

INFRASTRUCTURE FUNDING FOR SUSTAINABLE DEVELOPMENT OF RAILWAY TRANSPORT IN LATVIA

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Abstract

Transportation and storage industry in Latvia generates a rough 10% of national GDP and therefore has a significant impact on the economy. Overall, more than 70 thousand people are employed in the transit and logistics sector. Underlying railway sector contributes more than EUR 100 million in taxes each year. For specific goods and destinations railway transport is a more sustainable, environmentally effective and economically efficient transport mode in comparison to the road transport and therefore should be promoted, which is in line with one of the transport policy priorities of the EU development strategy 'Europe 2020' – to make carriage by rail more competitive than road transportation. To help implementation of this strategy, the railway sector is in need of governmental help, either in form of state aid or alternatively revision of national excise duty policy on fuel used in railway transportation. One example is to redistribute the revenue from excise duty on diesel used in rail transport to finance maintenance and development of railway infrastructure.

Keywords: railway transport, excise duty, investments, infrastructure

Introduction

Rail transport is one of the most efficient transport modes for carriage of large volume freight over long distances. European transport policy aims to create a high efficiency network of the European transport with the main central railway lines, to develop internal market sector of rail transport, make it more efficient and more relevant to customers' needs, which leads to increased rail transport (COM 2012).

Railway transport sector in Latvia experiences a decades long slowdown. Arguably the latest geopolitical standings imply a further drop of international transit freight flows; however, internally one of the main reasons behind the decline is outdated rail infrastructure and rolling stock. Deterioration of infrastructure has occurred in the light of insufficient infrastructure funding which is provided solely by railway operators in Latvia.

A new network access charging scheme has revived the issue of reverting excise tax duty on petroleum products paid by railway operators to help funding the rail network maintenance. A solution eligible to persisting straits: tight national budget, no excise duty relief for railway transport, no public funding for railway infrastructure, excise duty collected from railway industry allocated to competing road transport sector.

The purpose of this research is to provide insight into the rail transport development in Latvia, to determine the main obstacles hindering its progress and provide a ready solution to the complex situation. The objectives of the research are to determine the multitude of loss of the railway transport market share, to investigate the main technical features of railway network, to evaluate funding sufficiency of the infrastructure manager and economic burden it imposes on railway operators, to review the new infrastructure access charging model and valuable experiences in other countries.

The study was based on comprehension of the causation behind the railway transport slowdown, examination of the applicable rules and strategic planning documents and the actual practice with particular attention to the issues of public infrastructure access charge impact on railway operators and insufficient network maintenance and development funding. In order to determine the possible practical solutions to the problem, the research is based on the findings from the economic and statistical analysis, using the graphical, descriptive and other methods.

1. Drift away from railway transport

The Transport White Paper published by the European Commission states that 30% of road freight over a distance of 300 km by 2030 should be transferred to rail or water transport and by 2050 this amount needs to be at least 50%. By 2050 the majority of medium- distance passenger transport should be carried by rail (COM 2011).

Contrary to the EU policy, a dramatic fall of railway transport employment is observed in Latvia. The percentage of freight transported by rail has reduced by 20% since 1998. Long lasting trend in Latvia shown in Figure 1 illustrates preferential use of road transport instead.

