

## Airports as a factor of regional development on the example of the Szymany Airport

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**Abstract.** The Warmińsko-Mazurskie Voivodship is a NUTS II region, which belongs to the least developed regions of Poland and the EU. One of the reasons of its underdevelopment is poor transport accessibility, which limits the level of competitiveness and investment attractiveness. For this reason the voivodship authorities made a decision to build a regional airport by modernising the military airport in Szymany near Szczytno. The investment, which is co-financed by the European Funds, is aimed to reduce the level of peripherality of the region, increase its competitiveness and, as a consequence, raise the socio-economic development level.

This paper aims to answer three questions. The first one concerns the extent to which the existence of a regional airport is a factor stimulating socio-economic development of regions, including peripheral ones. The second one is related to the question whether the location of the planned airport is justified by economic factors, or, to put in another way, whether the airport will bring profits in the long run. The last question, related to the previous ones, is whether the realisation of the investment in the planned form will help to reduce the degree of peripherality of the Warmińsko-Mazurskie Voivodship and thus accelerate its socio-economic development.

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## 1. Introduction

The accession of Poland to the European Union (EU) has brought a major challenge to the local and regional authorities. It is twofold. Firstly, by gaining access to a range of European funds voivodships had been given a chance to reduce the existing disparities separating them from the most developed countries and regions of the EU. To achieve this objective it is necessary to properly define barriers of regional development and set a corresponding hierarchy of development objectives. But, at the same time, relatively large funds to be obtained and a large number of co-financed projects may tempt regional authorities to apply for funding of projects which do not always respond to the most important development challenges, but are relatively easy to get a financial support for.

The Warmińsko-Mazurskie Voivodship is one of the least developed regions, not only in Poland but also in the entire European Union. This is mainly caused by the peripheral location of the region and its relatively poor transport accessibility. One of the most expensive projects which aims to increase the accessibility of the voivodship and financed with the help of the EU funds is the modernisation of the former military airport in Szymany near Szczytno. Reducing the level of the region's peripherality, in this regard, is a tool for stimulating its socio-economic development.

The aim of this paper is to answer three questions. The first one concerns the extent to which the existence of a regional airport is a factor stimulating socio-economic development of regions, including peripheral ones. The second is whether the location of the planned airport is justified by economic factors, or, to put in another way, whether the airport will bring profits in the long run. The last question, related to the previous ones, is whether the investment, in the planned form, will help to reduce the degree of peripherality of the Warmińsko-Mazurskie and thus accelerate its so-

cio-economic development, or maybe it is only to obtain the external funding from the European Union.

## 2. Importance of airports in stimulating socio-economic growth of regions

Airports can affect regional economy in several ways. In the specialist literature four types of effects generated by airports are distinguished (Halpern, Brathen, 2011: 1145): (a) direct effects – related to the operation of the airport itself; (b) indirect effects – related to the operations of the airport suppliers; (c) induced effects – generated by direct and indirect operations; (d) catalytic effects – related to a wider role of the air transport (including airports) in the regional economy.

Direct effects are primarily associated with jobs created to ensure the airport's functioning. These include both highly skilled and well-paid positions of air traffic controllers, technicians and airport managers, as well as unskilled jobs of ground service or cleaners. It is estimated that every million of checked-in passengers during a year creates approx. 950 jobs in the airport. In the case of small airports of regional and local importance, the number is even higher, because some activities (air traffic control, security) must be carried out regardless of the number of checked-in passengers (Cervinka, Tykva, 2012: 36-37).

Indirect effects relate to jobs created in enterprises providing services for the airport and its passengers. They apply particularly to suppliers of goods sold at airports, fuel suppliers, telecommunication services operators, accountants, etc. According to the estimations carried out for the European Commission, every 1000 jobs at an airport create approx. 2100 of jobs at the national level, approx. 1100 jobs in the region and approx. 500 jobs in the sub-regional scale (Cervinka, Tykva, 2012: 36).

