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THE IMPORTANCE OF TRANSPORT INFRASTRUCTURE INVESTMENTS IN REGIONAL DEVELOPMENT OF THE NORTE REGION IN PORTUGAL AND THE MASOVIAN VOIVODSHIP IN POLAND

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ABSTRACT

The aim of the paper was to compare the directions of investments in communication and transport infrastructure of the Norte Region in Portugal and the Masovian Voivodship in Poland. When analyzing the saturation of the infrastructure, particular attention has been paid to the investment aspect, since this factor has a major impact on the development of these regions. The conducted research has shown significant differences in the investment process itself. The Masovian Voivodship strongly diversifies the transport infrastructure investments on various modes of transport. In turn, in the Norte region one can observe a strong transport orientation geared towards an extensive network of expressways and a large access to local airports. The location of transport investments so understood in particular modes of transport is related to the different conditions of location of both regions.

Key words: transport infrastructure, infrastructure investments, Masovian Voivodship (Poland), Norte Region (Portugal)

INTRODUCTION

A contribution to reflect on infrastructure and investment activities in Poland and Portugal has been a report published by the World Economic Forum presenting indicators of competitiveness in particular fields. Both countries reached a very similar ranking position: Poland – 39th, Portugal – 42nd. Despite the closeness of the positions, the report components for both countries are slightly different [World Economic Forum 2018]. Looking at the individual indicators in detail, a number of historical analogies can be noticed between the countries, in particular between the regions, resulting from the differences which existed at the moment of the accession to the European Union. For the analysis were chosen the Masovian Voivodship, located in central Poland, and the Norte Region, located in northern Portugal. Both regions are placed on NUTS 2 level. In the Norte Region, gross domestic product (GDP), measured in purchasing power parities in 2018 has reached a lower value of EUR 54.5 billion, while in the Masovian Voivodship the indicator reached the value of EUR 94.5 billion [Eurostat 2018a]. On the other hand, gross domestic product per capita (GDP per capita) in current prices was respectively EUR 17,757.14 for the Masovian Voivodship

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and EUR 15,112.14 for the Norte Region. A further comparative analysis of the two regions will be conducted taking into account the population and the land area [Eurostat 2018b].

DATA AND METHODS

When analysing the investment activity of local government units an overview of the latest literature was made as well as a research of the legislative acts relating to the functioning of the local authorities and the infrastructure of transport. The statistical data of the Central Statistical Office (GUS) and Eurostat on the level of development of road, railway and airport infrastructure have been used. On the other hand, infrastructure for inland navigation as being of marginal importance for the development of the two regions has been omitted as well maritime sector infrastructure, because of the lack of comparability of these regions.

In the paper was used a monographic method, which uses information in qualitative descriptive form. In order to compare the two regions, was used a comparative method, which depends on analysing the characteristics of the study's subjects and the phenomena, with a view to establishing similarities and differences in the field of transport and communication infrastructure. In the context of empirical research, an analysis and evaluation of the investment activity in the Masovian Voivodship and the Portuguese Norte Region was presented.

THEORETICAL APPROACH TO THE LOCAL GOVERNMENT INVESTMENTS

In order to formulate the concept of infrastructure investment, it is best to look into legislative acts. The Accounting Act defines investments as assets acquired in order to achieve economic benefits arising from an increase in value, interest or dividends, i.e. financial assets, real estate, or intangible assets, which are not used by their owner, but held for profit [Accounting Act of 1994]. This means that an investment mast be understood as a project aimed to achieving benefits after a certain period of time. It should be remembered, however, that in the case of local government investments, the term benefit is completely different importance than in the case of private investment. The purpose of local government investment is not a monetary gain, but rather other categories of profit such as: infrastructure improvement, unemployment decline, better education or improvement of social conditions. Because of its financial specification, it is difficult to demonstrate the economic results of such an investment, in particular profitability. However, this does not relieve the local government authorities from effective spending public funds, but significantly impedes control [Misterek 2008].