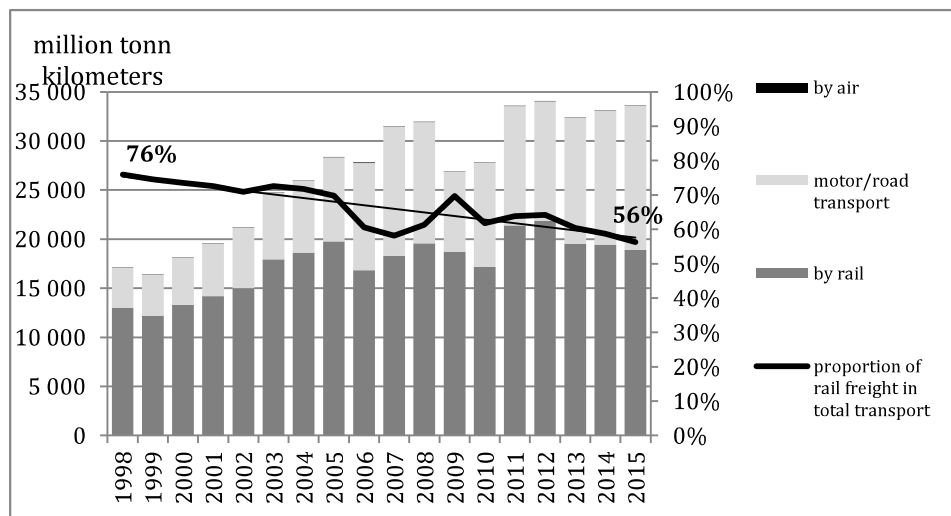


Figure 1. The dynamics of freight turnover in Latvia by main modes of transport (mln tonn – km) and percentage of rail transport (%)

Source: Central Statistical Bureau, 2016

The basic use of the railway transport in Latvia is carriage of transit cargos to the main Latvian seaports. Fossil fuel product exports from Russia and Belarus in the amount of 45.44 million tons last year form 80–82% in total freight volume carried by rail (Central Statistical Bureau 2016). The main competitor for transit cargos is Lithuanian port Klaipėda, yet fundamentally all Baltic states face a direct and hardly diversifiable threat of losing all Russian and potentially Belarussian freight flows, since the strategic and politically motivated decision being enforced of channeling fossil exports through the own ports in Russia.

The number of passengers travelling by rail has shown a major fall as well during the last two decades (see Figure 2).

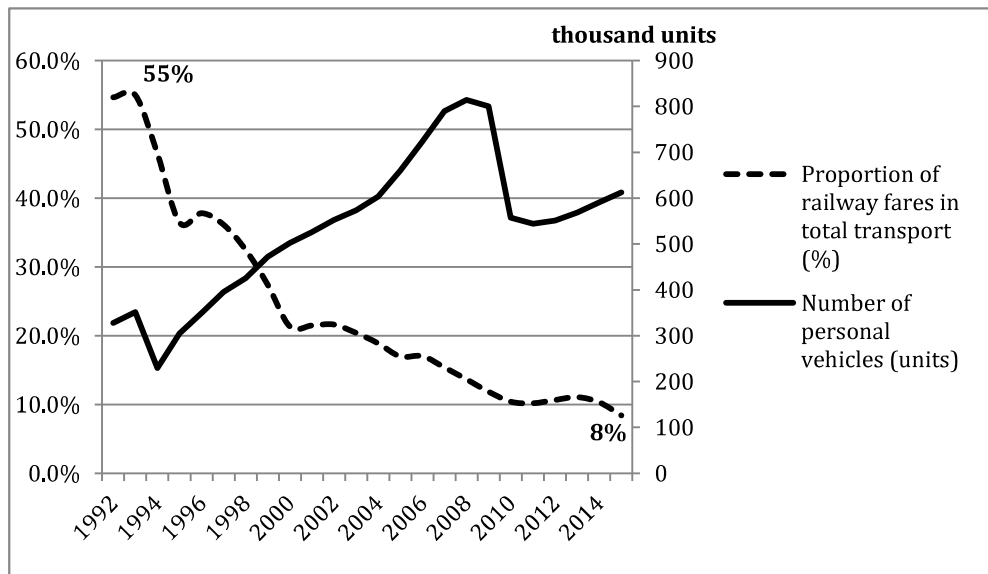


Figure 2. Comparison of passenger transport preferences in Latvia, units of personal vehicles vs. percentage of rail transport (%)