The range of services provided by airports goes far beyond the activities related only to support of air passenger traffic. Nowadays, airports (especially those referred to as hubs) are often huge economic complexes, which serve different functions. These include the services related directly to the air transport, forwarding and logistic services (incl. warehousing), but also accommodation services (hotels), entertaining and shopping (malls located both in air terminals and outside airports) and business support services (business parks). The presence of an airport can therefore contribute to the development of new economic activities in a region which, in turn, can have a positive impact on the regional labour market and property prices around the airport (Appold, Kasarda, 2011: 95-100).

Income earned by entities involved in direct and indirect support of an airport functioning increase the value of the region's effective demand, which in turn generates multiplier effects for the economy of the region, contributing to its socio-economic development. This is the essence of the third group of effects generated by airports to regional economies.

While the above mentioned effects are relatively easily quantified, such a precise determination of catalytic effects is a complex task, even though their role in stimulating socio-economic growth of regions seems to be fundamental (Halpern, Brathen, 2011: 1145). Among the catalytic effects the following can be distinguished: increased regional competitiveness, increased tourism and improved quality of life.

One of the most important factors influencing the level of the regional economy competitiveness is transport accessibility. Running a business, especially in the most innovative and high-tech manufacturing branches, requires high spatial mobility. The importance of air transport in ensuring mobility is crucial. The results of the research conducted among European managers indicate that the presence of an airport in a region is one of the most important localisation factors (Button, et al., 2010: 130). This, in turn, may lead to an increase of investment inflow, followed by an increase of regional production. Transport accessibility (except for the regional market size and the presence of highly skilled and relatively cheap labour force) is indicated as an important factor contributing to foreign direct investment (FDI) inflow, also in Poland (Nazarc-

zuk, Kisiel, 2013: 3-4). One should, however, bear in mind that good air connections with a region are especially important from the point of view of managers of large multinational corporations. Thus, regions where there are no headquarters or branches of such enterprises have fewer benefits from this fact (Smyth et al., 2012: 54). The airport presence also helps to improve the productivity and competitiveness of companies located in the region by improvements in the management process and reduction of storage costs (Pander, 2011: 205).

Important catalytic effects of an airport also include the development of tourism. Nowadays almost half of all tourist trips are made by plane. Tourism accounts for about 4% of GDP across the European Union, but including the related sectors its share goes up to 11% (Pander, 2011: 206). At the same time, a further increase in the importance of tourism to the economy is expected. The World Travel & Tourism Council estimates that by the end of 2021 the number of jobs created in this sector of economy will reach 120 million (Cervinka, Tykva, 2012: 34). In this context, airports open regions for new potential clients, which also may translate into additional income and employment in such services like hotels, catering, transport and trade.

In the non-economic sphere, especially in the most peripheral regions, an airport presence can be an important factor improving the quality of life by providing better access to selected services (health care, culture and education) offered outside the region, and by maintaining social ties. As indicated by the results of the research conducted among the residents of the selected, poorly accessible areas of Norway, the location of an airport in the region is one of the most important factors limiting the process of migration to the densely populated areas better developed economically (Halpern, Brathen, 2011).

In the case of the newly built or modernised airports (such as Szymany), when considering their influence on the regional economy, one should also take into consideration incomes generated during the construction process and the resulting multiplier effect (Button et al., 2010: 127). According to the project, the total cost of modernisation of the Szymany airport will reach 196 million PLN. Moreover, there are the expenses related to the modernisation and development of the railway line between Olsz-

tyn and the airport, which will reach over 91 million PLN (1)

To conclude, the analysis of the selected aspects of airports functioning indicates that they may be the factor increasing the level of competitiveness of the regional economy. The examples provided by the specialist literature prove that they also may increase the level of socio-economic development. Hence, regional authorities often decide to build new, or to improve the existing airports, treating this as one of the most important tools of regional economic policy.

However, it should be emphasised that the transport accessibility is just one of the factors determining the ability of regions to effectively compete with other spatial units for new investments. Other factors include the regional market capacity, external attractiveness, innovativeness, agglomeration effects, institutions etc. What is more important, these factors are not separable; none of them determines the level of regional competitiveness on its own (Smętkowski, 2013: 49).

