be found and where the development of several countries is based on international tourism being interested in natural values.

Air transport provides connections to those distant areas, set-

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**Fig. 1.** Contact of air transport, society, state politics and global economy (Source: own research)

lements where other traffic manners ensure only limited access. Several basic services, like food and medical care, educational institutions and post would be unattainable without services provided by air transport. Without air transport the residents on these areas would be isolated from relatives, friends and business relationships [1].

Air transport plays a fundamental role in the humanitarian support of countries in case of natural disaster, famine or war. It plays a considerable role on those areas where the direct connection constitutes a problem, like first help through dropping of aids in case of humanitarian crisis. Besides, air transport plays a fundamental role worldwide in transmission of medicines and organs to be implanted.

Travel and tourism increase consumer prosperity and ensure additional social benefits. They enable visits to foreign countries and broaden holiday opportunities – China, India and other rising markets, this way the number of international air travels increases more quickly than the living standard of those places.

Transnational understanding grows between different cultures, it furthers tighter international integration. Air transport favors the multicultural societies' development by making tighter contact for immigrants with the home family members and friends. Quality of life improves by widening the choice opportunities – seasonal fruits and vegetables for example in the whole year are available at affordable prices. Visitors from underdeveloped countries may get acquainted with life style, work style and culture in civilized countries. Returned to home country they can utilize experiences.

### 2.3 The role of air transport in the promotion of tourism

Tourism is one of the most considerable components of world economy development. It contributed directly 1,830 billion dollars to the global GDP in 2007, and created 79 million workplaces globally, which represents 2.8% of the global employment. In 2018 98 million people will be employed directly by the touristic industry according to the forecast of World Travel and Tourism Council.

International tourist travels are carried out in more than 40% by air, 5% more than in 1990. Tourism is exceptionally important for several developing countries, where it counts as the key element of the development strategy. In Africa nearly 1.5 million people work directly in the industry of serving overseas tourists. It represents 25% of the total employment in tourism.

Approximately 7.7 million directly created workplaces served the claims of visitors arrived by air in 2006. This includes the number of employees in hotels, restaurants, local traffic, sights and car rentals, but does not include the number of employees of air transport industry (5.5 million). Further 6 million workplaces were created indirectly, which insured serving the tourism industry. Related to the tourist industry appear 3.4 million induced workplace additionally serving the total consumption of the directly and indirectly employed people [9].

## 3 Airports and development of airport networks

### 3.1 Importance of airports

Airports are mostly big companies, having income and paying taxes. The employees mean purchasing power in the region. The airport's operation itself provides regular or special orders to different industrial branches. The city next to the airport has an opportunity to get into contact with any of the world's places. These benefits can appear as follows:

- the airport is one of the fast stations of person and cargo transport;
- the airport is a creator of workplaces;
- the airport is a major economic factor;
- the airport is one of the factors of globalization;
- the airport is one of the gates of culture and tourism;
- the airport is an attractive place for the startup of new companies and industrial parks [7].

Business processes are becoming increasingly globalized. Air transport enables for the leaders of multinational companies to visit overseas areas and to expand their business in foreign countries, broadening the scope of their suppliers and partners for which the given company provides services and manufactures products. It furthers moreover the extension of the best practice of business function. Air transport promotes the increase of productivity by facilitating the innovations and investments; it fosters the economic and cost effectiveness, and provides high quality employees for the firms. Good air transport contacts also support the firms' more efficient investment decisions, whether established near to airports or elsewhere.

Air transport plays furthermore a considerable role in the promotion of innovations. In this regard it increases the market's size, on which the firms supply their activity, so the expenses of the research and development are repaid more quickly by the way of bigger sales potential. The networks' building and cooperation between international organizations may be intensified by air transport.

