

DEVELOPMENT PERSPECTIVES OF PASSENGER RAIL TRANSPORT IN POLAND AND CHOSEN EUROPEAN UNION COUNTRIES

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Abstract: Transport needs arise due to spatial and temporal diversity, which is both the result of human activity and natural factors, such as geographical distribution of the population, natural resources, production factors, productive, social, scientific, cultural or recreational activities and public administration offices. The specificity of the passenger railway transport sector stems from its technological conditions, which distinguishes it from other models of transport. It explains why its transformation from a traditional rail to High Speed Rail is a huge problem in Poland and other European countries. Difficulties with the implementation of the rational organization and financing mechanisms of passenger rail at the optimum range for the society, make their implementation in Poland is far from perfect for over 20 years. This causes the negative consequences of the general social cost both for the passengers using this transport and the local government that funds it. These difficulties should not exempt from striving to implement optimal solutions from an economic point of view. Therefore, the aim of the paper is to identify the development perspectives of passenger transport in Poland and in the European Union.

Keywords: passenger railway transport, High Speed Rail.

1. Introduction

The railway passenger transport meet diverse needs of the population. Train journey is considered to be safer, more exact and accurate travel method' [2]. It is characterized by variable technical descriptions (frequency of riding, speed, the distance between particular stations and the number of travellers). 'With political forces and public interest turning toward rail, growing traffic on the nation's rail network and infrastructure build-outs will no doubt be a part of coming decades' [3]. Passenger rail transport may be divided into three segments:

- *Urban transport*, which include intensive transport in big cities and provide access to their centres. Heavily populated agglomerations form a set of cities, that are spatially and functionally related, and villages situated in these areas are suburban housing estates due to the mode of living. As a result, it is difficult to provide a clear definition of the agglomeration boundaries. However, urban transport exists in most provincial cities within a radius of 10-20 km around their borders. 'Travellers eschewing a strict schedule may choose rail for its comforts and amenities' [9].
- *Regional transport*, that provide local communication between the small towns and local centres. These include journeys carried out within the same province or between neighbouring provinces. 'The main plus of rail journey is an opportunity to unhurriedly and without stress enjoy natural landscapes spreading outside the

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window, while the train personnel cares for the train driving, passengers safety and comfort' [2].

- *Long-distance transport*, which include intervoivodeship train rides.

Regional passenger transport is important on social ground , but on the other hand would not be delivered by the market because their implementation is permanently unprofitable. Total costs related to rail journey depend on the final destination [2]. For this reason, they require subsidies from the local government, and the possibility of competition is much more difficult, but still possible and desirable. The functioning of the remaining segments of rail transport, i.e. long-distance passenger rail and freight services, enables achievement of profit, and is an area of possible competition.

2. Transport of passengers by railway in Poland and selected EU countries

The length of the railway network in 2013 amounted to 19,3 thousand km (of which 12,3 thousand Miles are lines of national importance) and was about 766 km shorter than the year before. Shortened both the Network of PKP – about 658 km (total length – 19,0 thousand km) and railway network managed by other entities – about 108 km, to 0,4 thousand miles as well. The total length of railway lines exploit on standard gauge and large gauge (99.6% of the total length of railway network) electrified lines accounted for 61,6%. In 2013, 1221 km of tracks (running lines and the main tracks), were modernized, of which 579 km were adapted to the speed of 120 – 160 km. On the railway network in 2013 there were 1430 stations, of which 393 nodes (in 2012 – 1472, of which 394 nodes) and 622 active train stations (590 managed by PKP and other rail infrastructure managers and 32 railway station or owned by gmina, of which 256 stations adjusted to disabled persons [6].

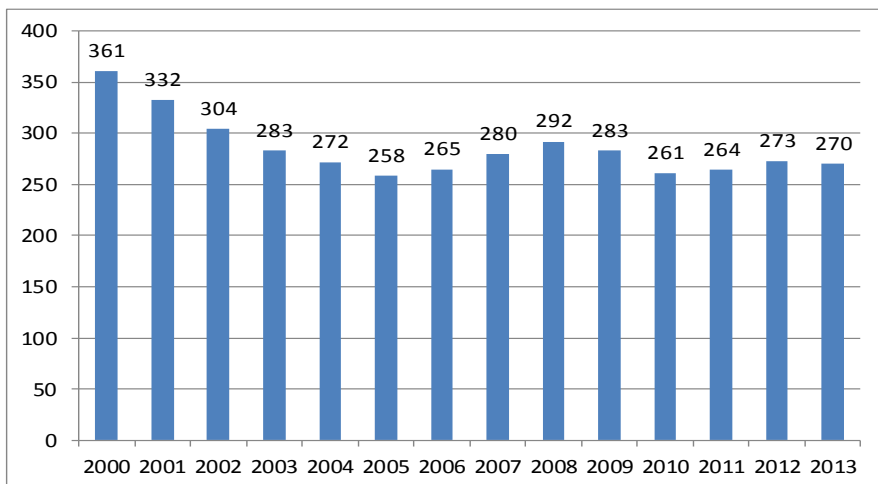


Figure 1. Railway passengers transport in Poland in the year 2000-2013 (in mln) [6]