### 3. Characteristic of the Warmińsko-Mazurskie Voivodship

The Warmińsko-Mazurskie Voivodship (the regions of Warmia, Mazury and Powiśle) is one of the poorest areas in the whole EU. The level of GDP per capita in purchasing power parity, despite a steady growth in recent years, does not exceeds 50% of the EU average (in 2010 it was only 46% of the EU average) (2) Furthermore, both in comparison with economies of the most developed countries of the EU and in relation to other regions of Poland, the voivodship is characterised by the unfavourable structure of production, with a relatively large share of agriculture and forestry (Nowak, 2012: 142-143).

The factor that may be the result of and, at the same time, the cause of the voivodship's underdevelopment, is low innovativeness of the regional enterprises. Nowadays, the ability to innovate is one of the most important factors in competitiveness of enterprises, regions and countries, which shapes their potential for development. The importance of innovation increases when higher levels of econom-

ic development are achieved, and when strategies based on low cost of labour are no longer possible. Meanwhile, companies located in the region have some of the lowest in Poland expenditures on innovation, research and development (both in absolute terms and per employee) and a low percentage of innovative and high-tech companies (Leszczewska, 2012: 125-131).

Except for the low level of economic development, the Warmińsko-Mazurskie Voivodship shows other features that classify it as a peripheral region. These include peripheral location and low population density (Łuczyszyn, 2013: 197).

In 201 population density in the Warmińsko-Mazurskie Voivodship reached 60.1 people per km<sup>2</sup>, which means that it was the second - after the Podlaskie Voivodship - least populated region in Poland (3) Also in relation to all the EU regions (at NUTS II level) the Warmińsko-Mazurskie falls into the sparsely populated areas, with an index of population density twice lower than the EU average (4) The settlement network, including in particular the network of cities, is also poorly developed, with a relative dominance of the central city – Olsztyn. Moreover, comparing the socio-economic potential of cities in the Warmińsko-Mazurskie Voivodship with other cities in Poland, one can observe significant disproportions to a detriment of the region studied (see Bogdański, 2012).

With regard to the geographical position of the Warmińsko-Mazurskie Voivodship, it is located in the north-eastern part of Poland. To the north it borders the Russian Federation, which is one of the external borders of the European Union. Inside the country, excluding Warsaw and Tricity, it is located far from major growth centres. Low level of transport accessibility is also a result of low density of transport infrastructure and a high level of its decapitalisation (RPO Warmia i Mazury, 2007: 33). There are no motorways in the region, and the network of highways consists of road E7 (E77) and fragments of the national road No. 16. At the same time, Olsztyn is the only voivodship capital without a high-speed rail link with other cities in Poland. In addition, the network of inter- and intraregional trains is constantly being reduced, which also limits the transport accessibility of the region.

Despite the low development level of the transport infrastructure, in the coming years the situa-

tion of the Warmińsko-Mazurskie Voivodship will not improve in this regard. According to the government's *Strategy of Transport Development until 2020* there are no plans to build a new motorway in the region, and express roads will not be connected to the capital city. The situation is similar considering high-speed rail links. Thus, Olsztyn, as the only voivodship capital in Poland, will be not connected with other cities by the high-speed transportation network.

Taking into account low and steadily declining transport accessibility of the Warmińsko-Mazurskie Voivodship, and, on the other hand, the importance of such accessibility in stimulating regional competitiveness, it seems that the decision to modernise the regional airport in Szymany might contribute to the socio-economic development of the region. In the following sections of the paper the issue whether the airport will improve the transport accessibility of the Warmińsko-Mazurskie will be studied. This issue is worth considering due the fact that nowadays, in many types of businesses, time availability of spatial units has become more important than the cost of accessibility, and the air transport is the fastest way of travelling (Smętkowski, 2013: 51).

