The economic potential of regions and the development of the transport network. A case study of the regions located alongside the Oder Waterway

**JEL codes:** O18, R41

**Keywords:** region, economic potential, Oder Waterway

**Abstract:** On the one hand, the social and economic development of regions is determined by the development of the transport network, but on the other hand, the economic potential of a region may be a basis for the development of the transport system in its catchment area. The regions located alongside the Oder Waterway (OW) are the main subject of the study undertaken in this article. The objective of the article is to determine the economic potential of these regions in the context of legitimacy of carrying out investment actions planned by the government with regard to the improvement of technological parameters of the OW, and its ultimate adaptation to the navigational class Va.

**Introduction**

A region is a polysemous and multi-dimensional term, and therefore its definitions differ in the scientific literature (e.g., Nazarczuk 2013; Simmie, Martin 2010; Chądzyński, Nowakowska, Przygodzki 2007; Bojar 2001; Pietrzyk 2007; Brodecki ed. 2005; Tomaszewski 2007; Domański 2006; and Agnew 2000). In economic terms, a region is an area of specific economic specialization resulting from the utilization of its own resources, as well as production factors and the flow of capital, people, information, and technology (Filipiak, Kogut, Szewczuk, Ziło 2005; Kosiedowski 2001). A region is not a scaled down
country’s economy, yet it is in a sphere of its influence, and is an intermediate (meso) level between particular economic entities (micro) and the national economy (macro) (Nazarczuk 2013). A region is a dynamic structure which undergoes processes of permanent transformation. Internally, this transformation is observable in the arrangement of its hubs for growth and surrounding areas. Externally, it is associated with the development of its competitive position in relation to other areas in terms of various economic categories (Nazarczuk 2013; Christopherson 2008; Pike, Rodríguez-Pose, Tomaney 2010).

A region’s competitive position and its specialization result from its competitive potential (Porter 2000). Internal qualities of a region, including, in particular, its external determinants, determine the possibilities and directions of its social and economic development. A region may have its own, small potential, but due to its convenient location in the regional system of influence, this potential is significantly increased (Czyż 2002).

Apart from the economic potential, demographic, social, and cultural determinants are of key importance to the development of a region’s competitive position (Jaworska, Feb. 2009). This influence is reciprocal. For example, the development of the transport infrastructure is determined by the economic development of regions (Rosik 2004; Komornicki et al. 2010), but, on the other hand, the economic potential of a region can be a basis for the development of the transport system in its catchment area (Oosterhaven, Knaap 2003).

The main subject of the study undertaken in this article are the regions located alongside the Oder Waterway (OW), which is an important component of the Baltic–Adriatic as well as CETC-ROUTE65 transport corridors meridionally integrating Scandinavia with the Central and Eastern European states and, farther down, with the south of the continent. Latitudinally, the OW also provides access to the western regions of Europe by means of a connection with the German waterway system (the Oder-Havel and Oder-Spree canals).

Following the example of the largest seaports in Western Europe, the OW may be an alternative to land transport and an important transport link for the Szczecin–Świnoujście port complex hinterland. First of all, its main advantages include its environment-friendly solutions and competitiveness. As a result, in the states with broad networks of inland waterways, including the Benelux Union, Germany, and France, numerous investment projects are being carried out with the aim of improving parameters of inland waterways, particularly in their relations with seaports. These initiatives are a direct following of the sustainable development policy which is being fulfilled at the EU level.

However, the long-standing degradation of the hydraulic structures in the river and lack of modernization resulted in the OW not being a consistent traffic route with operational parameters which enable to provide regular navigation. Possibilities of making the OW navigable should be seen in the government’s investment plans related to the development of transport infrastructure for 2016–2030 (Strategy for the Development of Inland Waterways 2016, Implementation Paper 2014, Transport Development Strategy 2013). It is for the first time within so many years that making the OW navigable has been included in the list of key projects in the plans in which it is designed to reach
The economic potential of regions and the development of the transport network... The objective of the article is to determine the economic potential of the regions located alongside the Oder Waterway (OW) in the context of legitimacy of carrying out investment actions planned by the government with regard to the improvement of its technological parameters and ultimate adaptation to the navigational class Va.