Source: Central Statistical Bureau, 2016

In 1993 55% of all passenger kilometers in Latvia had been transported by rail, whereas in 2015 only 8.4% of the total made it by rail (Central Statistical Bureau 2016). The main reason behind such a dive is the rapid growth of private vehicle usage during the years 1993–2008, which outperformed the outdated railway infrastructure and rolling stock. Hardship to increase the percentage of railway passengers lies within the thin population outside Riga, which roughly holds about a half of all inhabitants in Latvia, as well as the fact that railway lines lack connection to other main railway lines and interoperability with other transport modes. For comparison, the Swiss travel system comprises 27'000 kilometers of rail, road and waterway routes nationwide, the densest public transport network in the world, with coordinated connections linking more than 150 public transport services and travel tickets which cover the entire country (Swiss Travel System). In Latvia, as chairman of the national passenger carrier puts it, there is a potential for the rail transport to become the main mode of transport in specific regions and

specific groups of passengers, e.g. in the suburbs of Riga for transportation of workforce or seasonal lines from Riga to Jūrmala, a popular recreation place in summer (A.Lubāns). It is furthermore stated in the law that for major long distance passenger flows covering long distances the priority transport mode should be railway (The Law on Public Transport).

2. Main technical parameters of railway infrastructure

Latvian public rail infrastructure is geographically lined across the state connecting East border of the State with the largest seaports Riga, Ventspils and Liepāja (East-West freight transit corridor). The network also includes the principal railway line across the State from North to South connecting Estonia, Lithuania, Russia and Belarus. The overall length of the rail network is 1'827 kilometers of which 257 km (14%) are electrified lines. All tracks bear 1'520-millimeter gauge, maximum axle load is 25 tons. The railway infrastructure in Latvia is eligible for carriage both freight and passengers. The current capacity use of rail infrastructure is 70% for freight trains and 30% for passenger trains (Statistics of Latvijas dzelzceļš, 2015).

Due to insufficient funding deterioration of railway infrastructure is evident, and in order to retain the current infrastructure capacity and quality, minimum 181.2 kilometers of the tracks require capital repairs before 2020. The number of electricity supply lines and contacts have been long outdated and require repair, many buildings require replacement of outdated heating systems. Railway infrastructure development projects aim towards expansion of Daugavpils marshalling yard (EUR 39.8 million), development of Daugavpils train arrival station and its access driveways (EUR 45.8 million), modernisation of Riga railway junction (EUR 19.6 million), modernisation of platforms, transport security and information systems for passenger transportation (EUR 24.2 million), modernisation of train traffic planning system (EUR 21.3 million). Government considers electrification of mainline railways to Riga and Ventspils seaports totaling EUR 1.5 billion of which EUR 347 million is granted by European Cohesion fund. (The Ministry of Transport 2016).

Construction of the new high-speed Rail Baltica infrastructure linking Tallinn, Riga, Kaunas, Warsaw and Berlin face various hardships from the very beginning since the project was put on the drawing board in 1994. Delays much stem from hassle among the Baltic states on various items, yet the fundamental problematics associated with the new European standard 1'435-mm gauge infrastructure is the train speed. In particular, the technical condition of 200 km part from Lithuanian-Poland border to Białystok often drops to around 30 km/h. The Polish government however has promised to upgrade the section to 160 km/h, still below the projected 240 km/h, which undermines the high-speediness of the whole project. (Niitra, The Economist). Clearly the feasibility to cover the Tallinn-Warsaw distance under reasonable 7 hours is uncertain.

3. Infrastructure funding and access charge wedge

In Latvia all capital and current rail network expenditures are financed by users of the network (rail operators) and no public funding is provided for maintenance and modernization of the network. Generally, infrastructure maintenance expenses in Latvia, which form a relatively fixed amount per year, to this day is collected from rail operators in the form of access charge, being inelastic to changes in the cargo flows. In shrinking freight market such access charging model creates significant pressure upon operators' ability to provide competitive carriage tariffs. The authors have investigated that infrastructure access charge forms up to 41–43% wedge in total transportation tariff for several dry bulk cargos in longer destinations (e.g. coal products to Ventspils). Market dictates tariff limits well below full cost levels, barely covering operator's variable costs. Else, because infrastructure access charge is tagged to the distance a train covers, those operators providing carriage services within shorter distances, such as to Riga, are less handicapped. This is one of the main reasons why freight flow shift from Ventspils port to Riga is observed.