#### **4. Evaluation of the regional airport localisation in Szymany near Szczytno from an economic and social perspective**

The airport Mazury in Szymany near Szczytno (IATA code: SZY, ICAO code: EPSY) is built in the place of the old military airport constructed in the 1950s. After the Agency of Military Property (*Agencja Mienia Wojskowego*) let the private company called Porty Lotnicze Mazury to operate the airport, during the summer season in the years 1996–2003 regular flights to Warsaw and Germany were organised. According to the Civil Aviation Authority (*Urząd Lotnictwa Cywilnego*) in 2002 (record-high) the share of the airport in the total number of checked-in passengers in Poland reached 0.05% (*Działalność portów...*: 5). Since 2004 the airport has suspended its operation due a progressive degradation of its technical infrastructure and debts of the operator. Currently, the airport in Szymany is managed by the company Warmia and Mazury

Ltd., which is a property of the Parliament of the Warmińsko-Mazurskie Voivodship (5).

Reopening of the airport requires, above all, the extension of the passenger terminal and repairs of the runway pavement. After modernisation the airport will be able to accept medium-sized passenger aircrafts and check-in approx. 300 000 passengers a year (the airport redevelopment project involves a possibility of its further expansion, so it could check-in 500 000 passengers a year). The total cost of the modernisation will be almost 200 million PLN, 76% of which will be financed from the Regional Operational Program Warmia and Mazury 2007–2013. The modernisation is planned to end in mid-2015 (*Indykacyjny wykaz...*).

When evaluating the appropriateness of Szymany as a place for the future regional airport, one should take into account a number of factors and conditions – from environmental, through technical, planning and strategic, to legal, economic and social (Korgul, 2009: 58). The most difficult to assess, but also influencing fundamentally the overall evaluation, are the socio-economic factors. In the case of the social factors, the difficulty is caused by the lack of precise and objective criteria for assessing social appropriateness of the location. To evaluate the economic conditions one must take into account the fact that full evaluation would also require ex-post (not only ex-ante) assessment. Furthermore, in this regard one should also take two perspectives of the assessment. The first one is microeconomic – whether and to what extent the airport will be able to self-finance its operation. The second one is mezeconomic – how the investment will help to accelerate the socio-economic development of the region.

The ability of an airport to self-finance is directly dependent on the number of passengers, which is dependent on the airport's catchment area. In determining catchments areas of airports there is a need to analyse, in particular, 90 and 120 minute availability of an airport. This is because according to standards adopted by the EU, 1.5 hour travel time sets the availability limit for regional airports (some studies suggest that this value is 2 hours) (Pander, 2011: 207). The number of population living in the catchment area is also the main factor taken into account by airlines when making a decision to set a flight connection from a specific airport (Au-

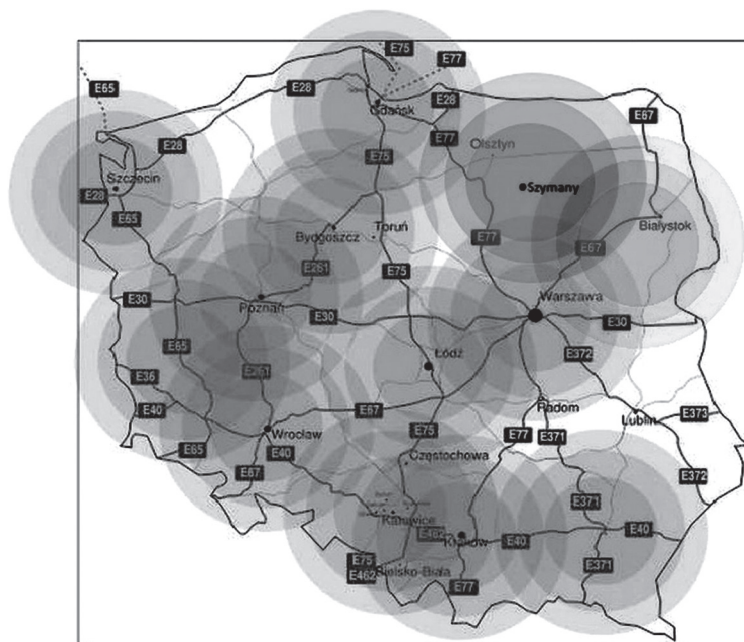


gustyniak, 2012: 53). Figure 1 presents, in a graphical way, 60, 90 and 120 minute isochrones of the Szymany airport.