### 3.2 Airport network developments and the regions

Airports are dominant economic factors in their regions, and the establishment of an international airport supports the settlement of new firms and institutes and improves the development of industry groups, propulsive sectors. Air transport extends the range of goods produced in the region that expands their market area in space. This – i.e. the optimization of the purchase system – increases the performance of single firms which contributes to better efficiency of the region and finally that of the whole national economy. The mechanisms through which airports influence the development of regions are significantly different; this comes forward on various levels:

- at local level industrial areas and industrial parks attract preferred firms with a demand of heavy air transport;
- at regional level in the course of choosing the place of business those regions are favored which have active airports;
- at national level an airport represents the factor of infrastructural equipment, without which the companies pursuing international activity would renounce their settlement [3].

In strongly centralized countries where the development and maintenance of national infrastructure are based fundamentally on central sources public airports used to be in state ownership, and so they are mostly today as well. But in most countries due to the shortage of the state sources and due to the lower efficiency of the state property airports are in joint (public and private) ownership.

Even in the more developed small countries the international (primarily the intercontinental) air traffic runs mostly on a “big” central airport, and beside it it is not possible to develop another airport even in other economically important cities. Much more balanced is the airport network infrastructure in the developed countries with big areas, primarily in the United States, Australia or Germany, while in some important countries the dominance of the capital is typical (France, United Kingdom, Spain) [4].

An airport has to work as an integrated part of the connected region; operating independently it is not a viable establishment. The condition of its efficiency is the appearance of the demand on passenger and cargo movements onsite, their development has to be coupled to this demand.

The airports’ fate may not be indifferent for the state, but the role of the state must change. Earlier states played an important role in development and operation of airports, nowadays they have to create the connection to the general traffic network and ensure the integration into the region. Not reasonable public supports may lead to unnecessary wasting.

## 4 Airlines and the passengers

### 4.1 Change of customer value

Customer value can be interpreted simply as the quotient of the available benefits gained during the use of the product/service and its price. The consumer value saw several

changes in air transport just as well as in other modes of transport.

Price did not play an important role in the early stage of air transport. The emphasis was on fundamental factors such as just reaching B from A. The traveling comfort was puritan, common seats were used, no one cared about noise or cold. Travels with transfer became frequent only after the establishment of bigger airports. The first step for providing passengers comfort was the appearance of cabin attendants and catering service on board.

The spreading of long-term flights began after the second World War. The traveling tariffs were set up strongly regulated, the satisfaction of the customer demand was completed in the board supply. It was cooked on the board for the first class passengers and the different seats systems – sometimes beds – appeared already that led to the differentiation of traveling services [2].

The regulation of the prices started loosening with the appearance of machines with a wide tribe at the end of the 60’s. New elements of traveling comfort appeared – like audio and video equipment – the forming balance between charges and incomes came into the foreground. The decrease of public transport prices and the increase of airplane capacity made considerable differentiation in the ticket prices possible. Cheaper, “grey” prices appeared, which were different from IATA official prices. The customer value upgraded not only with the increase of service standard but with the decrease of consumer expenses as well [2].

The 90’s brought a big change in the airline business model on the one hand with the appearance of low cost airlines, on the other hand with the widening transport activity of network carriers. Both business models have a considerable effect on the price of air service in their own manner. According to the view of low cost carriers the price is the most important determining factor of customer value. The network airlines’ business model builds upon the fact that the largest market share is at the largest business player’s disposal. Airlines having the bigger market share can reduce their price until the marginal cost. Hereby the costs of the tourist and the business travels can both be reduced. Price and expenses got into the focus of airline management. Parallel to the decrease of the prices the low cost airlines’ consumers have to face the decrease of the standard of the boarding services, like lack of catering. The hub and spoke system increased the number of transfers instead of increasing the number of direct flights. This is a comfort decrease as well.

Luxury airlines fulfil the requirements of those consumers who need the largest service quality, however they do this at much higher fares than the average prices. A part of the regional airlines provide point-to-point services, taking the passengers directly to the primary destination with high frequency at relatively high ticket prices.