In order to maintain national rail infrastructure at least of its current capacity and condition and prevent further deterioration, state aid is indispensable. Besides technically outdated infrastructure, Latvian infrastructure manager JSC Latvijas dzelzceļš faces a serious financial pressure. Gross yield of the company was negative in 2013 (-1.0%), which improved slightly in 2014 reaching 3.1% and reported negative again in 2015 (-4.65%) (Latvian Railways in 2016). The Ministry of Transport has estimated that by current freight volume flowing through rail infrastructure (48–50 million tons per year), infrastructure manager's funding is EUR 20–25 million shy (The Ministry of Transport 2016).

Secondly, financial statements of the JSC "Latvian Railway" show increased insolvency risk due to highly leveraged capital structure. Infrastructure manager reports EUR 840.4 million in long-term assets in 2015 financed by EUR 267.6 million equity and EUR 498.4 million long term debt, and the gap of EUR 74.4 million is financed by short term liabilities. Considering that the debt to equity ratio of infrastructure manager has reached 2.13 in 2015, additional liabilities if available may incur insolvency risk. At infrastructure manager's best projection availability of external capital will exhaust by 2020 unless state aid is provided for funding of the public infrastructure.

4. New policy framework for infrastructure funding

Requirement of the Single European railway area, which Latvia joined earlier this year, is that a multiannual agreement is settled between infrastructure manager and the Ministry of Transport covering various important aspects such as provision of economic equilibrium for network maintenance, provision of funding for low intensity used lines, funding (also European funding) for new large infrastructure projects, funding for maintenance of public services facilities (passenger carriage), funding for state security facilities, funding for state

regulative institutions in railway sector and funding for heritage railways (p.10² Railway Law).

New approach to infrastructure access pricing is established in the Railway Law (p.11, 11¹ and 10²) splitting current comprehensive access charge into charge for minimum access package and charge imposed for track access within service facilities, as under EC Directive 2012/34/EU. Starting January 1, 2018 the state will be obliged to provide funding for the spread between infrastructure maintenance full cost expenditures and collected revenue from access charge, where the latter is determined in accordance with directly incurred costs principle. The law thereto allows several sources of funding to secure financial stability of the infrastructure manager: revenue from minimum access services, revenue from state land lease under the public railway infrastructure, net income from state owned service facilities and other commercial operations, state aid for granting financial equilibrium of the infrastructure manager and funding for investment projects, other private non-refundable sources.

5. Review of literature and practice in other countries

Retardation of railway transport development is observed elsewhere in Europe, showing average decline from 10% to 6% market share in passenger kilometers and from 20% to 8% market share in freight ton kilometers over the last 30 years. In the last two decades the European Commission has been very active in restructuring the European rail sector addressing the problem in Commission White Paper of 30 July 1996 "A strategy for revitalizing the Community's railways", Commission White Paper of 28 March 2011 "Roadmap to a Single European Transport Area – Towards a competitive and resource", railway legislation packages and other policy framework documents aimed to improve transport systems in Europe.

Besides legislative provisions, the European Commission has played a major role in the development of high speed rail passenger services in Europe through grants to develop the trans-European network, although most European funding has in fact come from regional and cohesion funds or through the European Investment Bank (Nash, 2010). European Commission (2014) estimates for European countries €34.5 billion investments in 2012 for the whole rail network (including high-speed). Concerning the conventional networks, these investments cover maintenance (29%), enhancement (36%) and renewal (35%) of the infrastructure. In most of the European countries, public funds represent the main source for infrastructure investment while access charges finance the majority of operations and maintenance costs (Laurino et. al., 2015). Also Dehornoy (2011) provides evidence to this statement in a study on public contributions to European rail systems: German government transfers were €4.2 bn in 2010 and fund most of infrastructure investments, including 80% of renewal investments and all development investments, while access charges were enough to finance operations and maintenance (€1.5 bn) and a share of renewal investments (€0.5 bn). British Network Rail in 2009 received £3.9 bn in direct grants, but only £2.0 bn in track access charges; the direct subsidies from the Department of Transport constitute most of Network Rail revenue. The infrastructure is almost entirely financed by the State budget in Sweden – €1.6 bn in 2009 and only marginally by access charges

(~ €0.05 bn). Major infrastructure investments in Switzerland are funded by a special Public Transport Fund, whose resources are direct affected taxes: levy on commercial trucks (65%), oil tax (25%) and sales tax (10%).

