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## RAIL BALTICA – DEVELOPMENT PERSPECTIVE FOR PODLASKIE VOIVODSHIP

### Abstract

The development of the railway infrastructure can be one of the main factors creating regional development. Relationships at the level of market mechanisms, technical, structural changes, can lead to an increase in the productivity of the regional economy. The basis, in this regard, would be to improve the existing transport infrastructure, in particular routes of international importance. An example for that is the Rail Baltica railway, which may boost the development of the regions, including Podlasie. Therefore, the aim of this article is to identify and evaluate the impact of the development of the basic forms of rail infrastructure on regional development on the example of Rail Baltica route in Podlaskie voivodship. The analysis was made on the basis of available statistical data and literature. The article uses the hypothetical-deductive method of research.

**Key words:** Railways, regional development, infrastructure.

### Introduction

Rail infrastructure improvement can be one of the main factors of regional development. Research of OECD describes following markets, which are affected by infrastructure investment: market of products and services, labor, real estate, transportation markets and finance markets [*Impact...*, 2002]. In the research in the field of infrastructure emerges also attempts of describing connection between infrastructure development and effectiveness of production [Rolbiecki, 2009]. A. Koźlak says that exist multilevel connections, that lead to economic growth of regions and countries. They run in the frame of market mechanism, on the level of technical and structural changes. That drives to increasing productivity of local, regional economy, improving transportation facilities and connectivity, decreasing costs, time savings and creates new service markets. Mentioned above gives opportunity to spread positive economic effects such as: lower costs for companies, bigger export markets, spreading innovation, agglomeration

effects, bigger foreign investment [Kozłak, 2012]. Analysis in the article mainly bases on Rail Baltica route in Podlaskie region, which is crucial from the regional point of view. It links countries and region of North Europe (Scandinavia, Baltic States, Russia) with West (South) Europe. Other rail routes in Podlaskie region play more local role. Setting up regular connection along Rail Baltica line could affect the most regional development. Therefore, the aim of this article is to identify and evaluate the impact of the development of the basic forms of rail infrastructure on regional development on the example of Rail Baltica route in Podlaskie voivodship. The analysis was made on the basis of available statistical data and literature. The article uses the hypothetical-deductive method of research.

## The development of the railway infrastructure and the reduction of the transportation costs

Lower transport costs are the main mechanism through which is possible to feel a positive impact of transport on the regional economy [Rietveld, Vickerman, 2004; Truskolaski, 2005]. Their reduction shall be based on improvement of infrastructure as a result of investments and due to the more efficient management of the transport and increase innovation services. These savings not only concern the financial costs of transport (associated with overcoming the distance), but costs in a wider dimension. They include: financial costs, loss of time costs, difficulties, discomfort of travel and other items that can be classified by users as an expense. Generalized transport costs are highly dependent on the state of the transport infrastructure and often included in evaluations of transport accessibility of the area [McCann, Shefer, 2004]. Therefore, as a result of the modernization of the railway Rail Baltica, the generalized costs will be reduced by, among other things: shorter transport time, increase in comfort, improvement of safety. Despite the fact that the railway infrastructure in Podlaskie Voivodeship, in large part, can handle traffic at speeds up to 120 km/h, this value, in particular in the freight is not achieved. The average for Poland is about 25 km/h. It definitely puts the railway in a weaker position in a competition with road transport. Ultimately, in Podlaskie Voivodeship are planned transport services with a speed over 120 km/h.<sup>1</sup> Podlaskie transport companies, such as Adampol – associated with road transport, shows interest of railway transport in the case of modernization of the lines and adaptation them to the higher speeds. For such a company is

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<sup>1</sup> Environmental impact report of the investment involving the modernization of the railway infrastructure within the Rail Baltica route in three options. Option "0" – the status quo; Option 1 – speed for passenger trains and freight  $V=120$  km/h; Option 2a – speed for passenger trains  $V=160$  km/h and freight  $V = \text{max to } 120$  km/h; Option 2b - speed for passenger trains  $V=200$  km/h and freight  $V=120$  km/h. Data based on: *Raport o oddziaływaniu na środowisko modernizacji linii kolejowej E 75 na odcinku Białystok – Suwałki – Trakiszki – granica państwa*, Eko-Log Sp. z o.o. na zlecenie PKP Polskie Linie Kolejowe S.A., Poznań 2010, p. 342.

a pulse and the possibility to reduce the average stock levels, changes in the size and demand for delivery.<sup>2</sup>