Figure 1. presents transport of passengers by railway in the years 2000 -2013 and reveal that in the years 2000-2013 there was a decrease in amount of passengers travelling by train. In 2000, 361 millions passengers decided to choose train as their mode of transport. Therefore, the number of people travelling by train was steadily fluctuated probably for social and economic reasons. In 2013 there were 25% less passengers (270 millions). This data has changed gradually, but we can notice clear downtrend, due to the cost of traveling and environmental care.

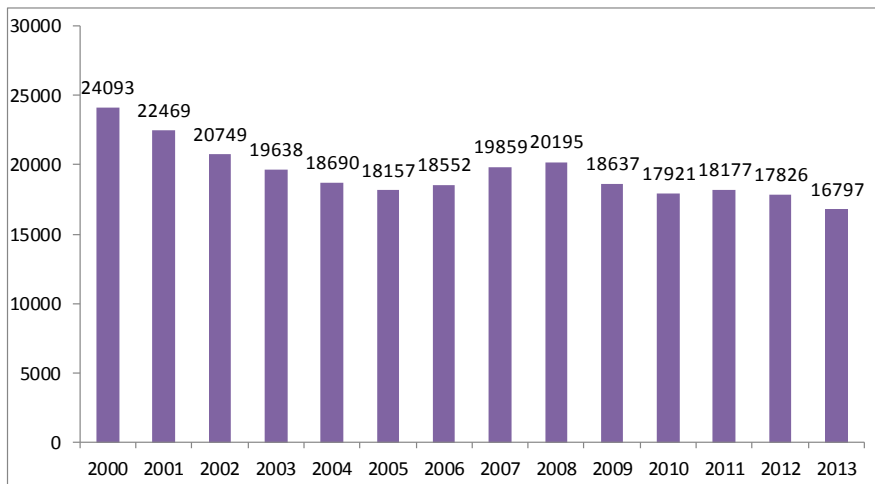


Figure 2. Transport performance in Poland in the years 2000-2013 (in mln passenger-kilometers) [6]

The results of the present data (Figure 2.) demonstrate that in Poland between 2000-2013 transport performance decreased from 24093 mln passenger-kilometres to 16797 mln passenger-kilometres. It constituted 30% decrease. In years 2001-2006 transport performance was constantly declining, however between 2007 and 2008 increased for social and economic reasons, for example small amount of ticket reliefs and insufficient number of lines. Figure 3 presents transport of passengers by railway transport in 2013 taking into account type of chosen train.

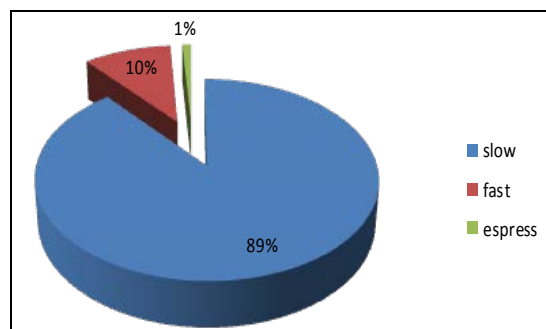


Figure 3. National transport of passengers by standard gauge railway transport in 2013 [6]

As can be seen from Figure 3., in the 2013 year, most of passengers travelled by slow trains (89% - 238882 thousand), 10% decided to choose fast trains (26396 thousand) while only 1% travelled by express trans. Among passengers the most popular are slow trains.

Figure 4. presents the number of passengers-kilometres per capita in Poland and other European countries in 2013.

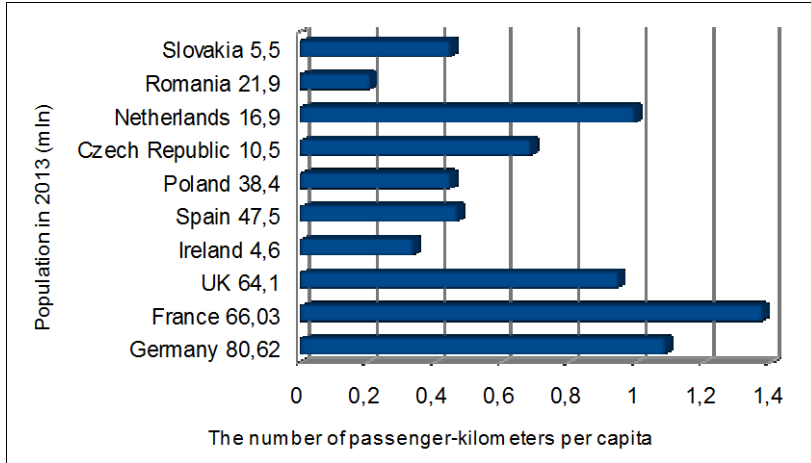


Figure 4. The number of passenger-kilometers per capita in Poland and selected EU countries in 2013 [4]

