

RAIL FREIGHT TRANSPORT IN ESTONIA AND ELSEWHERE IN EUROPE

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Rail transport is quite cheap and helps to carry large amounts of goods over long distances, but not from door to door. Europe has long benefited from a dense railway network. The main aim of this article is to analyse the development and changes of the national rail freight traffic in the European Union countries, incl. in Estonia in 2009–2011.

Introduction

Rail transport is profitable to transport measurement goods by rail, and especially intensive over long distances, as this ensures high productivity and low cost transportation. Both goods and passenger rail services are promoting the use of road and air transport rather than reasoned, because they reduce congestion on high traffic roads and airspace. Rail produces less pollution than either of its competitors. However, the European rail market has for some time lost to road and air transport: in 1970–1998, the share of rail freight traffic fell from 21.1% to 8.4%. While the share of rail transport in Europe declined, there was a big improvement in the USA, where railways now carry 40% of all freight. Therefore, it appears that the decline in rail's share is not inevitable. Railway traffic, the promotion of national networks as national fragmentation of European markets is not an easy task. Barriers among the different railway systems in the technical incompatibilities and parts of national governments unwillingness open up competition foreign undertakings.

Nowadays, 65% of the world's railway network (most of Europe, North America, China and Middle East) has a 1,435 mm gauge. The exceptions are Ireland (1,600 mm), Portugal (1,668 and 1,000 mm) and partly also Spain (1,668, 1,000 and 1,435 mm). Railways in Estonia and in the whole former Soviet Union area and in Mongolia have a straight track gauge of 1,520 mm (11% of the global rail network uses this gauge), resulting from the use of a 5-foot (1,524 mm) gauge in the territory of the former Russian Empire. In Finland, the 1,524-mm gauge railway is also a legacy of the Russian Empire. The European Union uses a standard wheel track width of 1,435 mm. The exceptions are already mentioned Estonia, Latvia and Lithuania, Finland, Portugal and Ireland. In Estonia today, railways are mainly used for freight rail transport. Rail transport to Europe is difficult due to the difference in gauges.

In 2009, the length of the railways in use in the European Union was 212,528 kilometres, including 110,948 kilometres (52%) of electrified railways. In 2009, the biggest railway networks were located in Germany (33,714 km), France (29,903 km) and Poland (19,764 km). The shortest networks are in Luxembourg (275 km) and Estonia (919 km of public network), Malta and Cyprus have no railway lines.

In developed countries, the density of the railway is 40 to 130 km per 1000 km², while in Estonia the density of the railway is 22.7 km per 1,000 km². Railway network density is higher in Europe (the Benelux countries, Germany, the Czech Republic and Hungary) and lower on the periphery of Europe such as in Scandinavia, the Iberian Peninsula, Greece, the Baltic countries, Turkey and Bulgaria. Railway network density is the highest in the Czech Republic, Belgium, Luxembourg and Germany (over 100 km per 1,000 sq km), followed by the Netherlands, Hungary, Austria, Slovakia, the United Kingdom and Poland (65 to 86 km per 1,000 sq km). Railway network density is the lowest in Turkey, Norway, Finland and Greece (20 km or less per 1,000 sq km).

The freight turnover of rail is freight volume of work done measured in thousands of tonne-kilometres. One tonne-kilometre (tkm) is the transport of one tonne of goods across a distance of

one kilometre. To avoid double counting, each country only counts the tonne-kilometres performed on its territory. Also, the weight of the freight transported is calculated in each country.

In 2009 the freight turnover in road and rail transport decreased in almost all European Union (EU) countries. The EU's total rail freight turnover decreased 18% in 2009, compared to the previous year. In 2010, the total freight turnover of rail freight transport in the EU-27 was estimated at 389 billion tonne-kilometres, which means a 7.9% increase compared to 2009 (Figure 1, p. 28). This indicator in freight volumes reflects the recovery of rail freight transport following the economic crisis.

The share of international transport in rail transport in different countries is strongly linked to their geographical location in Europe. In the EU as a whole, the share of international transport in rail freight transport has been quite stable in recent years; for example, in 2010 it was about 37%. In 2010 the growth in freight turnover in Estonia was mainly driven by the 11% increase in international rail transport. In Estonia, the share of international transport in freight turnover was 89%.