It should also be noted that not all sectors of the economy are equally sensitive to the amount of transport costs. It depends on the share of these costs in the total cost of the product or the service. The most vulnerable are therefore those activities, where transport costs account for over 50% of total costs, that is in the transport of, among others: building materials, energy fuels, metal ores, wood, ceramics [Kozłak, 2007]. In the industrial processing in Podlaskie Voivodeship in 2011, great importance had the following branches: manufacture of other non-metallic mineral products (an increase of 53,7% compared to the year 2010), machinery and equipment (an increase of 31,3%), metal products, rubber products and plastic materials (growth at 8.3%). Due to the mentioned increase and well-developed wood industry, it can be concluded that the improvement of the railway infrastructure will be focused largely on reducing the generalized cost of transport in specified production areas [Urząd Statystyczny w Białymstoku, 2012].

R. Rolbiecki research points the existing relationship between the condition of the railway infrastructure and the own costs of the companies. Appointed by him, the correlation coefficient (R) is characterized by a negative value of about -0.5. This means that the worse condition of the railway infrastructure (the study measured using spatial density of electric networks and two and more-lines track), the higher costs are generated by the company. The degree of this dependence researcher rated as quite distinct [Rolbiecki, 2009].

## The impact of the railway on the processes of concentration of the production and distribution

Improving transport accessibility of the region also affects the concentration of production in areas with large market and leads to the phenomenon of agglomeration [Hoover, 1962; Rolbiecki, 2009]. Transport has an influence on the phenomenon of agglomeration on two levels. On the one hand, it refers to the effects produced in the interregional transport linkages. On the other hand it is associated with the strengthening of effects within the region. It will depend on companies focused on a particular area, and the relationship between them. It should be mentioned that the theory of new economic geography determines that the development of transport infrastructure reduces transport costs and, therefore, affects the location of businesses. Bearing in mind that the Podlasie region is a peripheral area, which is characterized by lower labour costs, the price of real estate, or taxes in relation to the neighbouring region of Masovia, it can be expected that

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<sup>2</sup> The position in this regard, the company Adampol was presented at the conference of the Rail Baltica Growth Corridor project in Helsinki, 08.06.2011r. Conference materials available: [www.rbgc.eu](http://www.rbgc.eu).

the improve of the accessibility of Podlasie will be an important incentive for investors in the location of production.

The above observations are confirmed in research of R. Rolbiecki. The correlation between the measures of the spatial density of the electric network and two or more- lines track, and the number of business locations per 1000 km<sup>2</sup> has a decidedly strong character, and the correlation coefficient (R) is at a level of 0.8–0.9. The author of the above study shows that the impact of the quality indicated measures at the stage of localization decision is much greater than the impact of the economic and financial aspects of the functioning of the company. This indicates a direct dependence of location decisions on the availability of transport infrastructure with a specified standard [Rolbiecki, 2009].

It should be noted that the improvement of the transport accessibility itself is not the only factor when investors decide about location. Region must offer something more, which distinguish it from other areas with similar capabilities (e.g. quality and cost of human capital, the proximity of markets). However, the infrastructure of certain technical standards for efficient, rapid transportation of people and goods is one of the most important criteria of investment attractiveness. However, the infrastructure of certain technical standards providing an efficient, high-speed transport of persons and goods is one of the most important criteria for investment attractiveness<sup>3</sup>, therefore, from the regional point of view, it is needed to develop also other factors at the same time. In particular, this applies to Podlasie region, which takes the last place in terms of attractiveness for investors. Running fast train connection will not change substantially the attractiveness of this region for investors, as far as the regional authorities do not ensure the creation of more favourable conditions for them to do business.

## The impact of the railway infrastructure on the development of markets and competition

Another possible area of positive impact modernized Rail Baltica route on the socio-economic development concerns the expansion of the area available to the markets, in particular, supply and marketing, which will positively affect the ability of operators generate more sales and achieve higher net profits. Research indicates the possibility of companies to achieve the revenue from the sale of products, goods and materials per 100 km<sup>2</sup> at the regional level as a result of the impact of electric railway networks and two and more-lines track. The

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<sup>3</sup> Other factors that affect the investment attractiveness of the region are: labor costs, the size and quality of labor resources, the state of economic and infrastructure development – social, economic development, protection and the natural environment, the level of public safety and activity of the region to investors. See: M. Nowicki (2011), *Atrakcyjność inwestycyjna województw i podregionów Polski 2011*, Instytut Badań nad Gospodarką rynekową, Gdańsk, p. 12.

correlation coefficient (R) in this range is approximately 0,7. These variables explain respectively 55% and 45% development of sales revenue [Rolbiecki, 2009].