According to one of the simplest definitions of the notion of investment in academic literature, it is any cash placement in tangible and intangible projects that will provide certain benefits comparable to the objective. A certain act of abandoning current consumption and allocation of free resources for the realization of the tasks that will benefit the future can be considered an investment. This is the most general description of the notion of investment, matching both private and public sector of investments. The main features of an investment are:

- Use of the current consumption for future potential benefits.
- The time necessary to implement the investment, which means that an investor must wait for the benefits of his investment.
- Element of risk, which means that the benefits may not occur or even an investment may bring losses.

Together with the definition of investment, two important aspects are often addressed – the inputs and the benefits. Inputs are normally understood as expenditures concentrated in a fairly short period of time, usually at the beginning of an investment, thanks to which making an investment is possible. Benefits are the results that have been achieved through implementation of the investment task. They can have measurable or, more often in the case of local government investments, non-measurable values [Czampas 2013].

Infrastructure investments are the most common group of investments in the Polish Government. Infrastructure is a collection of equipment and institutions necessary for functioning of the economy and society [Sierak and Górniak 2011]. This means all the devices,

entities and investments designed to provide adequate living conditions for the population, and the opportunities for developing the economy in a given area [Sierak and Górniak 2011]. They can be divided into social infrastructure investments, covering: schools, hospitals, libraries, local health centres, and investments in technical infrastructure, including: roads, sewers, water pipelines [Sierak 2010].

CHARACTERISTICS OF THE EXAMINED REGIONS

The investment underdevelopment was an immense problem for Polish local governments, which severely influenced lowering of competitiveness against the Western European regions. The Masovian Voivodeship features a complex transport system, which results from its location in the heart of Poland as well as in the centre of Europe. According to the strategy of Masovian Voivodeship until 2030, the transport system should be considered as a whole, covering not only infrastructure, but also the way it is used. Transforming the quantitative system into more efficient qualitative system allows for better use of manufacturing factors and more efficient disposal of existing resources. The transport infrastructure of the Masovian voivodship includes road infrastructure, railway infrastructure, river infrastructure and airports [Dąbrowska and Swianiewicz 2018]. The Masovian Voivodeship is of agricultural and industrial character. In the region one can observe the fuel, energy, food and production of cattle materials. The Warsaw area is the main center for the operation of large banking and financial companies and business services.

Masovian Voivodship covers an area of 29,454 km^2 and has 2,353 million inhabitants [GUS 2018]. As a result of the revision of the NUTS 2016, Masovian Voivodship (so far the NUTS 2 region) has been transcoded with effect from 1st January 2018, as the NUTS 1 region (macro-region) and divided into two new NUTS regions: The Warsaw Capital Region – (the city of Warsaw – NUTS 3 Warsaw West – "warszawski zachodni" and Warsaw East – "warszawski wschodni") and the Masovian Region, which includes the remaining part of the voivodship. Due to the differences in the level of socio-economic development through statistical separation from the Warsaw Capital Region, the Masovian region will continue to benefit from European Union funding.

Norte Region (Northern Portuguese region) extends to 21,300 km^2 and has about 3.6 million inhabitants, representing 23% of the total area of the country and about 35% of the Portuguese population. The region can be divided into a coastal area, which is overwhelmingly urban and much more industrialized, and the inland area, where agriculture still plays an important role. The region is characterized by traditional sectoral industries (including: textile industry, production of apparel, production of footwear, metals industry), but it also covers medium and high-tech sectors, in particular the industries of industrial equipment, automotive parts, pharmaceuticals, precision equipment, communication equipment and computers.

