



THE EMPLOYMENT AND INCOME BENEFITS OF AIRPORT OPERATION ON THE COUNTRY IN TRANSITION

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ABSTRACT. Background: The air transport market in Poland is undergoing significant changes, which take place both on the demand and supply side. Polish airports have experienced the unprecedented growth of air traffic. However, the increase in the number of airline connections - which benefits airports, passengers, aircraft industry and, indirectly, the whole society - at the same time results in the growth of social costs reflected by the intensification of noise and environmental pollution. The benefits of airport operation are reflected in the generation of employment and income. Existing literature reveals a gap in the knowledge in respect of impact of aviation in countries in transition.

Material and methods: This paper investigates the applicability of socio-economic impact of air transport model to country in transition. In particular, it presents the employment and income benefits of airport operation. The input-output model is employed to measure the economic benefits of airport operation. The largest airport in Poland, Warsaw Chopin Airport is used as a case study.

Results: The estimation results for the income and employment effects are found to be significant. The operations of Warsaw Chopin Airport contributed to the generation of 527.8m EUR in current prices in 2011. Altogether, 19,349 jobs have been generated as the result of the direct, indirect and induced impact of Warsaw Chopin Airport.

Conclusion: The size of production in the airport expressed in the number of aircraft operations and the number of passengers and goods serviced is positively correlated with the level of economic impact. The restriction on the development of the airport reflected by the inability to meet transport needs expressed by the society may generate opportunity costs.

Key words: economic benefits, employment and income effects, input-output model, airport operation, Warsaw Chopin Airport.

INTRODUCTION

The air transport market in Poland is undergoing significant changes, which take place both on the demand and supply side. The liberalization of legal barriers has directly contributed to the increase in the range of airline services offered and to the decrease in air ticket prices, which has significantly influenced the number of passengers. Moreover, the demand is stimulated by economic changes, such as the increase in the average income of the population and the growing transportation needs resulting from the opening of the labour market.

Polish airports have experienced the unprecedented growth of air traffic. However, the increase in the number of airline connections - which benefits airports, passengers, aircraft industry and, indirectly, the whole society - at the same time results in the growth of social costs reflected by the intensification of noise and environmental pollution. Such costs are the example of hardly measurable externalities.

Several studies has been devoted to examine the relationship between air transport and economic development [OEF 2006; Button and Taylor 2006; Green 2007; Gillen and

Hinsch 2001]. However existing literature reveals a gap in the knowledge in respect of impact of aviation in countries in transition.

The purpose of this article is to identify and measure the economic impact of airport operation on the country in transition. In studying the economic benefits the input-output model was applied. In particular the employment and income effects of an airport were measured.

AIRPORT ECONOMIC BENEFITS - INCOME AND EMPLOYMENT GENERATION

The socio-economic impact of an airport is defined as the change in economic activity within an area due to airport or airport-related activities [DeSalvo 2002].

Depending on the channel of influence, the economic effects may be divided into the demand and supply ones [Rietveld and Bruinsma 1998]. The major effects on the demand side concern the stimulation of employment and income during the operation of an airport [Butler and Kiernan 1992]. The impact of an airport and related business entities upon the level of employment and income in the surrounding area is defined as the direct impact. The companies operating within the airport include ground handling companies, airlines, air traffic control, airport service companies, freight forwarders, retail and service outlets, car park administrators, and security services. Product and service providers operating in the airport surrounding area create jobs and incomes, which represents the indirect impact. The demand reflected by the expenses of people employed in the entities directly or indirectly involved in air transport constitutes the size of the production of the induced impact.

Apart from the direct, indirect and induced impact, airport operation affects the supply side of the economy by stimulating the conditions conducive to the development of business entities and of the whole region. There are changes in the amount of resources used in the region, as well as in the

productivity of those resources [Britton et al. 2005].

The main supply effects catalyzed by an airport include: the influence on enterprises' location decisions, attracting new foreign investment, the increase of competitiveness and innovation of local companies thanks to improved freight services, change in the quality of local inhabitants' living standard owing to fast transport service.

The supply effects are usually long-term and it is fairly difficult to estimate them. The demand effects are defined as the relationship between the air market and other industries. The demand effects are usually measured with the application of the input-output model or the Garin-Lowry model [Lu 2011]. In this study the former model was used.