Even more significant is the impact of the above mentioned measures of railway infrastructure on the ability of entities to obtain net profit. The correlation relationship (R) stands at around 0,8 and 0,7. This high positive correlation coefficient means that the higher the level of railway infrastructure for electrification and track number, the better the financial results are reached by the company. It can therefore be assumed that, in general, operators that operate in a more favorable infrastructure conditions have higher competitive and development ability, and vice versa. Companies in the unfavorable environment of the railway infrastructure will have lower development results and less competitive position.

The study of the World Economic Forum concerning the determination of the factors limiting the business activities leans to similar conclusions [Schwab, 2011]. Infrastructure factor is seen as one of the basic. In the research carried out in 2010–2011 about 10.4% of respondents indicated unequal access to infrastructure as a factor impeding economic activity in Poland. Therefore, having regard to the above and the fact that the Podlasie is located at the end of the regions in terms of transport accessibility, the improvement of the infrastructure will influence positively the functioning of the operators. In the case of the modernization of the international railway Rail Baltica these effects will have the inter-regional and international. It will mean better prospects of trade with the Baltic countries and Scandinavia. The availability of additional markets and the possibility of the development of exports will be a positive impulse for economic growth and large-scale production will increase operational efficiency (the larger scale benefits and lower transport costs, the greater the efficiency of operating in new markets). On the other hand, improvement of transport accessibility has an influence on import, causing the increase of the pressure of competition on many industry markets. It should be noted that the impact of transport infrastructure on competition is not the same and depends on the type of competition found in the market. In markets with perfect competition this impact will be insignificant, or unnoticeable. It will be more felt on the market, for example, of a monopoly regime. As a rule, the barriers to entry into this market are very large, and the very high transport costs can be found among them. Reducing the transport cost will therefore be a pro-competitive effect and will reduce monopolistic margins [*Impact...*, 2008]. In addition, P. Martin points out that, in the case of infrastructure that facilitates trade between the regions, rather than within the region, the consequences could be detrimental to the poorer regions. This is because the low availability of communication “protects” in some aspect the companies located in the poorer region against the expansion of the companies from outside. This point of view is also presented by A. Koźlak. He believes that the most unfavourable situation is the construction or expansion of the connections between regions with highly urbanized centers. Such a connection will not contribute to the strengthening of the development potential of the weaker region, and can cause the so-called “tunnel effect” (it is characterized by the fact that the transit regions located along the communication lines do not have any benefits from the operation of the transport

infrastructure). In the case of the Podlasie region such effect may arise in the connection between Warsaw and Białystok. On this trail the high economic activity, tourist and attractive to invest centers are not observed. In the case of a connection from Białystok to the northerly direction, development opportunities are much greater, since these areas (Elk, Suwałki) are attractive for tourists due to its close proximity to the Great Mazurian Lakes [Kozłak, 2012].

## The impact of the railway infrastructure on the labour market and the diffusion of knowledge

Interactions between the development of railway and the labour market can be analysed on many levels. On the one hand it is an employment in the transport sector, on the other hand – creating demand for transport services. Consequently, any investments in transport infrastructure will greatly form the dependencies and relationships in the labour market.

Prospects for the development of the industry are good. Employment in the transport sector in the years 2004–2008 has significantly grown, which was associated with the opening of new European markets in Europe after Polish accession to the European Union and the gradual liberalisation of freight services. Bearing in mind the consequences of modernization of the Rail Baltica route, it can be concluded that this investment will affect both positively and negatively on the labour market conditions in the region. In the first case, the effects will be felt through the reduction of travel time, the enlargement of the scope of labour markets and consequently, easier migration for work purposes. However, such migrations also have also negative aspect. It is connected with the loss of quality of human capital associated with leaving the region by the educated people, and the influx of cheap, low-skilled labour force from other regions.

Podlasie region already suffers from a negative migration balance. In particular, the region's inhabitants leave for other countries in Europe and North America. In 2013 general the migration balance for Podlaskie region was – 458 people (including Europe – 225 and North America – 230) and it was highest since 2008. Positive migration balance remains in the case of Asia (3 people in 2013) and Africa (1 person in 2013).