1. Methodology

In order to assess the economic potential of a region, including comparative analyses related to different regions, various sources of data and research methods are applied. They help describe and assess phenomena and economic, social, and demographic processes taking place in a region (e.g., Teresa 2002, Strahl ed. 2006, Kompa 2009, Nazarczuk 2013, and Kubiczek 2014). Both static (indicators of structure) and descriptive methods were used in the article. They allowed to identify, analyse, and assess primary economic categories as well as social and demographic ones which are typical of the regions analysed in the study.

Having taken into account the OW catchment area, the spatial scope of the study included 9 European regions (NUTS2) located alongside the OW including:

- 6 Poland’s provinces including West Pomerania, Lubusz, Greater Poland, Lower Silesia, Opole, and Silesia, as well as 1 Czech region, the Moravian-Silesian Region, with its central part in Ostrava – studied meridionally; and
- 2 German lands – studied latitudinally: Berlin and Brandenburg.

The sources of the data were primarily official statistical data published by Eurostat, Central Statistical Office of Poland, Czech Statistical Office, and Federal Statistical Office of Germany.

In order to provide a general comparative description of the regions analysed in the study and their position in comparison to the national economies, the following indicators and metrics were applied:

- size of the area;
- GDP of the region including GDP per capita expressed in purchasing power standard (PPS);
- gross value added, which expresses the value of goods and services provided by the national market and non-market entities, decreased by indirect wear related to its generation; this index is a primary income category determining the economic situation of a region and an important criterion for assessing the efficiency of expenditures related to production factors;
- total population numbers, including the number of births, deaths, and migration balance, as well as population density;
– crude rate of total population change which is an index of natural changes in the population number (number of live births decreased by number of deaths) and migration balance (number of immigrants decreased by number of emigrants and increased by statistical adjustment); an increase in the number of people occurs only when the value of migration balance increased by the number of births and decreased by the number of deaths is positive; and

– unemployment rate within the group of people of working age (15 and over).

On the basis of the information which was primarily acquired from the official national and regional statistical data as well as from economic trade websites, a description of the structure of economies in the regions was developed.

A comparative analysis with regard to the number and trade structure of economic entities running their businesses in the analysed regions (including employment generated in particular sectors) was also performed. In order to obtain comparable data, the Statistical Classification of Economic Activities in the European Community, NACE 2008, was used. At the presented level of data aggregation, this classification is fully compatible with the national statistics (e.g., PKD 2007 for Poland), and includes the following sections marked in the charts with symbols:

– B – Mining and quarrying;
– C – Manufacturing;
– D – Electricity, gas, steam, and air conditioning supply;
– E – Water supply, sewerage, waste management, and remediation activities;
– F – Construction;
– G – Wholesale and retail trade, repair of motor vehicles and motorcycles;
– H – Transportation and storage;
– I – Accommodation and food service activities;
– J – Information and communication;
– L – Real estate activities;
– M – Professional, scientific, and technical activities;
– N – Administrative and support service activities; and
– S95 – Repair of computers and personal and household foods.

Having taken into account the subject structure of the cargo which is traditionally transported by means of inland navigation, the next part of the study focused on assessing the extent of industrialisation of the regions under study. In order to do so, a detailed description of the industry and building sector was developed. Additionally, its share in the structure of economies of the regions under study was determined. In the Eurostat statistical nomenclature as well as national statistics this sector includes activities B, C, D, and E.

The length of time in relation to the analysed data included the years 2010–2014, which was connected with the accessibility of comparable data related to the regions under study relating to this period.
2. Results

2.1 General description of the regions under study

The analysed regions located alongside the OW cover an area of over 144,000 km². The area is inhabited by over 21 million people (Table 1). Bearing in mind the level of economic development illustrated with GDP per capita in comparison to the EU average, all the regions under study, apart from Berlin, are poorer EU areas.

