

DETERMINANTS OF THE DEVELOPMENT OF THE MAZOWIECKIE PROVINCE IN 2007–2016

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INTRODUCTION

A region is a term used to determine the spatial area, such as a commune or a county. The term is also used for much larger areas, including the Baltic Sea region or the Western European region. Additional terms are used to graduate the scale of the region's surface area, i.e. sub-region, basic region, micro-region, meso-region, macro-region or region of first or second degree [Kosiedowski 2005].

Initially, the main criterion for the regional division was the types of landscape. In subsequent stages of development of the theory of the region, economic, administrative and population criteria were added to it in connection with the settlement structure.

Regional development is a process of positive changes of both qualitative and quantitative nature. This process depends on various factors recognized in the literature as elements contributing to the growth of the region's economic potential, improvement of competitiveness and increase in the quality of life of its inhabitants [Mańkowski 2009].

The aim of the article is to present the current economic situation of the Masovia Province and factors affecting its development. The research is of a comparative nature examining changes in the economic situation, the size and level of factors that shape development. The assessment is based on data of the Central Statistical Office.

Taking into account the opinions of Tomasz Grosse [2012], Kazimierz Pająk et al. [2016], as well as the Development Strategy of the Mazowieckie Voivodship by 2030, investments in R&D, education, infrastructure and telecommunications were adopted as parameters of regional development.

The rest of the article has the following structure: the next section presents conclusions from the literature review, followed by the economic situation of Masovia and lastly the main factors affecting the province's development. The entire analysis is summarized in the conclusions.

REGION AND REGIONAL DEVELOPMENT – LITERATURE REVIEW

The region in the economic literature is most often defined as “an area conventionally separated, relatively homogeneous, distinguishable from neighboring areas by natural features or acquired throughout history” [Matuszczak 2013].

The region can be segmented using three methods [Berezowski 1998], i.e.:

1. one criterion (e.g. population density);
2. many criteria (e.g., population and industrial value of production);
3. specific content of the structure through interdependent areas of activity in a given area.

Korenik [1999] presented another procedure for separating different regions using:

- criteria – including economic and administrative;
- characteristics that distinguish the regions – including biological, geological, infrastructure, distribution systems, the administrative system of the state;
- spatially separated objects based on the characteristics of a given criterion – e.g. lands, provinces, basins, districts, provinces.

In economic sciences, the region is separated on the basis of economic criteria [Chądzyński et al. 2012]. An economic region is defined as an area that has created a specific economic specialization as a result of exogenous and endogenous development factors [Strzelecki 2009]. In turn, Antoni Fajferek considers the economic region as a territorial complex of services and production, which is distinguished from the surrounding areas by forms of utilization [Fajferek 1966]. He emphasizes that the economic region should fulfill the following conditions:

- has a specific service and production specialty;
- is a part of a larger territory;
- is a spatially compact area;
- has a minimum of one city center.

The economic sense of the concept of regional development refers mostly to macroeconomic growth. Regional development is based on regular improvement of the citizens' living standards and the competitiveness of economic entities, as well as on its development of economic potential, resulting in the socio-economic progress of the country [Szlachta 1996]. According to another theory, regional development is a permanent increase in economic potential and the standard of living of residents in the area of a given territorial unit [Kudłacz 1999].

In turn, Klasik defines regional development as a permanent improvement of its three basic elements, i.e.:

- the economic potential of the region;
- the level of its competitiveness;
- quality and standard of living of its residents.

As a consequence, the development of the region is a contribution to the improvement of the economic and social situation of the entire national community [Brol 2006].

DETERMINANTS OF REGIONAL DEVELOPMENT

The characteristic features and components of regions and their surroundings are important factors for regional development. These include all events occurring in a given space that lead to the transformation of regions from simpler and less developed to more complex and more effective states or forms [Kosiedowski 2008].

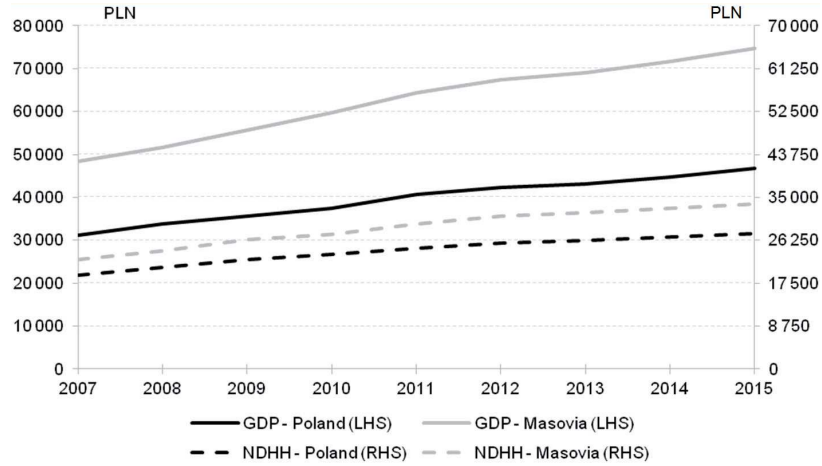
Factors influencing the shape of regional development can be divided by many criteria, among others: economic, technological and technical, social and ecological. Among all economic benchmarks the following are considered as the most influential [Markowska 2002] and [Czemiel-Grzybowska 2010]:

- regional increase of capital;
- qualitative and quantitative changes in the labor market in the region;
- pro-developmental changes in the region's structure and growing demand within the region;
- support and stimulation of innovation;
- the use of aid funds, including from the European Union;
- good economic situation of foreign markets;
- increased investment expenditures in the region;
- modernization of management;
- favorable domestic economic situation (e.g. stable currency exchange rate, development of financial support institutions, etc.);
- favorable tendencies in profits or incomes of regional entities (local government bodies, institutions, economic units, households).

MACROECONOMIC SITUATION OF THE MAZOWIECKIE PROVINCE

Masovia (called also as Mazowieckie Province or Mazowieckie Voivodeship) belongs to the group of the most economically developed provinces in Poland. In the period of 2007–2015, Masovia's GDP increased by 59% while Poland's by 51%. Of all provinces, Masovia contributes the most to the domestic GDP. In 2007–2015, on average, about 22% of Poland's GDP was generated in Masovia. The province was the leader in terms of eliminating the distance to the most developed regions in the European Union and had the highest GDP per capita ratio in Poland. In 2015, Masovia's GDP per capita amounted to PLN 74,682, while in the entire country PLN 46,792 (see Fig. 1).

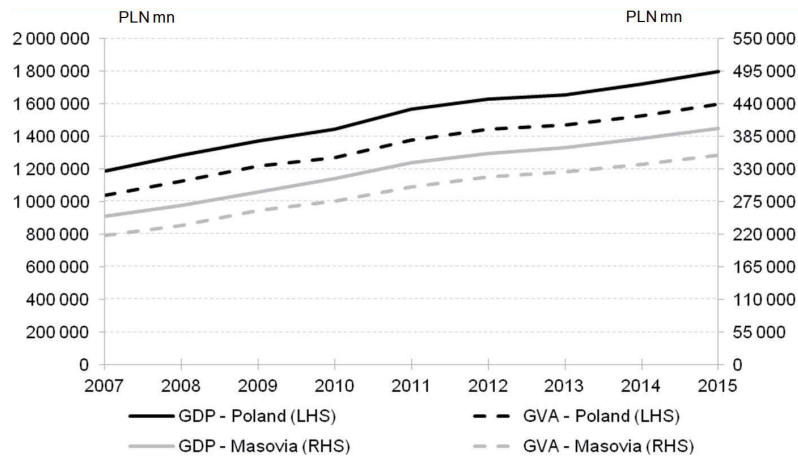
The capital city of Warsaw is the main economic center of Masovia. The GDP generated within Warsaw accounts for approximately 59% of the GDP of the entire province. However, the GDP generated in Warsaw did not come solely from the activities of its residents, but also from the neighboring administrative units. Thus, economic ties were maintained between many sub-regions of Masovia.



GDP – gross domestic product, NDHH – nominal disposable income of households.

FIG. 1. GDP per capita ratio in the Mazowieckie Province and in Poland in 2007–2015

Source: Own estimations based on CSO data.



GVA – gross value added.

FIG. 2. Gross value added and GDP of Masovia and Poland in 2007–2015

Source: Own estimations based on CSO data.

Between 2007 and 2015 Masovia recorded the highest growth of the gross value added¹, i.e. 62% (see Fig. 2). The average for the country was 54% and for other provinces, among others: Wielkopolskie – 61%, Lubuskie – 44%, Opolskie – 41%, Świętokrzyskie – 37%.

¹ The gross value added expresses the newly generated value of the production activity of domestic institutional units.

Similarly as in the entire country, in Masovia the largest contribution to the gross value added was generated by units operating in sectors of: auto repair, trade, transport and storage, information and communication, accommodation and catering, smaller than the average share in industrial processing, and the smallest fisheries, forestry, agriculture and hunting [Strategia rozwoju..., 2014].

Masovia is the province with the largest demographic potential in the country. Every year, the number of its inhabitants is growing. In the last decade, the highest annual population growth rate was recorded in 2011 and amounted to around 1%. In 2016, the total number of citizens of the province equaled to 5.3 million, which corresponds to 14% of Poland's population. The majority, i.e. 3.4 million, of residents live in urban areas and the remainder, i.e. 1.9 million, in rural areas. These human resources are considered a major potential for the future development of production and service industries in Masovia.