The modern development of Europe is moving towards building a competitive advantage based on knowledge and implementation of innovation [Europa 2020]. Growth models describing the spread of knowledge and technology show that any activities conducive to improving the innovation has a positive influence on the economy of the region and on equation of the differences in income levels. This requires, in particular, the use of telecommunications technology, but in the process are also needed quick transport connections, in particular for the transport of persons, enabling contacts at regional and interregional levels. There is a need for cooperation of regional research centers, business centers in the European and global scale. Starting Rail Baltica railway connection would create for

the Podlaskie Voivodeship a unique opportunity of cooperation with some of the most competitive European countries – Finland and Germany. These countries are located respectively on the 4th and 6th positions in the world in terms of the competitiveness of the economies [Schwab, 2011]. Finland's expenditure on research and development in 2008 accounted for 3,73% of its gross domestic product (GDP) in Germany, 2,63%, in Poland only 0,61% and only 0,26% of GDP in Podlaskie Voivodeship [Rocznik..., 2010].

## Conclusions

Rail Baltica can be opportunity for a podlaskie voivodship in creating conditions of development new companies and competitiveness between them. It can bring growth of effectiveness of all economy, increasing its innovation processes. Nevertheless should be mentioned that infrastructure that helps in free trading development between regions can cause “the tunnel effect”, that is negative for low development regions. The poor transport connectivity somehow “protects” poor regions from expansion companies from regions better developed. In case of podlaskie region that effect can occur between Warsaw and Białystok. Between these two cities don't exist any other big urban economic centers. In case of connection Białystok in the north development opportunities are much greater, because these areas (Elk, Suwałki) are attractive for tourists due to the proximity of the Great Masurian Lakes. However, this does not diminish the importance of infrastructure in creating the conditions for socio-economic development. Summing up, Rail Baltica route can create favorable conditions for the development of the region. But most important issue is political will to do it. Building railway infrastructure depends on central administration, which is not much interesting in development infrastructure in this part of Poland. Till 2020 should be modernizes route from Białystok to Warsaw, plans for other parts of Rail Baltica in podlaskie voivodship aren't specific.

## References

- Europa 2020, Strategia na rzecz inteligentnego i zrównoważonego rozwoju sprzyjającego włączeniu społecznemu* (2010), Komisja Europejska, Bruksela, p. 11–14.
- Hoover E. (1962), *Lokalizacja działalności gospodarczej*, PWE, Warszawa, p. 110–113.
- Impact of Transport Infrastructure Investment on Regional Development* (2002), OECD, Paris, p. 17–22.
- Koźlak A. (2007), *Ekonomika transportu. Teoria i praktyka gospodarcza*, Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk, p. 71–82.
- Koźlak A. (2012), *Nowoczesny system transportowy, jako czynnik rozwoju regionów w Polsce*, Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk, p. 71–150.

- McCann P., Shefer D. (2004), *Location, Agglomeration and Infrastructure*, "Papers in Regional Science", No. 83, p. 177–196.
- Nowicki M. (2011), *Atrakcyjność inwestycyjna województw i podregionów Polski 2011*, Instytut Badań nad Gospodarką Rynkową, Gdańsk, p. 11–13.
- Raport o oddziaływaniu na środowisko modernizacji linii kolejowej E 75 na odcinku Białystok – Suwałki – Trakiszki – granica państwa* (2010), Eko-Log Sp. z o.o. na zlecenie PKP Polskie Linie Kolejowe S.A., Poznań, p. 342–343.
- Raport o sytuacji społeczno-gospodarczej województwa podlaskiego 2011* (2010), Urząd Statystyczny w Białymstoku, Białystok, p. 65–71.
- Rietveld P., Vickerman R. (2004), *Transport in Regional Science: The "Death of Distance" is Premature*, "Papers in Regional Science", no. 83, p. 229–248.
- Rocznik statystyczny województw 2010* (2010), GUS, Warszawa, p. 32–33.
- Rolbiecki R. (2009), *Infrastruktura transportu jako czynnik kształtujący warunki rozwoju przedsiębiorstw w otoczeniu społeczno-gospodarczym*, Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk, p. 195–196.
- Schwab K. (2011), *The Global Competitiveness Report 2010–2011*, World Economic Forum, Geneva, p. 16–17.
- Truskolaski T. (2005), *The Interest of the Podlaskie region to Develop the Rail Baltica Corridor*, "Optimum. Studia Ekonomiczne", nr 3(27), p. 157–161.