Rail freight transport in EU countries

The recovery in rail freight turnover in 2010 could be observed in most of the EU Member States. The main exception was Greece with a 20% decrease in rail freight turnover. Among EU countries, freight turnover was the highest in Germany, Poland and France, where the turnover was respectively 107,317, 48,705 and 29,965 million tonne-kilometres. Ireland, Luxembourg and Greece were the countries with the lowest freight turnover, with respectively 92, 191 and 614 million tonne-kilometres. In Estonia, rail freight turnover in 2010 was 6,638 million tonne-kilometres (Figure 2, p. 29).

Despite the general upward trend, the patterns at national level show substantial differences between countries. Of the 27 reporting countries for which data are available, 7 countries recorded a fall in freight transport performance between 2009 and 2010.

The highest increase in rail freight turnover was recorded in Denmark (31.7%), followed by Slovenia (21.4%) and Ireland (16.6%). At the other end of the scale, the largest decrease in 2010 compared to 2009 was observed in Greece (-20.1%), followed by Latvia (-8.3%) and France (-6.7%). In absolute terms, Germany recorded the biggest rise at 11.5 billion tonne-kilometres (12%), which put Germany well ahead of Poland, which had an increase of 5.3 billion tonne-kilometres. In absolute terms, France recorded the largest decrease in rail freight turnover in 2010 (-2.2 billion tonne-kilometres compared to 2009). Nevertheless, France still recorded the third highest rail freight turnover in Europe in 2010, with 30 billion tonne-kilometres. Two other countries reported absolute decreases of more than 0.5 billion tonne-kilometres over the same period – these were Latvia (-1.5 billion tonne-kilometres) and the United Kingdom (-0.6 billion tonne-kilometres).

As for the share of international transport in rail transport in different countries, it appears to be strongly linked to their geographical position within Europe. The countries that registered the highest share of international transport are located in the key traffic corridors within the European market. In the Baltic States of Latvia and Estonia, situated at the border between Europe and Russia, international transport accounted for 91% and 89%, respectively, of the total rail transport in 2010. The Netherlands, Luxembourg and Belgium, which are strategically situated in the heart of Europe, registered shares of 79%, 78% (2009 data) and 68%, respectively. These figures are strongly influenced by the key import harbours of Rotterdam and Antwerp, with important sea/rail transfers of goods dispatched within the European Union.

In contrast, countries in specific geographical locations (on the periphery of the European Union or on islands) recorded a low share of international transport by rail. Small shares were registered in the United Kingdom (2%) and Portugal (11%), for example. Turkey also recorded a low percentage (9%), which may be linked to its peripheral position.

In order to assess the recovery from the economic crisis, it is worthwhile to study the evolution of rail transport based on quarterly figures.

Although the development of rail transport in the European Union could be noticed throughout the year 2010, the most significant growth could be observed were during the first half-year. In the first two quarters the freight turnover increased by 9% and 15%, respectively, compared with the same quarters of 2009. The upward trend slowed down at the second half of 2010, with the third quarter of 2010 registering a growth of 9% and in the last quarter only 3% (Figure 3, p. 30).

Differences can be observed in the development of freight transport performance at country level. For example, Bulgaria and Portugal were the only countries registering a year-to-year decrease for the first half of 2010 (-6% and -5%, respectively,) followed by an increase for the second half of the year (1% and 7%, respectively).

Rail freight transport in Estonia, 2009–2011

According to the data of the Railway Traffic Register in Estonia there were 1,196.1 kilometres of rail lines at the end of 2011, of which 918 kilometres of public railway. The length of electrified railway was 132 kilometres. In Estonia total there are 87 railway stations, of which railway stations for passenger traffic 77 are open. In public railway there are 229 level crossings, 144 crossings with automatic signal and 85 crossings without automatic signal. On the Railway Traffic Register there were 303 diesel locomotives, 23 electric railcars, 55 diesel railcars and 18,995 freight wagons at the end of 2011.

Estonian rail freight turnover decreased sharply in 2008 – even 30%. In 2009, the freight turnover remained at the same level and in 2010 it grew by 12%. In 2011 compared to 2010, the freight turnover decreased by 5%. In international transport the freight turnover decreased by 7%, the domestic transport increased by 7%. In 2011, the public railway freight turnover was 5.8 billion tonne-kilometres – 6% less than in the previous year. In 2011, the dangerous goods transported by rail totalled 5.1 billion tonne-kilometres – 4% less than in 2010 (Table 1, Figure 4, p. 31).