TRANSPORT INFRASTRUCTURE

Well-developed economic infrastructure is an important factor determining economic growth and sustainable regional development. One of its main components is transport infrastructure. Transport infrastructure is a man-made basic, for permanent localized roads of all modes of transport, transport points, auxiliary equipment facilitating the handling of roads and transport points [Kaczyńska and Korycińska 2014]. The belief that transport infrastructure plays a capital role for development and cohesion is not confined to policy circles. In many ways, it stems from economic theory. Transport infrastructure has represented one of the cornerstones of development and cohesion strategies in the European Union (EU) and elsewhere in the world. However, despite the considerable funds devoted to it, its impact remains controversial [Crescenzi and Rodríguez-Pose 2012]. The degree of development of the infrastructure, particularly the transport one, determines the location of the economic activity, since it is an important factor in the localization of the activities or sectors that can flourish in the respective economies and regions. The high level of infrastructure development reduces the distance between regions and positively influences the integration of the domestic market and, at low cost, integrates it into the world economy system [Miłaszewicz and Ostapowicz 2012].

RAILWAY INFRASTRUCTURE

Differentiation in access to railway infrastructure is due to several factors. First, Masovian Voivodship is located in the center of the continent, therefore, the demand for transport services is much higher. The lowland nature of the center of Poland allows for cheaper implementation of railway investments, while Portuguese investments in area with higher altitude differences, are more capital-intensive. Both countries have a different approach to shaping their transport policy. There is a greater fluctuation in the length of railway infrastructure in Poland, which results directly from the renovation of rail traction. Small changes in Portugal were due to the closure of part of the railway line in the Norte Region.

Investment activities in the field of rail transport are diverse and depend above all on local circumstances, including the existing traction network, since the construction of new railway lines nowadays is quite rare. The vast majority of investments in this area are the modernization of existing railway lines, allowing high-speed trains to run.

AIRPORT INFRASTRUCTURE

When looking at both regions, one can notice differences in the number of airports as well as in the use of air services. The Norte Region provides vast services in the area of touristic air traffic. It is also not negligible to have overseas territories by Portugal and to organise cyclic flights to the Azores or Madera. However, the largest airport in Poland is located in the Masovian Voivodship. The tourist function factor makes the growth rate of air traffic in the Norte Region greater than in the Masovian Voivodship.

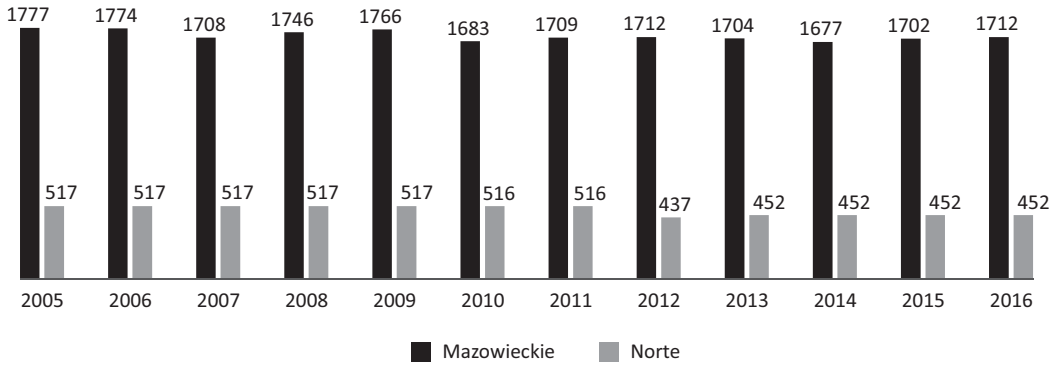

Fig. 1. The length of the railway infrastructure in the Masovian Voivodship and Norte Region (km)
Source: Own elaboration based on Eurostat database.