The catchment area of the Szymany airport covers most of the area of the Warmińsko-Mazurskie Voivodship and also the western poviats of the Podlaskie and the northern poviats of the Mazowieckie Voivodship. The catchment area should be positively evaluated, due to the fact that without the airport most of the Warmińsko-Mazurskie would be located outside the catchment areas of the nearest passenger airports in Gdańsk and Warsaw. It should be noted, however, that the catchment area of the Szymany airport coincides with the catchment areas of the Gdańsk and Warsaw airports, and also with the catchment area of the planned airport for the Podlaskie Voivodship (6). This airport will probably be located about 30 km south-east of Białystok. In this context, one can assume that the airports in Gdańsk, Warsaw and Białystok will have a greater potential, which is primarily due a larger network of the offered connections. For this reason, the catchment area of the airport in Szymany will be probably relatively small (7). After reducing it by the impact zones of the Gdańsk, Warsaw and Białystok airports it turns out that at the end of 2012 it had

the population of about 630 000 for the 90 minute travel time and 1 017 000 for 120 min.

The catchment area size of the Szymany airport will also be adversely affected by the fact that it has low transportation availability within the region. The importance of this factor for the level of profitability of an airport is crucial, as shown by the Mirabel and Doval airports in Montreal (Kozak, 2010: 56–57). Within a radius of several kilometres from the airport there are no express roads; other roads linking Szczytno with other cities in Poland and Szczytno with the airport have a status of national roads. As a result, the average travel time from Olsztyn (the largest city in the catchment area of the airport) is about one hour. At the same time, there are no plans to build new, or to improve the existing roads connecting the airport with other cities in the Warmińsko-Mazurskie. Although currently there is a rail road under construction between Olsztyn and Szymany, which will shorten the travel time to about 45 minutes, other areas of the voivodship will still be devoid of a direct railway connection with the airport. This is another factor that may significantly reduce an interest of potential users of the airport to use its services (especially those living closer to Warsaw and Gdańsk).



**Fig. 1.** Isochrones of the existing airports in Poland and the planned airports in Szymany and Białystok (the following shades indicate the airports' isochrones for 60, 90 and 120 minutes)

Source: Own work based on Korgul, 2009

Moreover, as practice shows, small, regional airports are often unable to attract a sufficiently large number of carriers and passengers, they are poorly managed and consequently achieve negative financial results, becoming an additional burden for budgets of regional governments (see Halpern, Paggiari, 2007).

These circumstances can therefore significantly reduce the ability to generate profits by the airport, which leads to a conclusion that the decision to build a regional airport in the analysed location should be evaluated negatively, taking a microeconomic perspective.

The evaluation of the planned investment from a mezeoeconomic perspective leads to similar conclusions. The main argument in favour of the modernisation of the airport was that it would be an important element of the regional economic infrastructure which would stimulate faster socio-economic development of the Warmińsko-Mazurskie Voivodship. It should also lead to the reduction in the development gap between the region and the most developed areas of Poland.

However, many studies show that airports are, at best, a tool to use the potential already inherent in a region in a more efficient way. If the potential is small or if it does not fit to the requirements of a modern economy paradigm (as it is in the case of the Warmińsko-Mazurskie) the positive effects resulting from the airport's presence may not be sufficient to initiate faster socio-economic development (Button et al., 2010: 127). In order to achieve a broader and overarching objective, that is a fast economic growth, regional authorities should make an effort to change the structure of regional production, increase the level of competitiveness and innovativeness, and increase a number of localisation advantages achievable in the area. In this context, it is especially important to increase the human capital quality.