Table 1. Primary description of the regions located alongside the OW in comparison to the national and EU data

<table>
<thead>
<tr>
<th>state/region</th>
<th>Area in thousand km² (2014)</th>
<th>Population (thousand) 2014</th>
<th>Number of people per 1 km² (2013)</th>
<th>Crude rates of total population change - per 1,000 persons (2013)</th>
<th>GDP of region in % of the country (2012)</th>
<th>GDP per capita in PPS, in % of the EU average (2013)</th>
<th>Unemployment rate, % (2014)</th>
<th>Gross value added at basic prices (mln euro) 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>UE 28</td>
<td>4,463.60</td>
<td>506825</td>
<td>116</td>
<td>-</td>
<td>-</td>
<td>100</td>
<td>10.2</td>
<td>-</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>78.90</td>
<td>10512</td>
<td>136</td>
<td>−0.40</td>
<td>100</td>
<td>82</td>
<td>6.10</td>
<td>141,059.51</td>
</tr>
<tr>
<td>Moravian-Silesian Region</td>
<td>5.40</td>
<td>1222</td>
<td>231</td>
<td>−3.90</td>
<td>10.10</td>
<td>69</td>
<td>8.60</td>
<td>13,772.06</td>
</tr>
<tr>
<td>Poland</td>
<td>312.70</td>
<td>38018</td>
<td>122</td>
<td>−1.20</td>
<td>100</td>
<td>67</td>
<td>9.00</td>
<td>351,765.34</td>
</tr>
<tr>
<td>Silesia</td>
<td>12.30</td>
<td>4548</td>
<td>370</td>
<td>−3.90</td>
<td>13</td>
<td>70</td>
<td>8.60</td>
<td>43,832.52</td>
</tr>
<tr>
<td>Opole</td>
<td>9.40</td>
<td>960</td>
<td>102</td>
<td>−6.20</td>
<td>2.10</td>
<td>54</td>
<td>7.80</td>
<td>7,435.14</td>
</tr>
<tr>
<td>Lower Silesia</td>
<td>19.90</td>
<td>2870</td>
<td>144</td>
<td>−1.90</td>
<td>8.80</td>
<td>76</td>
<td>9.10</td>
<td>29,821.08</td>
</tr>
<tr>
<td>Greater Poland</td>
<td>29.80</td>
<td>3441</td>
<td>115</td>
<td>1.10</td>
<td>9.50</td>
<td>73</td>
<td>7.70</td>
<td>34,177.49</td>
</tr>
<tr>
<td>Lubusz</td>
<td>14.00</td>
<td>1009</td>
<td>72</td>
<td>−2.00</td>
<td>2.20</td>
<td>56</td>
<td>8.30</td>
<td>7,818.23</td>
</tr>
<tr>
<td>West Pomerania</td>
<td>22.90</td>
<td>1691</td>
<td>74</td>
<td>−1.90</td>
<td>3.80</td>
<td>57</td>
<td>8.40</td>
<td>13 220,01</td>
</tr>
<tr>
<td>Germany</td>
<td>357.30</td>
<td>80767</td>
<td>230</td>
<td>3.00</td>
<td>100</td>
<td>122</td>
<td>5.00</td>
<td>2,525,612.00</td>
</tr>
<tr>
<td>Berlin</td>
<td>0.90</td>
<td>3422</td>
<td>4001</td>
<td>12.40</td>
<td>4.00</td>
<td>113</td>
<td>9.80</td>
<td>100,985.65</td>
</tr>
<tr>
<td>Brandenburg</td>
<td>29.70</td>
<td>2449</td>
<td>85</td>
<td>−0.30</td>
<td>2.10</td>
<td>87</td>
<td>6.70</td>
<td>54,246.51</td>
</tr>
</tbody>
</table>

In comparison to the regions analysed in the study, the highest GDP values are observed in the federal states of Berlin and Brandenburg. However, on the national level these regions are one of the poorest regions in Germany, where GDP per capita is much more below the national average (especially in Brandenburg). The highest GDP per capita within the regions of Poland is observed in the highly industrialized central and southern provinces of Silesia, Lower Silesia, and Greater Poland. The least developed OW regions include the provinces of West Pomerania, Lubusz, and Opole.