It is obvious that the manner of satisfying the customer value changed, its focus is not on absolutely maximizing the satisfaction of consumer needs, but it is influenced by the technical and

by the market factors also [2]. On the basis of Biegners' and Wittners' resource Table 1 shows the preference of leisure and business passengers. (1 is the most important, 10 is the least important.)

Direct data show that for leisure travels the safety, the direct connection and the accuracy are the most important parameters, the prices are still important, and the daily contact is less important. For business passengers the direct connection, the safety and the full travel time are the three most important issues, the traveling expenses are still important and the daily contact is less important. In the second part of the research only four factors were analyzed, and for business and for leisure passengers the traveling cost were the most important factors before the direct connection and the brand loyalty. It shows that daily connections are less important.

#### 4.2 Differentiation of airlines

The primary role of airlines is forwarding passengers, cargo and mail by air. Airlines can be divided into several groups according to the covering of the served market segment. The aim of their activity is the satisfaction of the given target group, this market group signifies their incomes chiefly [5]. According to the market segment airlines' partition are the ones mentioned below.

##### Luxury airlines

Operators who provide the highest possible service quality at higher than average prices. The leaders of banks and multinational companies are their target groups.

##### Flag carriers

Market players in a monopolistic situation as uniquely designated airline on the strictly regulated traveling market.

##### National airlines

National airlines are the direct heirs of flag carriers in the deregulated environment. They have to reposition their role to cope with the new service providers due to the considerable weakening of market regulation.

##### Regional airlines

Their target group is the population of the given region, for which they provide transfer to the hub airports or point-to-point services. Their target groups are the business passengers, who will pay to be sent to the primary destination directly at a big frequency.

##### Low cost airlines

These airlines put considerable efforts in reducing the travel expenses. They work with low prices that can be reached by the radical reduction of service level and the cut of management expenses.

##### Low cost subsidiary company of national or flag carriers

This category is one of the subgroups of the low cost airlines. In the middle of 90's bigger airlines started to create subsidiary airlines. They were not always successful in their endeavours.

##### Charter airlines

Its capital consumers are travel agencies, which are often their shareholders. Generally the sunlit places constitute their destinations, where they offer various programs in the different periods of the year.

##### Cargo airlines

Their aim is to transport freight. Cargo airlines are often the subsidiary of national or flag carriers, but they can be independent, too.

##### Express airlines

Their task is the fastest transport of air merchandises. They use a wide scale of solutions and combine road and air transport to deliver goods or post as soon as possible.

## 5 Externalities and social costs of air transport

As to the environmental and social effects of air transport we have to emphasize the air, noise and soil pollution and the loss due to delays.

Looking at air pollution *carbon dioxide* emitted by aircraft contributes to the increase of the greenhouse effect. Its emission is proportional with the volume of the fuel used. The carbon dioxide remains in the atmosphere for about hundred years and expounds its effects for decades. The emitted *nitrogen oxides* create heavy ozone concentration in some weeks. The *sulphur dioxide* emission depends on the sulphur content of the fuel, it increases the greenhouse effect, and besides, it triggers the climate change indirectly. The emitted *water vapor* has an effect which can be neglected on ground level, but at an altitude of 13 km it amplifies the greenhouse effect. We have to mention the soil pollution arising on the airport's area, which can originate from kerosene, from defrosting, from the robber cape, from extinguishers and from metal waste [7].

We have to mention among the air transport's negative effects on society the noise pollution, which is generated chiefly close to the airport areas. Big modern airports are impregnated into the living area of the cities, so they cause a heavy noise load for the population. In this case taking off and landing routes run inevitably above the cities.

Noise effects are caused by more factors, among them can be emphasized the noise from the operation of engines and other equipment, noise from the contact between the airplane and the air, noise from resistance of certain elements of the airplane. Noise pollution is the total noise from different sources which always have different frequencies and intensities. The intensity of noise depends on several factors: the weather may be one of these, but for example it is also important whether the airplane is in the phase of taking off or landing [9]. The noise pollution of a modern aircraft is significantly lower than that of the obsolete ones, but despite this the noise of air transport still disturbs the people living near the airports very much which leads to serious social tensions. Permanent noise pollution may cause disturbances to the nervous system, too.