THE INPUT-OUTPUT MODEL

The input-output model is a way of depicting economic relationship between producers and suppliers in an economy [Leontief 1936]. The advance has been made in using input-output method for cluster analysis [Pfähler 2001]. Considering the relation between air transport and economy, by using Leontief's demand-driven input-output model, one can estimate the degree to which changes in the air transport industry influence changes in the economy.

According to the input-output model, the economic benefits of airport activities are the sum of the direct, indirect and induced effects [Butler and Kiernan 1992]. The indicators which are usually measured by means of the input-output model include the income and employment generated by airport operation. These indicators reflect changes on the demand side. Revenues, incomes and fiscal effects are expressed in monetary terms and they flow in the economy as long as they are stimulated by changes in the size and structure of business activity. The employment effect results from changes in the physical labour resources. At the same time, while assessing the employment effect, technical and technological changes should be considered. The standard input-

output analysis does not allow for the effect of price changes. The demand effects are expressed in nominal values.

The total income effect related to airport operation is the sum of direct, indirect and induced income effects:

$$IE = IE_D + IE_{ID} + IE_{IN} \quad (1)$$

where IE is the total income benefit of airport operation, IE_D is the direct income effect, IE_{ID} is the indirect income effect, IE_{IN} is the induced income effect.

The income effect is measured as the gross added value generated by the activities of companies operating either on-site or in the surrounding area. These enterprises are divided into groups according to the type of their business activity. The total direct income effect is the sum of direct income effects created by companies performing a given type of activity. The equation may be recorded in the following way:

$$IE_D = \sum_{i=1}^k IE_{Di} \quad (2)$$

where IE_D is the total direct income effect; IE_{Di} is the direct income effect of companies of i^{th} type of business activity.

The indirect effect of companies of a given type of business activity is estimated on the basis of the number of people employed and of the average gross added value generated by one employed person:

$$IE_{Di} = L_i VAL_i \quad (3)$$

where IE_{Di} is the direct income effect of companies of i^{th} type of activity; L_i is the number of employees of companies of i^{th} type of activity; VAL_i is the average value added per employee in companies of i^{th} type of activity.

The indirect and induced impacts are usually calculated with the use of the input-output table. The table includes data concerning flows between different branches

of the economy. In case there is no data at the regional level, the indirect impact is estimated as the added value generated in the economy in the chain of suppliers of goods and services to the direct activities. The total indirect income effect is the sum of indirect income effects generated by enterprises performing a given type of activity:

$$IE_{ID} = \sum_{i=1}^k IE_{IDi} \quad (4)$$

where IE_{ID} is the total indirect income effect, IE_{IDi} is the indirect income effect of companies of i^{th} type of activity.

The expenses that business entities directly involved in airport operation incur for goods and services represent the size of suppliers' production that is dependent on airport operation. The volume of production generated on the suppliers' side is calculated as the sum of expenses for external goods and services and the costs of investment made by direct companies:

$$P_i = C_i + S_i + CE_i \quad (5)$$

where P_i is the value of the stimulated production of product and service providers for companies of i^{th} type of activity, C_i is the value of the cost of materials and energy incurred by companies of i^{th} type of activity, S_i is the value of services provided by external contractors for companies of i^{th} type of activity, CE_i is the value of the total capital expenditure at companies of i^{th} type of activity.

The expenses incurred by people employed in the companies directly or indirectly involved in airport activities represent the amount of the induced demand. The induced income effect may be estimated in the following way:

$$IE_{IN} = \frac{[(L)_D + L_{ID}]W}{ALP} AVAL \quad (6)$$

where: L_D is the number of employees of companies directly involved in airport operation, L_{ID} is the number of employees of companies indirectly related to airport

operation, W is the average net wage, ALP is the average labour productivity per person employed, $AVAL$ is the average value added per employee.

The input-output model has some limitations. The existing body of literature provides numerous arguments concerning the misuse of the input-output method and the misinterpretation of research findings [Montalvo 1998, Niemeier 2001]. It is also difficult to define the area influenced by airport operation. The larger the scope of the analysis the more disperse the effects are and the higher values the indirect and induced effects assume.