DETERMINANTS OF DEVELOPMENT OF THE MAZOWIECKIE PROVINCE EDUCATION

The level of education is one of the most important factors of social and economic development. Students of Masovian schools in junior high school examinations and competency tests receive better results than their peers in other provinces. The level of education in primary and lower secondary schools in the Masovia is, however, characterized by considerable spatial differentiation. Warsaw and cities of a regional and sub-regional character are branded by the highest level of education. However, as the schools move away from these centers, the learning results decrease [Strategia rozwoju..., 2014].

In the area of higher education, Warsaw plays a dominant role in the province. About 70% of colleges and universities operating in the province are located in the capital city, and their students constitute over 80% of the province's students. The number of students in the years 2007–2016 had a downward trend, which primarily resulted from a general decline in the number of citizens aged under 18 in Poland, as well as recruitment for people from the demographic low generation, i.e. from 360.9 thousands in 2007 to 236.5 thousands in 2016. A similar tendency is observed among university graduates (see Table 1). The declines in numbers of both groups in 2007–2016 in Masovia amounted to 34 and 20%, respectively.

TABLE 1. Number of students and graduates of colleges and universities in Masovia in 2007–2016 (in thousands)

Specification	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Students	360.9	354.2	342.7	328	310.6	294.2	272.3	268.1	244.2	236.5
Alumni	75.8	75.3	77.9	83.0	84.7	82.4	76.0	72.7	65.5	60.8

Source: Own estimations based on CSO data.

EXPENDITURE ON RESEARCH AND DEVELOPMENT

Masovia dominates in the values of expenditures incurred on research and development (R&D). The expenditures made in the province account for approximately 38% of the total country's expenditures (see Fig. 3). In 2016, annual spending on R&D in Masovia amounted to approximately PLN 6.9 billion, which makes an average per capita PLN 780. The Masovia's R&D expenditures accounted for 38.3% expenditures incurred in Poland (PLN 18 billion). In the years 2007–2016 the growth rate of these expenditures in Masovia remained at 151% and was slightly below Poland's average of 169%.

Expenditures on research and development were carried out, among others in such fields as [GUS 2017]:

- engineering and technological sciences – PLN 3,392 million;
- natural sciences – PLN 1,561 million;
- social sciences – PLN 769 million;
- medical and health sciences – PLN 757 million;
- agricultural and veterinary sciences – PLN 201 million;
- humanities and art – PLN 199 million.

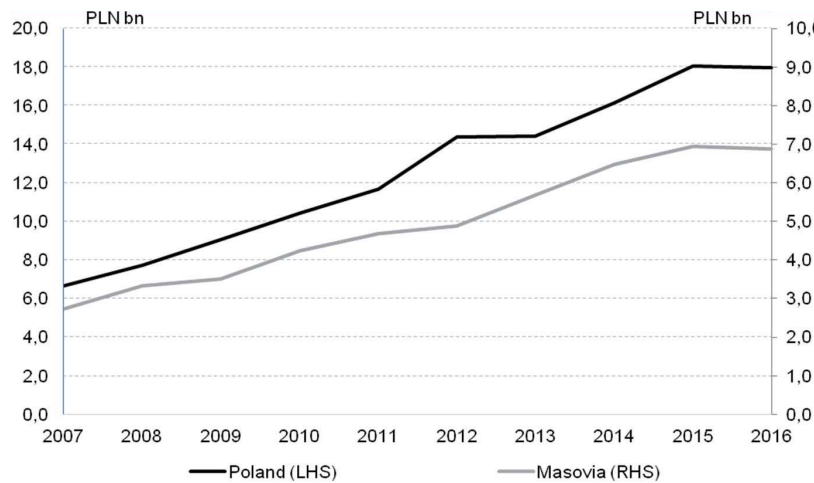


FIG. 3. R&D expenditures in Masovia and Poland in 2007–2016

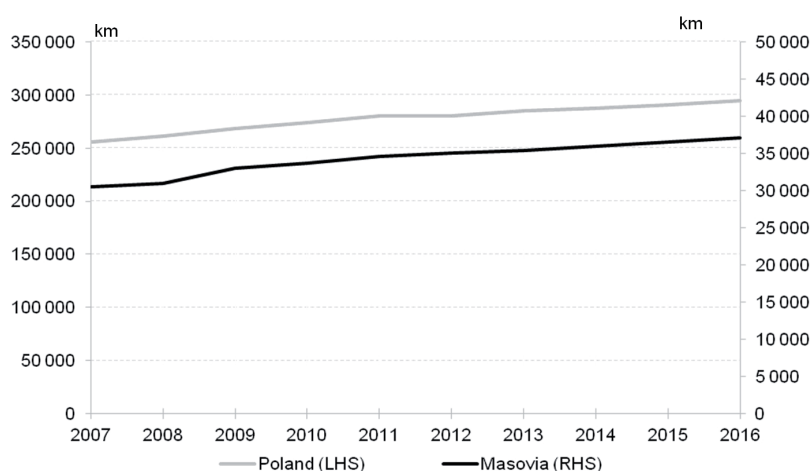
Source: Own estimations based on CSO data.