In all the analysed regions, the unemployment rate is at a relatively high level, but it does not exceed the EU average. The lowest level of unemployment is observed in Brandenburg, where it is significantly over the national average. A lower unemployment rate in comparison to other regions is observed in Greater Poland and Opole. However, with regard to the latter, it is not only related to its good economic situation, but also to a strong emigration trend. The highest unemployment rate is in Berlin, and it is almost twice as much as the national average.

What is observed in most of the OW regions is a negative demographic trend expressed in a decrease in the total number of people (the number of births, an increase in the number of deaths and negative migration balance). Having taken into account the values of the index of overall demographic changes, the worst demographic situation is in Opole, Silesia, and the Moravian-Silesian Region. A positive (highest) population balance was only observed in Berlin, which is related to a metropolitan status of the capital, as well as in Greater Poland.

Having taken into account the level of gross value added, the biggest increase in absolute values in the value of produced goods amongst the regions in 2013 was observed in Germany, particularly in Berlin. However, in total it refers only to 6% of the gross value added on the national level. The Polish Oder regions account for approximately 40% of the total gross value added generated on the national level. The provinces which generate the biggest contribution to its creation include Silesia (12.5% of the national value), Greater Poland, and Lower Silesia (9.7% and 8.5% of the national value, respectively). The Czech region generates the gross value added at a level of 10% of the national value. The position of Opole, West Pomerania, and Lubusz is the worst. They together account for 8% of the total gross value added generated in Poland in 2013.

2.2 Description of the structure of economies in the regions under study

The structure of the analysed economies of the OW regions is varied. The Moravian-Silesian Region, with its centre in Ostrava, is one of the richest regions in Czech Republic, traditionally shaped by mining and heavy industries connected to it. The structural changes, which are now taking place, result in a gradual decrease in traditional sectors share for the development of trade and services and other branches of industry, including food-processing and industrial processing based on knowledge such as the electronic and electric industry (production of computers, electronic goods, and optical devices).
Silesia is one of the most industrialized regions in Poland and one of the most industrialized areas in Europe, generating almost 13% of the national GDP. The industrial activity of the region is mainly performed in the Upper Silesian Industrial Region. The region has numerous natural resources including hard coal, zinc and lead deposits, layers of methane, natural gas, deposits of marlstone, limestone and natural aggregate), which results in a continued dominance of coal and metallurgy in the structure of the province. However, the restructuring processes, which have been going on for several years, lead to a shift toward the electrical machinery industry, steel industry, chemical industry, IT industry (including ICT), power industry (including sources of renewable energy), as well as the automotive industry and food industry. Investments in the region are performed mainly in the area of Upper Silesian Urban Area and the former voivodeship towns including Bielsko-Biała and Częstochowa. For example, the choice of locations for investments in the region is related to the functioning of the Katowice Special Economic Zone (KSEZ) and numerous industrial and technological parks.

The province of Opole is a region with a varied industry structure. The dominant position is taken by the food, chemical, gas and fuel and energy, electro-engineering, lime-cement, mineral, metallurgic, steel, automotive, and furniture industries. It is also the sector of services, especially in the field of new technologies, that is becoming more and more important to the region’s economy. The region has got rich, natural resources, including marlstone and limestone deposits in particular. The province of Opole has got a much larger area for investments, especially alongside the A4 motorway. There are Special Economic Zones (SEZ) operating in the region: Wałbrzyska and Katowicka, and numerous technological and industrial parks.

The Lower Silesia region is rich in mineral resources including brown coal, copper, non-ferrous metals, natural gas, hard coal, and aggregates for construction industry. Hence, the traditional industries include mining industry (brown coal and copper), copper and non-ferrous metallurgy. The following industries are also very well developed: textile and clothing, automotive, electro-engineering, power, electronic, construction, chemical, food, as well as wood and paper. The construction, IT, and BPO (Business Process Offshoring) share has been on a systematic increase for over several years. The province has a significant area of SEZ: Legnicka, Wałbrzyska, Kamiennogórska, Tarnobrzeska, and numerous industrial and technological parks.