The results of the input-output analysis are static as they are usually based on data gathered throughout one statistical year. Air transport is particularly vulnerable to the economic situation, thus, production in this market may considerably fluctuate in different periods. If studies are done in peak years, their results may be inflated and vice versa, research on the economic effects of airport operation done during recession may lead to the underestimation of its impact.

The input-output method is used for assessing gross effects, namely economic impact as it is produced (AIIP methodology) [Montalvo 1998]. It takes into account all effects rather than just those which are generated due to airport operation. If there is no airport, part of the resources would be used in other branches of the economy. The question is to what degree those resources would be used, i.e. the level of labour and capital productivity.

THE APPLICATION AND RESULTS - WARSAW CHOPIN AIRPORT

Warsaw Chopin Airport is the biggest airport and the main transfer node in Poland, which handled 9.3 million passengers in 2011 - almost twice more than before the liberalization of the airline market in 2004.

Warsaw Chopin Airport is a city airport, which means that it is located within the

borders of the city of Warsaw. The vicinity of a large conurbation makes the airport more accessible for people, although at the same time its operations may cause some inconvenience to the local community.

INCOME AND EMPLOYMENT GENERATION

With the rapid increase in the number of airport operations and in the number of passengers at Warsaw Chopin Airport, the aircraft and non-aircraft activity has entered the stage of dynamic development. Companies involved in airport activities are rapidly developing and employing new staff, thus generating employment and income. Not only does the development of Warsaw Chopin Airport benefit passengers, but it also creates positive effects for the whole society. In order to identify and measure the generation of employment and income connected with the activities of Warsaw Chopin Airport, the input-output method was used.

Income generation

The economic impact of Warsaw Chopin Airport was measured as the gross added value generated by the operation of enterprises based within and in the close vicinity of the airport and is calculated on the income side.

The added value generated on the income side by the airport operator (PPL), the main handling agents (LS Airport Services, Warsaw Airport Services, LOT Catering) and the biggest airline (PLL LOT) was calculated on the basis of their financial statements. The 2011 was the base year. When there was no access to the 2011 data, the 2010 data was taken into account and was adjusted by the rate of the value added growth with the consideration of the type of activity. The added value generation by the other companies was calculated on the basis of the number of people employed and the average added value generated by an employee with the consideration of the type of activity and voivodeship. This data is made available by GUS (The Main Statistical Office).

As the result of the analysis, it was estimated that the companies operating on-site or in the surrounding area of Warsaw Chopin Airport have directly generated 404m EUR income in the economy of Warsaw and the region.

Direct companies through the purchase of goods and services from suppliers indirectly contribute to added value generation in the economy. The size of production generated on the suppliers' side was calculated as the sum of expenses for external products and services

and the costs of investment made by direct entities. The data about the costs and investment of the airport operator (PPL), the main handling agents (LS Airport Services, Warsaw Airport Services, LOT Catering) and the biggest airline (PLL LOT) was found in their financial statements. The other entities were divided according to the type of activity and the number of people employed.

The operations of Warsaw Chopin Airport indirectly contributed to the generation of 95m EUR in 2011.

Table 1. The direct and indirect influence of companies operating within and in the close vicinity of Warsaw Chopin Airport (five dominant companies have been highlighted)

Tabela 1. Bezpośredni i pośredni wpływ przedsiębiorstw funkcjonujących na terenie i w obrębie portu lotniczego w Warszawie z uwzględnieniem pięciu największych podmiotów.

Company	Type of activity	Direct impact		Indirect impact		
		Number of jobs	Value added (in million Euro)	Stimulated production on the suppliers' side (in million Euro)	Number of jobs	Value added (in million Euro)
PP "Porty Lotnicze"	Airport operator	2137	83	35	294	7
Polskie Linie Lotnicze LOT	Airline	2000	44	21	180	4
Warsaw Airport Services	Airport services	473	9	11	90	2
LOT Catering	Airport services	750	8	16	132	3
LS Airport Services	Airport services	1500	6	14	116	3
Others	Security services	2571	90	13	109	3
	Airport services	2387	84	124	1 055	25
	Retail/Services	1560	55	49	415	10
	Forwarding/Logistics	460	16	49	416	10
	Airlines	211	7	143	1 214	28
	Travel agencies	66	2	6	55	1
Total		14115	404	479	4 076	95

Source: Own calculations

The demand reflected by the spending of incomes of people employed in the companies directly and indirectly involved in airport operation constitutes the size of production of the induced impact. The induced income impact related to the activities of Warsaw Chopin Airport amounted to 27m EUR in 2011.