From the figures it is apparent that the highest number of passenger-kilometres per capita is in France (1,38 pkm) and in Germany (0,95 pkm). The lowest rate can be observed in Ireland (0,34 pkm), Slovakia (0,45 pkm) and Romania (0,21 pkm). Among 10 analysed EU countries Poland is placed fifth, with the results 0,45 pkm, but in comparison to France, Germany or United Kingdom our number of passenger-kilometres per capita is low.

3. High Speed Train in the European Union and its construction plan in Poland.

High-speed rail lines were proposed in many countries of the EU. The benefits of such lines are a better class of service than rival models (bus, auto, air and conventional rail), possibly quicker point-to-point times rely on specific locations, quicker loading or loading or unloading times, top safety than particular modes and abase labour costs .High-speed trains supply excellent passenger comfort. The layout of a carriages or compartments, and even a lighting were designed to form a pleasant and comfortable place suitable both for relaxation and work [7, 8]. What is more, companies claim that high-speed rail is environmentally favourable [12].

High-speed rail have been one of the most imaginative elements which influence passenger transport since 1939. Its main aim was to connect a hub city with secondary cities. Thereby, HSRs are costly to construct, describe a considerable sunk charge in the transport infrastructure, and cause economic and social results, which are hard to predict. The disturbing facts may be higher fixed costs, higher noise externalities and higher energy

costs than particular rival modes. It is accordingly significant to be aware of existent study on the effect which modern lines have had on administration, employment patterns, regional economies, transport and so on [13].

The European Union supported of a high-speed network in policy documents in 1990s, which reached a point of highest development in the identification of European Networks in 1992. France introduced its TGV in 1981, in Britain the first high speed railway services were presented in 1976. Because of World War II, routes in Italy were upgraded for modern conditions in 2008. Germany joined other countries before the 1990s, and Spain in 2003. Switzerland, Portugal, Sweden, Belgium, the Netherlands and Russia is constructing new HSRs or planning new routes [1, 5, 11].

Table I.

High Speed Rail development, 1964-2009 (km) [5]

Period	Route Open	Britain	France	Italy	Germany	Spain
1964-73	676	-	-	-	-	-
1974-83	2,639	942	419	150	-	-
1984-93	1,459	-	412	98	447	471
1994-2003	2,522	74	709	-	428	598
2004-2009	4,754	684	332	496	410	530
Total 1964-1983	3,315	942 (28%)	419 (13%)	150 (5%)	-	-
Total 1984-2009	8,735	1,130 (13%)	1,453 (17%)	594 (7%)	1,285 (15%)	1,589 (18%)
Total 1964-2009	12,050	1,700 (14%)	1,872 (16%)	744 (6%)	1,285 (11%)	1,599 (13%)

The Table I. data show that between 1964 and 1983 3,300 kilometres of high speed routes were established and Great Britain with its 28 per cent was a leader. However between 1984-2009 rate of development was much higher, because new high speed accommodation was 8,700 kilometres.

Polish Railway Lines is conducting works for constructing high speed lines. They plan to accomplish it till 2020. The main task of high speed rail in Poland would be to shorten the travel time to less than two hours between the biggest metropolitan area in Poland, three hours from the centre to border regions and from North to South and West to East up to 5 hours. To achieve this goal, the following actions: should be taken: preparation of technical norms for HLS, education of personnel, preparation of station and lines or conducting promotional activities [10].

4. Summary

The passenger railway transport stands out from the other means of transport, because of its technological conditions. It is characterized by high fixed costs and economies of scale. What is more, rail transport meets diverse needs of the population and has variable

technical descriptions. Regional passenger transport is permanently unprofitable, but remaining segments of rail transport, i.e. long-distance passenger rail enables achievement of profit, and is an area of possible competition. Difficulties with the implementation of the rational organization and financing mechanisms of passenger rail at the optimum range for the society, make their implementation in Poland is far from perfect for over 20 years, and cause the negative consequences of the general social cost.

The statistical data reveal that in recent years there was a decrease in amount of passengers travelling by train, and that the highest passenger transport performance is in France. Most of passengers travel by slow trains, but many countries of the European Union propose High-speed rail lines. The benefits of such lines are a better class of service than rival models of transport. HSRs are costly to construct, but Polish Railway Lines plan to do it till 2020. It will be possible if the following conditions are fulfilled: reconstruction of lines and stations, proper preparation of personnel and promotional actions.

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