Apart from the traditional industries in the province of Greater Poland, including electrical, textile and clothing, farming and food, and metallurgy, an increase has been recently observed with regard to specialization in the automotive industry, transport and logistics, and BPO. Business activities are mainly performed in the conurbation of Poznań and subregional centres including: Kalisz and Ostrów Wlkp. (farming and food, textile, and electro-engineering industries), Leszno (farming and food), and Konin (gas and fuel and power industry based on brown coal). Operations in relation to brown coal are performed in the area of the Konin Industrial Region. Investments are primarily located in the areas operating in the region of SEZ: Wałbrzyska, Łódzka, Kamiennogórska,
Kostrzyńsko-Słubicka, Pomorska, Śląska, and numerous industrial and technological parks.

In the economy of Lubusz, the sector of services, trade, and construction plays an important role as well. In the structure of industrial processing, the greatest importance is assigned to the wood industry (49% of the province area is covered by woods, which is the biggest afforestation rate in Poland), electronic, as well as farming and food industry, and then production of chemicals, cellulose and paper, textile, and the construction industry. The automotive industry has also been developing dynamically over the recent years. In the region, there are special investment areas within the Kostrzyń-Słubice Special Economic Zone and Wałbrzych Special Economic Zone. Business activities are also developing in the areas of industrial and technological parks.

In the economic structure of Western Pomerania, first of all the sectors of trade and construction, and then the industry and transport and logistics services are of the biggest importance. An important factor which determines the economic development of the region is maritime economy, including, in particular, the activities performed by the main Polish seaports of Szczecin and Świnoujście. In the sector of industrial processing, the dominant industries include farming and food industry (including brewing and fishing), steel industry, engineering industry, chemical industry, plastics processing, wood and paper industry, as well as shipbuilding (construction of yachts and other boats). The power industry, including, in particular, renewable energy sources (RES), is also developing. There are dedicated SEZ’s in the region including: Pomorska, Kostrzyńsko-Słubicka, Śląska, and Euro-Park Mielec, and numerous industrial and technological parks.

Brandenburg is one of the poorest regions in Germany. It is mainly the sector of trade and services that is of great importance to the economy of the region (60% of gross value added), including, especially, transport-forwarding and logistics as well as IT services. The metallurgic, steel, engineering, automotive, refining, farming and food, as well as wood and paper industries are dominant in the structure of industrial processing by type.

The sector of services, especially financial, transport, and tourism services which generate over 60% of the gross value added of the region is dominant in the structure of the Berlin region economy. It is related to the metropolitan nature of Berlin which is a political centre of Germany. Nevertheless, Berlin is still an important industrial centre. This sector generates about 14% of the region’s GDP. The electro-technical, chemical, pharmaceutical, automotive, and printing industries, as well as farming and food-processing, and the sector of high technologies, including, in particular, renewable energy, biotechnology, nanotechnology, as well as IT and medicine are of great importance to the structure of industry.

Taking into account the number of enterprises existing in 2012 (Fig. 1) alongside the entire OW, the highest number run their businesses in the area of trade and services connected with vehicle repair (35%). The sector of construction, which accounts for 15% of the total number of operating enterprises, goes second. The industry involves 12% of the total number of enterprises and activities related to mining, and quarrying of raw
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...materials accounts for 8% of the total number. The structure results from the fact that in the sector of trade, the sector of micro, small, and medium enterprises is dominant as compared to a small number of big and medium businesses operating in the field of industrial production and the quarrying industry.

* Without Germany, because the data with regard to particular regions is incomplete.

Fig. 1. The structure of the OW economy* based on the dominant number of enterprises in particular sectors (2012)
Source: own elaboration based on Eurostat.

The biggest employment is generated in the sector of industry, and then trade, and construction (over 60% in total) (Fig. 2). The remaining business activity sectors’ share in the overall employment differs in relation to particular regions. For example, in the region of Silesia, apart from industrial processing, construction, and trade, about 10% of the employment as a whole is generated by mining, but in comparison to other regions, in the region of West Pomerania a big share in the number of employees is in the transport and logistics sector (10%).
Because the data with regard to particular sectors without Germany is incomplete, and in the case of Greater Poland and Lubusz in sections D and B, the value of 0 was assumed.