The total income impact of the airport is the sum of the direct, indirect and induced effect. The operations of Warsaw Chopin Airport

contributed to the generation of 527.8m EUR in current prices in 2011. As author could not precisely quantify all the data, there was a need to adopt some assumptions and use average values.

Employment generation

Employment effect is the number of jobs directly dependent on airport operation. Job places which are related to the activities of an airport are one of the most important indicators presenting the economic significance of

airports. The author takes into consideration not only the level of employment at the airport operator's, but also the number of jobs at airlines, air traffic control, including supervision services and handling agencies. The employment generated by retail outlets located within and near the airport (shops, bars, restaurants, banks, hotels, car rentals) and the civilian air industry, namely aircraft manufacturing and maintenance was taken into account as well.

In order to estimate the direct impact, data provided by the airport operator, handling companies and gathered by means of personal interviews with the other entities was used. Employment data are expressed in full-time jobs.

198 enterprises are directly involved in the activities of Warsaw Chopin Airport. Altogether, they employ 14,115 people. In case of the companies that also operate outside the area of Warsaw airport, it was taken into account only this part of their activity and those jobs which are directly related to the activities of the airport. As there were difficulties to precisely quantify all the figures, in the case of some companies employment data was estimated on the basis of regional statistics. Almost half of the jobs (47%) have been generated by the four biggest companies: the airport operator (PPL), the national airline (PLL LOT), the ground handling company (LS Airport Services) and the air traffic control (PAŻP). These companies are mainly state owned.

The direct employment per one million passenger handled amounts 1517, much above the European average. One of the reason for the size of the workforce at state owned companies operating at Warsaw Chopin Airport is the remnant of central planning economy.

Having estimated the indirect and induced income effect, the information concerning the level of employment effect was obtained.

The number of jobs related to the volume of production indirectly dependent on airport operation has been calculated on the basis of the volume of the stimulated production of

product and service providers for the companies directly involved in airport activities and on the basis of the average labour efficiency. 4,076 jobs are indirectly related to airport operation.

The number of jobs created as the result of the induced impact of airport operation has been calculated on the basis of the size of production generated by the expenses of people employed by the companies indirectly and directly involved in airport activities and of the average labour efficiency of all enterprises in the country. The induced impact accounts for the generation of 1,158 jobs.

Altogether, 19,349 jobs have been generated as the result of the direct, indirect and induced impact of Warsaw Chopin Airport.

CONCLUSIONS

The influence of Warsaw Chopin Airport on its surrounding environment has both a positive and negative dimension. A lot of effects created by airport operation are hard to measure. In this article, author focused on the measurable impact.

The benefits of airport operation are reflected in the generation of employment and income. The operation of Warsaw Chopin Airport have contributed - in the direct, indirect and induced way - to the creation of 19,349 jobs and have generated the income of 527m EUR in 2011. However the direct employment per one million passengers is much above the European average. One of the reason for the size of the workforce at state owned companies operating at Warsaw Chopin Airport is the remnant of central planning economy. The size of production in the airport expressed in the number of aircraft operations and the number of passengers and goods serviced is positively correlated with the level of economic impact. The restriction on the development of the airport reflected by the inability to meet transport needs expressed by the society may reduce the negative effects of airport operation, but it may also generate economic opportunity costs.

Environmental and spatial limitations may hamper the further development of Warsaw Chopin Airport. Given the immaturity of the air transport market in Poland and the prospects for its growth, it may be justifiable to intensify works on the Central Poland Airport project. The new airport would take over the whole or part of Warsaw Chopin Airport air traffic. Bearing in mind the potential social costs and benefits, if air traffic was moved beyond the borders of the city of Warsaw, social costs connected with the loss of property value caused by aircraft noise emission would be eliminated, while positive social benefits would be maintained or increased. Environmental effects related to the pollution of air, soil and water are to a large degree independent from the location an airport.