In 2010, over 46.7 million tonnes of goods were carried by rail, which is 22% more than in 2009. In 2011 over 48.4 million tonnes of goods were carried by rail, which is 4% more than in the previous year (Figure 5, p. 32). Public railways transported more than 30 million tonnes of goods or 3% more than in 2010. In Estonia, as the main trade groups, liquid refined petroleum products, crude oil and oil shale, nitrogen compounds and fertilizers (except natural fertilizers), coal and lignite, cement, lime and plaster, basic iron and steel and ferro-alloys and products of the first processing of iron and steel (except tubes), basic mineral chemical products, stone, sand, gravel, clay, peat and other mining and quarrying products n.e.c. are carried by rail.

In Estonia in 2011, 21.5 million tonnes of crude oil and oil shale, 19.3 million tonnes of liquid refined petroleum products, 2.8 million tonnes of nitrogen compounds and fertilizers (except natural fertilizers), 1.5 million tonnes of stone, sand, gravel, clay, peat and other mining and quarrying products n.e.c., one million tonnes of cement, lime and plaster, 0.4 million tonnes of coal and lignite, 0.3 million tonnes of basic iron and steel and ferro-alloys and products of the first processing of iron and steel (except tubes) and 0.3 million tonnes of basic mineral chemical products.

22.9 million tonnes of goods were transported by domestic rail traffic in 2011, or 9% more than in 2010. 23.1 million tonnes of the total amount of goods carried by rail were transit goods the transport of which by rail decreased by 3% during the year. 1.1 million tonnes or 20% more goods were sent abroad by rail, from abroad came 1.3 million tonnes of goods or 40% more than in 2010. Most of goods – 760,500 tonnes – were sent to Russia by rail, 183,100 tonnes to Latvia and 82,200 tonnes to Lithuania. Most of goods came by rail from Lithuania – 568,300 tonnes, 215,400 tonnes from Russia, and 204,700 tonnes from Belarus.

The goods are classified by groups of the classification of transport statistics by TSK, which is based on the European Union Standard Goods Classification for Transport Statistics (NST).

In 2011, the share of goods in freight turnover of liquid refined petroleum products accounted for 68% or 4.2 billion tonne-kilometres, the share of crude petroleum and oil shale was 15% to 934 million tonne-kilometres, the share of nitrogen compounds and fertilizers (except natural fertilizers) – 7% (Figure 6, p. 32). The share of coal and lignite, cement, lime and plaster, basic iron and steel and ferro alloys and products of the first processing of iron and steel (except tubes), basic mineral chemical products, stone, sand, gravel, clay, peat and other mining and quarrying products n.e.c. in each group was 1%.

The share of rail transport of containers accounts for less than 1% of the total freight tonnage. In 2011, container transport by rail freight turnover accounted for 6% of rail freight transport (Table 2, p. 33).

Container transport by rail has intensified in recent years, although in 2009 the reduced demand for transport services also decreased the transport of containers. For the year 2011 container transport doubled compared to 2009. In 2011, the scope of container transport by rail amounted to nearly 35,000 TEU, of which 76% were transit containers.

Summary

In 2009, 212,528 kilometres of rail and 110,948 kilometres or 52% of electrified railways was in use in the European Union. Most of the railways were located in Germany, France and Poland.

The total performance of rail freight transport in the EU-27 was estimated at 389 billion tonne-kilometres in 2010, a rise of 7.9% compared to 2009. This increase reflects the recovery of rail freight transport following the economic crisis, which brought to an end a sustained period of growth over recent years. Looking at the development by quarters, the most significant changes were concentrated in the three first quarters of the year. The upwards trend slowed down at the end of 2010. The recovery of rail freight transport in 2010 could be noticed in most of the EU Member States.

The freight turnover among the European Union countries was the highest in Germany, Poland and France, where the freight turnover was 107,317, 48,705 and 29,965 million tonne-kilometres, respectively. The share of rail freight transport of Estonia accounted for 2% of rail freight transport of the European Union in 2010. The highest increase was recorded in Denmark, followed by Slovenia and Ireland.

The rail freight turnover in Estonia decreased sharply in 2008 when the freight turnover fell by 30% compared to 2007. In 2009, the freight turnover remained at the same level and in 2010 grew by 12%. In 2011 compared to 2010, the freight turnover decreased by 5%.

In 2010, over 46.7 million tonnes of goods were carried by rail, which is 22% more than in 2009. In 2011, over 48.4 million tonnes of goods were carried by rail, which is 4% more than in 2010. 23 million tons of these goods were transit goods, the transport of which by rail decreased by 3% during the year. 20% more goods were sent abroad by rail and 40% more goods arrived from abroad than in 2010.