Fig. 2. The structure of the OW economy* based on the employment level in particular sectors (2012)

Source: own elaboration based on Eurostat.

Taking into account the uniqueness of inland navigation, including, in particular, the dominant types of transported cargo, in the following part of the analysis of the economic potential of the OW, the focus was turned towards the sectors of industrial processing and mining, as well as quarrying.

2.3 Description of industrial operations in the regions under study

What may be distinguished within the group of the analysed regions are highly industrialized areas where the sectors of industry and construction generate over 40% of the gross value added. They include Silesia, Lower Silesia, Greater Poland, and the Moravian-Silesian Region. In the regions analysed in the study, except for Greater Poland, agricultural production is a small percentage of the national production. In the case of such regions as West Pomerania or Lubusz, which have a much larger area of arable lands, its efficiency is low. The most effective agricultural industry is in Greater Poland, whose share is at the level of almost 9% in the national agricultural production with a relatively small area of arable lands and the sector of agriculture, forestry, hunting, and fishing generates 5% of the region’s gross value added (Table 2). For comparison, section A generates 3% of the whole state’s gross value added (GUS, 2012).

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1 Without mining and quarrying.
Table 2. Description of selected indicators for the sectors of industry and construction as well as agriculture, forestry, hunting, and fishing

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Share in the sale value of the national industry (%)</td>
<td>Share in the region’s gross value added (%)</td>
</tr>
<tr>
<td>Moravian-Silesian Region</td>
<td>no data available</td>
<td>47</td>
</tr>
<tr>
<td>Silesia</td>
<td>16</td>
<td>43</td>
</tr>
<tr>
<td>Opole</td>
<td>2</td>
<td>37</td>
</tr>
<tr>
<td>Lower Silesia</td>
<td>9</td>
<td>44</td>
</tr>
<tr>
<td>Greater Poland</td>
<td>11</td>
<td>36</td>
</tr>
<tr>
<td>Lubusz</td>
<td>2</td>
<td>39</td>
</tr>
<tr>
<td>West Pomerania</td>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td>Berlin</td>
<td>no data available</td>
<td>17</td>
</tr>
<tr>
<td>Brandenburg</td>
<td>no data available</td>
<td>28</td>
</tr>
</tbody>
</table>

* For the Polish regions sections of PKD 2007 B, C, D, E, F; for the Czech Republic and Germany without mining and quarrying.


Industrial operations are performed by over 97,000 business entities in the OW area analysed in the study (2012). Most of industrial enterprises are located in Silesia, Greater Poland, the Moravian-Silesian Region, and Lower Silesia. These regions as a whole account for 70% of the business activities in the entirety of the OW regions (Fig. 3).

Over the years of 2008–2012, excluding the period of growth in 2010/2011, the number of production enterprises decreased in most of the regions analysed in the study. The only exception was the German federal states of Berlin and Brandenburg. Although a temporary decrease was observed in the entire period of 2008–2012, the number of industrial enterprises increased by 17% (Berlin) and 19% (Brandenburg). At the end of the day, when it comes to the number of enterprises in particular sections of industrial processing, the most important companies involve businesses operating in the steel industry (finished steel structures), which accounts for approximately 22% of the entire number of enterprises, wood and paper industry (products made of wood and cork, and wood and cork-related products, as well as paper and stationery goods, no furniture included), which accounts for approximately 12.5%, and farming and food industry, which accounts for 11%.
With regard to the particular regions, some developing specializations may be pointed out. For example, in the regions of Silesia and Greater Poland, a considerable number of entities deal with clothing production and processing and production of rubber products and other plastics. In comparison to other regions analysed in the study, the Moravian-Silesian Region is known for its big number of electrical companies. The region of Lower Silesia has also got a significant percentage of companies manufacturing goods from other non-metallic materials including glass, glass fibres, refractory products, ceramic construction materials, lime and gypsum, etc.

Traditionally, the quarrying sector is of the biggest importance for the regions of Silesia, Lower Silesia, the Moravian-Silesian Region, and Greater Poland, where business activities are performed by several hundred enterprises in the area of hard coal and brown coal quarrying. The biggest share in the overall number of enterprises in the sector of mining and quarrying (70%) is related to the entities classified in the subsection “other mining and quarrying” (Fig. 4).