REFERENCES

- Britton E., Cooper A., Tinsley D., 2005. The Economic Catalytic Effects of Air Transport in Europe. Oxford Economic Forecasting. European Transport Conference Proceedings.
- Butler S. E., Kiernan, L. J., 1992. Measuring the Regional Economic Significance of Airports. Office of Airport Planning and Programming, Federal Aviation Administration, Washington, DC.
- Button K. J., Lall, S., Stough, R. and Trice, M., 1999. High-technology employment and hub airports. *Journal of Air Transport Management* 5, 53-59.
- Button K.J., Taylor, S. Y., 2000. International Air Transportation and Economic Development. *Journal of Air Transportation Management* 6, 209-222.
- DeSalvo J., 2002. Direct Impact of an Airport on Travelers' Expenditures: Methodology and Application. *Growth and Change* 33, 485-496.
- Gillen D., Hinsch H., 2001. Measuring the economic impact of liberalization of international aviation on Hamburg airport. *Journal of Air Transport Management* 7, 25-34.
- Green R.K., 2007. Airports and economic development. *Real Estate Economics* 35, 91-112.
- Leontief W., 1936. Quantitative Input and Output Relations in the Economic Systems of the United States. *The Review of Economics and Statistics* 18, 105-125.
- Lu, C., 2011, The economic benefits and environmental costs of airport operations: Taiwan Taoyuan International Airport. *Journal of Air Transport Management* 17, 360-363.
- Niemeier H.-M., 2001. On the Use and Abuse of Impact Analysis for Airports: A Critical View from the Perspective of Regional Policy. In: Pfähler, W., (ed.), *Regional Input-Output Analysis*. Nomos Verlagsgesellschaft, Baden-Baden.
- Oxford Economic Forecasting (OEF), 2006. *The Economic Contribution of the Aviation Industry in the UK*. OEF, Oxford.
- Pfähler W., 2001. *Input-Output Analysis: A user's guide and call for standardization*. In: Pfähler, W., (ed.), *Regional Input-Output Analysis*. Nomos Verlagsgesellschaft, Baden-Baden.
- Rietveld P., Bruinsma, F., 1998. *Is Transport Infrastructure Effective? Transport Infrastructure and Accessibility: Impacts on the Space Economy*. Springer-Verlag, Berlin.

WPLYW FUNKCJONOWANIA PORTU LOTNICZEGO NA ZMIANY W DOCHODZIE I W ZATRUDNIENIU W KRAJU W OKRESIE TRANSFORMACJI

STRESZCZENIE. Wstęp: Rynek przewozów lotniczych w Polsce ulega zmianom, które odbywają się zarówno po stronie popytu jak i podaży. Polskie porty lotnicze doświadczyły bezprecedensowego wzrostu ruchu lotniczego. Jednak wzrost liczby połączeń lotniczych, który tworzy korzyści zarówno dla portu lotniczego, pasażerów, całego rynku lotniczego oraz pośrednio dla społeczeństwa - w tym samym czasie prowadzi do wzrostu kosztów społecznych,

związanych z nasileniem hałasu i zanieczyszczenia środowiska. Korzyści z funkcjonowania portu lotniczego znajdują odzwierciedlenie w tworzeniu zatrudnienia i dochodów. Istniejąca literatura ujawnia luki w wiedzy w zakresie ekonomicznego wpływu transportu lotniczego w krajach w okresie transformacji.

Metody: Badaniu poddano możliwość zastosowania modelu społeczno-ekonomicznego wpływu portu lotniczego w kraju w okresie transformacji. W szczególności badaniu poddano zmiany w dochodach i zatrudnieniu, jakie wynikają z funkcjonowania portu lotniczego. W pomiarze społeczno-ekonomicznych efektów zastosowano model nakładów i wyników. Badanie wpływu portu lotniczego na otoczenie przeprowadzono na przykładzie największego portu lotniczego w Polsce - Warsaw Chopin Airport.

Rezultaty: Wyniki badań wskazują na znaczne zmiany w dochodzie i w zatrudnieniu w regionie, które to zmiany są efektem funkcjonowania portu lotniczego. Działalność Warsaw Airport przyczyniła się do generowania 527.8m EUR w cenach bieżących w 2011 roku. Łącznie 19.349 miejsca pracy zależały w sposób bezpośredni, pośredni i indukowany od funkcjonowania warszawskiego portu lotniczego.