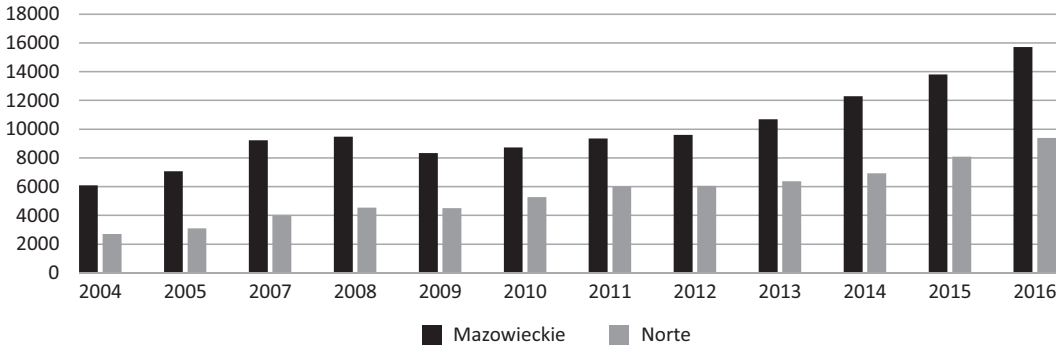

Fig. 2. The number of passengers of airports located in the regions (1,000 passengers)
Source: Own elaboration based on Eurostat database.

Table. Airports located in the Norte Region and the Masovian Voivodship

City	ICAO airport code	IATA airport code	Airport name
Norte, Portugal			
Braga	LPBR	BGZ	Braga Airport (*Aeródromo Municipal de Braga*) (Palmeira, Braga)
Bragança	LPBG	BGC	Bragança Airport (*Aeródromo Municipal de Bragança*)
Chaves	LPCH	CHV	Chaves Airport (*Aeródromo Municipal de Chaves*)
Espinho	LPIN	–	Espinho Airport (*Aeródromo de Espinho*)
Maia (Municipal da Maia)	LPVL	–	Maia Airport (*Aeródromo Municipal da Maia*)
Mirandela	LPMI		Mirandela Airport (*Aeródromo Municipal de Mirandela*)
Porto	LPPR	OPO	Francisco Sá Carneiro Airport (*Aeroporto Internacional Francisco Sá Carneiro*)
Vila Real	LPVR	VRL	Vila Real Airport (*Aeródromo Municipal de Vila Real*)
Mazowieckie, Poland			
Warszawa	EPWA	WAW	Lotnisko Chopina w Warszawie
Nowy Dwór Mazowiecki	EPMO	WMI	Port lotniczy Warszawa-Modlin
Radom	EPRA	RDO	Port lotniczy Radom-Sadków

Source: Own elaboration based on: Aeroporto de Portugal, Annual Report 2017, Porty Lotnicze S.A. website.

Much more saturated airport infrastructure can be noticed in the Norte Region, where eight airports are located. One of them, an airport in Porto, has international airport status, whereas other airports serve regional flights. Only the airport in Porto is large enough to handle international flights. Other airports in the Norte region are small local airports, the size of which does not allow large commercial aircraft to be served. However, they can successfully support local air traffic and in the future, after extension, be an alternative to major airports. The airport base in norte is well spatially distributed and can be a competitive advantage in the future. In the Masovian Voivodship there are only three civilian airports. The airports in Warsaw and Modlin operate international flights, while at the airport in Radom there are no scheduled flights since 30 October 2017. The airport placement policy is therefore quite different. The airports in Poland are located in larger towns with convenient rail transport. There are far more regional airports in Portugal, a factor, which can be a competitive advantage in the future. The largest airport in the Norte Region is the airport in Porto, which serves the vast majority of the connections of the region [Carballo-Cruz and Costa 2014]. The availability of airport infrastructure as well as a convenient network of connections and access to airports is undoubtedly one of the key factors for the development of the regions in the 21st century. According to Olipr [2010], they can also be considered as a condition for the positive impact of air transport on the development of cities and regions.