This subsection includes business activities related to quarrying and processing stone, sand, gravel and clay, including gemstones, stone for the purposes of construction, limestone, gypsum, chalk and shales, as well as minerals for the chemical industry and production of fertilizers and quarrying peat, salt, and other minerals and materials. The dominant share of enterprises in the subsection “other mining and quarrying” in the entire quarrying operations is primarily related to the overwhelming number of small and medium entities in this group, compared to the section of hard and brown coal (9% of the entities in total) or crude oil and natural gas (1%) dominated by few, big economic holdings. This is confirmed by the data in relation to employment, e.g., in the region of Silesia, which is the Poland’s coal basin, the percentage of employees in the subsection “other ...” in the whole group of those employed in mining accounts for only 2%–20% in Lower Silesia, 29% in Greater Poland, whereas in Opole Silesia – 99%. 

Fig. 3. Structure of the arrangement of industrial enterprises in the OW region (number of industrial enterprises in 2012)

Source: own elaboration based on Eurostat.
Conclusions

The Oder Waterway, whose course, from the transport perspective, coincides with the general national directions of the main cargo mass flows, and via the latitudinal waterways provides an opportunity to have convenient connections with the waterway systems in the neighbouring states, has the greatest chance to develop among all the Polish waterways. This statement is supported by the provisions of Strategy for the Development of Inland Waterways in 2016‒2020 with an outlook to the year 2030, which gave the investment actions to be performed on the OW the highest (first) priority. A reason for the development of the OW is also the significant economic potential of the regions located within its catchment area.

The regions with varied levels of their economic development are located alongside the OW. The areas with the highest potential include the highly industrialized regions located in the upper and middle course of the river, i.e., the Polish regions of Greater Poland, Lower and Upper Silesia, and the Czech Moravian-Silesian Region. It is to be expected that the highest demand for OW transport will be generated from these areas. Transport will include both bulk cargo (e.g., coal, coke, ores, and scrap metal) and general cargo (e.g., semi-finished steel products, cellulose, and project cargo) generated by traditional industries. In the future, when the OW is adapted to the minimal class IV, and ultimately to Va, it will also be containerized general cargo which is handled in the OW regions by the dynamically developing sector of industrial processing based on knowledge.

To sum up, assuming that the investment projects on the Oder planned by the Polish government are fulfilled, the identified economic potential of the regions located alongside the OW may, at least partially, be transformed in realistic demand for transport by inland navigation. It is to be expected that the transport performed in relations with
the Szczecin–Świnoujście port complex, including land and water transport chains, will be of the highest importance. Apart from the vessel-barge transport, direct domestic and international transport will also be developing, particularly with Germany. Furthermore, the OW’s social and economic catchment area may be extended by the southern regions in Poland (Lesser Poland) if the construction of the Silesian Canal is fulfilled. Internationally, however, the strategic project is related to the idea of building the Oder–Danube Canal, which will connect the southern regions of Europe to the area of OW influence.

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POTENCJAŁ EKONOMICZNY REGIONÓW A ROZWÓJ SIECI TRANSPORTOWEJ. STUDIUM PRZYPADKU REGIONÓW ZLOKALIZOWANYCH NA PRZEBIEGU ODRZAŃSKIEJ DROGI WODNEJ

Słowa kluczowe: region, potencjał gospodarczy, Odrzańska Droga Wodna

Streszczenie: Rozwój sieci transportowej determinuje rozwój społeczno-gospodarczy regionów, z drugiej strony potencjał ekonomiczny regionu może stanowić podstawę dla rozwoju systemu transportowego w obszarze jego ciążenia. Głównym przedmiotem badań podjętych w niniejszym artykule są regiony zlokalizowane na przebiegu Odrzańskiej Drogi Wodnej (OW). Celem artykułu jest określenie potencjału ekonomicznego tych regionów w kontekście zasadności realizacji planowanych przez rząd działań inwestycyjnych w zakresie poprawy parametrów technicznych OW i przystosowania jej docelowo do klasy żeglugaowej Va.