INFRASTRUCTURE AND TELECOMMUNICATION

Poland's accession into the European Union created an opportunity to implement many transportation investments in Masovia. In line with the development strategy of the Mazowieckie Province, the road infrastructure was prioritized [Strategia rozwoju..., 2014]. As a result of this strategy, in 2007–2016 6,525 km of new roads were created (see Fig. 4), which is an increase of 21%, while in the entire country about 15%.

In addition, in the years 2007–2016, the offices of transportation in Masovia registered:

- passenger cars – 3,329,784;
- buses – 17,588;
- trucks and tractors – 638,283;
- ballast and agricultural tractors – 248,411;
- motorcycles – 174,309.



PRHS – public roads with a hard surface.

FIG. 4. The length of roads in Masovia and in Poland in 2007–2016

Source: Own estimations based on CSO data.

The telecommunications infrastructure, and in particular the access to the broadband Internet, are significant factors of the Masovia’s development. In 2016, 78.4% of households in the Mazowieckie Province had personal computers, of which 77.5% had the Internet access (see Table 2). Comparing to the data of 2007, these figures significantly increased. For the analyzed period, the number of personal computers rose by 47% and in case of the access to the Internet by 91%.

Table 2. The shares of citizens with computers, access to the Internet and broadband Internet in Masovia in 2007–2016 (%)

Specification	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Personal computers	53.2	59.7	63.8	68.7	71.4	73.1	75.8	77.4	78.5	78.4
Internet*	40.5	49.4	56.5	63.8	67.5	69.2	73.0	75.5	77.3	77.5
Broadband Internet**	×	×	×	×	54.1	57.3	54.4	58.3	64.5	55.3

*Internet – access to Internet, **Broadband Internet – access to broadband Internet.

Source: Own estimations based on CSO data.

CONCLUSIONS

The Mazowieckie Province is the most economically developed region in Poland. Among all provinces, in the fastest pace eliminates the distance between it and the most developed regions of the European Union. It is caused mainly by the capital city of Warsaw, which is the seat for many companies, universities, and also provides a place of work not only for its residents.

As few provinces in Poland, it has a positive annual birthrate, as well as a high rate of citizens with higher education.

In 2015 the gross domestic product amounted to 398 billion PLN, and the gross value added PLN 353.9 billion. The growth of both these indicators for the years 2007–2015 amounted to 59 and 62 % respectively, which is higher than for the whole country. The dynamics of Polish GDP in the same period is 52% and Gross Value Added 54%. The GDP per capita is the highest in the country and equals to 74.7 PLN thousand and is more than one and a half times higher than the national average.

Masovia allocates to R&D the most among all provinces, i.e. around PLN 6.9 billion annually, which accounts for about 38.3% of such expenditures in the country. Masovia allocates the most funds among all provinces to research and development (R&D), about PLN 6.9 billion annually, which accounts for about 38.3% of such expenditures in the country.

The growth in the length of roads and the number of personal computers with access to the Internet is considered as important determinants of the province's development. Values of each of these indicators had an increasing trend in 2007–2016.

In addition to the above-mentioned determinants of Masovia's development, the province has other sources of growth, such as:

- tourist resources, especially the capital city;
- geothermal and medicinal waters;
- a highly developed service sector, among others: IT and financial centers;
- a strong metropolitan position – good transport links, a place to do business.

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Summary. The article presents the results of the analysis of factors influencing the development of the Mazowieckie Province (Masovia) in the years 2007–2016. Data for the study were collected from the Central Statistical Office and Statistical Yearbooks of the Mazowieckie Province. The results indicate that the level of development of Masovia is considerably higher than of other provinces in the country. At the end of the analyzed period, in Masovia the GDP per capita was almost twice as high as the national average. Masovia held the highest share in Poland's GDP (22%). Important factors positively affecting the development of Masovia are: positive population growth and improving demographic situation, and broad access to telecommunications. Additional factors of the dynamic Masovia's development are: extensive transportation infrastructure (104.3 km per 100 km²) and high number of students (236.5 thousand) and college graduates (60.8 thousand) who constitute the future substantive resources of the province's economy.

Key words: region, regional economy, determinants of regional development

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