From the social perspective, however, the decision to modernise the airport in Szymany should be evaluated positively. The Warmińsko-Mazurskie Voivodship, in comparison with other regions of Poland, shows relatively low transport accessibility, both at national and international levels. The absence of the airport would be a factor further limiting spatial mobility of the inhabitants of the region. It would also mean poor access to serv-

ices (health care, culture and education) provided outside the region and, probably, loss of some ties with relatives and friends living in distant places. As a consequence, the quality of life might decline. For this reason, the presence of the airport may be one of the tools supporting social and territorial cohesion.

## 5. Summary and conclusions

The Warmińsko-Mazurskie Voivodship is one of the least developed regions of Poland and the European Union. At the same time, it shows low population density and poor transport accessibility. In other words, it is an example of a peripheral region. In the effort to raise the level of competitiveness and investment attractiveness of the voivodship, the regional authorities decided to modernise the existing, old military airport in Szymany near Szczytno, so as it could serve the function of a regional passenger airport. In the paper an attempt was made to answer the question whether the investment could contribute to acceleration of socio-economic development dynamics of the Warmińsko-Mazurskie. It was also examined to what extent this decision was based on microeconomic foundations.

Airports play an important role in the regional community and economy, especially in peripheral regions. By increasing transport accessibility they allow easier access to goods and services provided outside the region and maintain social ties. This turns into higher quality of life and reduces social exclusion. In addition, by generating series of economic effects, they can be a factor accelerating dynamics of socio-economic development of a region. But the selected studies also show that only the regions with a high level of endogenous potential are able to use an airport as the effective stimuli of this process.

In this context, the evaluation of the decision to build a regional airport in Szymany is ambiguous. If it is restricted only to the economic perspective, the evaluation is negative. A relatively small catchment area of the Szymany airport, which is limited by the catchment areas of the competing airports (especially in Gdańsk and Warsaw) and poor transport accessibility of the airport, no doubt will negatively

affect the number of checked-in passengers. Additionally, one should also take into account that the network of connections offered by the airport will be relatively small, which will also be a factor limiting an interest of potential airport users and therefore its capacity to generate profits.

Taking into account the structure of production and low level of competitiveness of the Warmińsko-Mazurskie Voivodship, one can assume that the airport will have no significant impact on the dynamics of the socio-economic development of the region. Instead, it would rather have a prestigious meaning. This leads to a conclusion that some impact on the decision to modernise the airport could have been a relatively easy access to the EU funds aimed for the development of the transportation infrastructure.

From the social perspective, however, the investment should be evaluated positively, as it will decrease the social exclusion level.

Therefore, from the perspective of the regional authorities, the airport might be analysed and managed as a public good. It would play an important social role in the region and have some impact on the regional economy, but at the same time it might have to be financed from the voivodship budget. There still arises an important questions on a specific localisation of the airport (were there any better options?) and the efficiency of the funds spent (could the same effect be achieved at a lower cost, for example by improving road and rail connections with Gdańsk, Warsaw and other big cities in Poland?).

## Notes

- (1) [http://www.rynekkolejowy.pl/39943/dpc\\_przeprowadzi\\_audyt\\_polaczenia\\_kolejowego\\_olsztyn\\_szymany.htm](http://www.rynekkolejowy.pl/39943/dpc_przeprowadzi_audyt_polaczenia_kolejowego_olsztyn_szymany.htm), DoA: 09.08.2013.
- (2) Source: Eurostat, <http://ec.europa.eu/Eurostat>, DoA: 10.08.2013.
- (3) Source: Bank Danych Lokalnych GUS, <http://www.stat.gov.pl/bdl>, DoA: 10.08.2013.
- (4) Source: Eurostat, [ec.europa.eu/Eurostat](http://ec.europa.eu/Eurostat), DoA: 10.08.2013.
- (5) Source: <http://szymanyairport.pl/page/10/spolka>, DoA: 16.08.2013 r.
- (6) The analysis does not include the catchment area of the airport in Modlin near Warsaw. Its influence, with a big probability, will also have a negative effect on the number of potential passengers of the airport in Szymany.
- (7) Transport accessibility, number of available destinations, their frequency and flight schedules are the most important criteria for choosing an airport by passengers (Augustyniak, 2012: 52).

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