Wniosek: Wielkość produkcji w porcie lotniczym wyrażona liczbą operacji lotniczych oraz liczbą obsługiwanych pasażerów i towarów jest dodatnio skorelowana z wielkością korzyści społeczno-ekonomicznych generowanych przez ten port. Ograniczenie rozwoju portu lotniczego odzwierciedlająca się w niezdolności do zaspokojenia potrzeb transportowych wyrażonych przez społeczeństwo może generować koszty utraconych korzyści.

Słowa kluczowe: korzyści ekonomiczne, efekt dochodowy i zatrudnieniowy, model nakładów i wyników, port lotniczy, Warsaw Chopin Airport.

FUNKTIONSAUSÜBUNG EINES FLUGHAFENS UND DESSEN EINFLUSS AUF DAS EINKOMMEN UND DIE BESCHÄFTIGUNG IN EINEM IM POLITISCH-WIRTSCHAFTLICHEN UMBRUCH BEGRIFFENEN LANDE

ZUSAMMENFASSUNG. Einleitung: Der Luftverkehr in Polen unterliegt tiefgreifenden Veränderungen, die sowohl auf der Angebots-, als auch auf der Nachfrageseite erfolgen. Polnische Flughäfen haben ein beispielloses Wachstum im Bereich des Luftverkehrs erfahren. Allerdings führt die Erhöhung der Zahl von Flugverbindungen, die für den Flughafen selbst, für die Passagiere, den Luftfahrt-Markt und indirekt für die Gesellschaft vorteilhaft ist - gleichzeitig zu erhöhten sozialen Kosten, die mit erhöhtem Lärm und größerer Umweltverschmutzung verbunden sind. Die Vorteile des Betriebes eines Flughafens spiegeln sich in der Schaffung von Arbeitsplätzen und Einkommen wider. Die vorhandene Literatur zeigt Wissenslücken im Bereich der wirtschaftlichen Auswirkungen des Luftverkehrs in den im politisch-wirtschaftlichen Umbruch begriffenen Ländern.

Methoden: Im Rahmen dieser Arbeit wurde die Anwendbarkeit des sozio-ökonomischen Modells von Auswirkungen eines Flughafens untersucht. Es wurden dabei insbesondere die Veränderungen innerhalb der Einkommen und Beschäftigung, welche auf die Betätigung eines Flughafens zurückzuführen sind, ermittelt. Bei der Bemessung der sozio-ökonomischen Vorteile setzte man das Input-Output-Modell ein. Die Untersuchung der Beeinflussung des Umfeldes eines Flughafens wurde anhand des größten Flughafens in Polen - Warsaw Chopin Airport - durchgeführt.

Ergebnisse: Die Ergebnisse zeigen auf signifikante Veränderungen in Bezug auf den Anstieg des Einkommens und der Beschäftigung in der Region, in welcher sich ein Flughafen etabliert hat, hin. Die wirtschaftliche Tätigkeit von Warsaw Airport trug im Jahre 2011 zur Erzeugung von 527.8 Mio. EURO in jeweiligen Preisen bei. Insgesamt wurden 19.349 Arbeitsplätze als Folge der direkten, indirekten und induzierten Auswirkungen des Warsaw Chopin Airports generiert.

Fazit: Das im Flughafen mit der Anzahl der Flugoperationen, der bedienten Passagiere und beförderten Waren ausgedrückte Leistungsvolumen ist in positiver Weise mit den sozio-ökonomischen, durch den besagten Flughafen generierten Vorteilen korreliert. Die Beschränkung der Entwicklung eines Flughafens, durch die die Unfähigkeit zur Erfüllung der Verkehrsbedürfnisse der Gesellschaft zustande kommt, kann die Opportunitätskosten, d.h. Kosten der verlorengegangenen Vorteile, erzeugen.

Codewörter: wirtschaftliche Vorteile, Effekte von Beschäftigung und Einkommen, Input-Output-Modell, Flughafenbetrieb, Warschau Chopin Airport.

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