ROAD INFRASTRUCTURE

In the regions being compared, a differentiated level of development of available road infrastructure and other approach to investment in the expansion of roads and equipment for car transport can be noticed. First of all, it should be noted that the road infrastructure in the whole of Portugal is much more developed than in Poland, as evidenced by the value of the index published by the World Economic Forum in *Global*

Competitiveness Report. According to this source, the road quality index for Portugal was 6.02 and for Poland 4.10 in the years 2016–2017. At the same time, it should be noted that the value of this index has increased for Poland since the year 2013 (3.55) and for Portugal has fallen (6.34). However, it is still much higher than the EU average. In Portugal there are more than 11,000 km national roads and about 90,000 km of municipal roads, while in Poland there are 419,000 km roads in general. In the broader sense, it can be seen that a quarter of the national roads in Portugal are highways, while in Poland the expressways (motorways and expressways) account for less than 0.5% of the total of roads [Eurostat 2018c]. It is difficult to present statistics on the roads in the Norte Region, which results from a comprehensive approach to the road system in Portugal. The most important road transport routes are: the A1 motorway connecting the region with the capital of the country, the construction of which took place between 1960–1991, the A4 motorway, leading through the Douro Valley to the northwest of the country, and the A3 motorway connecting Porto and Valenca. It should be noted that most of the expressways in the region and in the whole of Portugal are toll. In the Masovian Voivodship in 2016 there were only 66 km of highways and more than 8 km of expressways per 1,000 km^2. This shows that, despite the important communication center located almost in the heart of Europe, there is a lack of the hinterlands for road transport which would contribute to the development of the region. Undoubtedly, road investments are one of the areas, from which the Masovian Voivodship could take an example from the Norte Region. The concept of developing this kind of communication infrastructure is missing.

SYNTHESIS AND CONCLUSIONS

Transport infrastructure is one of the most important factors for regional development. It provides communication between regions and reduces travel time. It can also be said that it draws the regions and urban centres closer together. The paper has attempted to synthesize three components of the European transport system in two regions: the Masovian Voivodship and the Norte Region. The analysis shows that both regions differ in terms of equipment in transport infrastructure as well as on planning investments in this area. In the Masovian Voivodship, the process of investing in terrestrial infrastructure is more diversified because the railway is heavily developed. However, in the Norte Region wheeled transport, supported by regional airports, is preferred. The process of planning and implementing these investments was subject to certain factors: the lowland form of the site in Masovia and the large diversity of terrain in the Norte Region. The shape of the transport in both countries has been influenced by the factor of the position in relation to other countries and its touristic function. Portugal and the Norte Region play no major role in transit traffic in Europe. Consequently, Portuguese regions in the process of shaping their investments must have been paying lesser attention to this external factor. Both regions have shaped their own policy of implementing transport infrastructure investments, and in both countries the factor that enabled them implementing it was joining the EU structures.

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ZNACZENIE INFRASTRUKTURALNYCH INWESTYCJI TRANSPORTOWYCH W ROZWOJU REGIONALNYM REGIONU NORTE W PORTUGALII ORAZ WOJEWÓDZTWA MAZOWIECKIEGO W POLSCE

STRESZCZENIE

Celem artykułu było porównanie kierunków inwestycji w infrastrukturze komunikacyjno-transportowej regionu Norte w Portugalii oraz województwa mazowieckiego w Polce. Analizując nasycenie infrastrukturą, zwrócono szczególną uwagę na aspekt inwestycyjny, ponieważ jest to czynnik mający zasadniczy wpływ na rozwój tychże regionów. Przeprowadzone badania wykazały znaczące różnice w procesie inwestycyjnym. Województwo mazowieckie mocniej dywersyfikuje inwestycje infrastruktury transportowej na różne gałęzie transportu. Z kolei w regionie Norte zauważyć można mocne ukierunkowanie inwestycji w transporcie nastawione na rozbudowaną sieć dróg szybkiego ruchu oraz duży dostęp do lotnisk lokalnych. Tak rozumiane lokowanie inwestycji transportowych w poszczególnych gałęziach transportu związane jest z różnymi warunkami położenia obu regionów.

Słowa kluczowe: infrastruktura transportowa, inwestycje infrastrukturalne, województwo mazowieckie (Polska), Norte Region (Portugalia)