The financial and economic effects of delays and congestions

**Tab. 1.** Customer preferences (Source: Biegner and Wittner)

Customer demand	direct		induced	
	leisure travel	business travel	leisure travel	business travel
travel cost	5	8	1	1
direct connection	2	1	2	2
sympathy, brand loyalty	7	7	3	3
the number of daily contacts	10	10	4	4
full travel time	6	3	n/a	n/a
departure and arrival time	8	6	n/a	n/a
accuracy	3	4	n/a	n/a
traveling COMFORT	4	5	n/a	n/a
safety	1	2	n/a	n/a
frequent flyer program	9	9	n/a	n/a

affect airlines, their consumers and the whole society equally. Additional expenses of airlines arise in the course of flying due to the availability of crew and ground staff; moreover it obliges them to operate under optimal conditions.

Airlines have to offer their passengers compensation for the damages caused and for the additional inconveniences. Even in case of a delayed connection airlines have to pay phone and transfer costs, meals, hotel, etc. An additional, long term problem is the loss of prestige caused by the regular delays, which leads to the leeway of passengers. Delays have a negative effect on the environment to: a bigger amount of emissions and noise pollution.

## 6 Summary

The development of air transport, its technical achievements and services contribute significantly to the development of the modern society. The demand for the services of the air transport increases the influence of the air transport in the international environment. Air transport plays a considerable role in those areas where the direct connection constitutes problem like first aid in case of humanitarian crises. It promotes life of high quality and contributes to the improvement of the quality of life. The positive role it plays in the tourism helps economic growth, creating jobs and increasing tax revenues. Tourism is exceptionally important for several developing countries where it is the key element of the development strategy.

The gradual expansion of the European Union reflects the recognition that in the globalized world trade the economic systems operating in integrated market conditions provide a more favourable environment to make the best of the development possibilities. The existing system of the air transport and its connections are almost entirely coordinated by the market conditions. An airport has to serve as an integrated part of the connected region, independently it is not a viable establishment. The condition of its efficiency is the appearance of the demand on passenger and cargo movements onsite, their development has to be coupled to this demand.

As to the environmental and social effects of air transport we have to emphasize the air, noise and soil pollution and the loss due to delays. Noise pollution is generated chiefly close to the airport areas. Big modern airports are impregnated into the living area of the cities, so they cause a heavy noise load for the population.

## References

- 1 *Air Transport Action Group: The economic and social benefits of air transport*, 2008.
- 2 **Bieger T, Wittmer A**, *The Customer Value of Air Transport – Concepts and Implications for Management*.
- 3 **Erdősi F**, *Európa közlekedése és a regionális fejlődés*, 2000.
- 4 \_\_\_\_\_, *A világ légitölekedésének főbb tendenciái I*, Közlekedéstudományi Szemle (2003), 54-59. I. rész, 2. szám.
- 5 \_\_\_\_\_, *A világ légitölekedésének főbb tendenciái II*, Közlekedéstudományi Szemle (2003), 86-101. II. Rész, 3. szám.
- 6 **Jarach D**, *Airport Marketing*, 2005. Ashgate.
- 7 **Legeza E**, *A repülőtér és környezetének kapcsolata*, Közlekedéstudományi szemle (2001), no. 7, 263-268.
- 8 \_\_\_\_\_, *A légitölekedés ökológizálása*, Közlekedéstudományi Szemle (2003 June).
- 9 **Selymes P**, *A légitölekedés gazdasági hatásainak kapcsolatrendszere*, Közlekedéstudományi Szemle (2009), 55-63.
- 10 **Simon G**, *A légitölekedés környezeti hatása*, Lélegzet (2003 November).