At governments disposal there are a number of options to choose from in determining the level of public aid for railway transport and techniques of its implementation. Examples include fixed regional public expenditure shares are used in Belgium to allocate federal investment funds to railway projects (Proost & Zaporozhets 2013). This study confirms the relative efficiency of such an approach to Belgian rail investments. Perkins (2005) describes experiences in 2001 in Switzerland, where implementation of road Heavy Vehicle Fee (HVF) raised approximately €450 million, of which two thirds were earmarked for rail investments, mainly for two long tunnels through the Alps designed to substantially increase rail freight productivity and make rail competitive with road freight; also some revenues went to high speed passenger rail investments. Similarly, in Italy, upgrading of the rail line leading to the Brenner alpine pass into Austria is being financed with revenues from the toll motorway serving the same route.

Public authorities (usually central Governments) subsidies appear to be the most important form of public funding used across Europe (NERA, 2004). This support can be either a generic subsidy to the infrastructure manager or it can be targeted towards specific investments programs, many countries have both (Dehornoy, 2011). In some countries, grants for investments as per ton kilometer are available if the railway system attracts new customers that would otherwise use the road transport. This may be the option for for rail only, or combined road-rail transport operations, and the support is provided in the interests of protecting the environment (Perkins, 2005).

The country-specific research reveals a large amount of different approaches to the funding of infrastructure network. Some countries place fuel and other excise taxes with general revenues and fund roads from general revenues, including Australia, England, Germany and Italy. Several of the countries appear to rely on private roads, concessions or private-public partnerships as means to fund some of their road infrastructure, including Canada, China, France, Israel, and South Africa (May, 2014). Most of the countries have tolling systems to obtain part of their revenue for financing roads (Andersson, 2012; Raux et. al., 2007). In the case of Japan and France, tolls are linked with the weight of the vehicle and distance traveled (May, 2014; Raux et. al., 2007).

By international comparison, Swedish rail infrastructure charges are low – nearly ten times as high in Germany and France (Ljungberg, 2013). In addition, the infrastructure charges' share of the costs of rail transport in 2011 is on average only 5% for passenger transport and 6% for freight transport in Sweden, while the corresponding figures in Europe are on average between 10% and 30%, and considerably higher in certain cases (Matthews et. al., 2009). Sweden is trying to compensate industry for the peripheral location of the country and hence higher transport costs through low rail infrastructure charges and limited taxation on heavy goods vehicles. There is also an intention, for environmental reasons among else, to shift freight transport from road to rail or at least maintain the existing rail freight transport (Ljungberg, 2013). Many authors pointed out the importance of environmental factors, for instance, Dziuba (2015) claimed that offering tax a

refund in its construction can function as an incentive encouraging to choose railway as the means of transport which results in lower environmental burden.

Charges vary among the countries for plenty of reasons and can only partly be explained by actual differences in the infrastructure, which result in varied costs for wear and tear. However, it is obvious that the difference in infrastructure charges applied is also related to the extent to which governments are willing to allocate resources to directly finance the infrastructure in order to make good, but especially cheap, rail transport possible (Ljungberg, 2013). Nash, Nilsson and Link (2013) suggests that the German approach has led to a relief of taxpayers' burden for railway financing – government transfers have almost remained constant in real terms, in contrast to other countries such as the UK and Sweden.

Roads and railways in Sweden are mainly financed with national government taxes. Andersson and Söderberg (2012) propose a new regional order for the infrastructure policy in Sweden: government expenses for roads and railways should be decentralized to regions along with the real estate taxes to finance them. Instead of financing 50–75% of the costs for transportation projects with national taxes, as now is the case, the regional authorities are supposed to determine their own tax rates according to their different needs to cover expenditures for their infrastructure.

Also Denmark recently launched a regional reform that has given new large regions the responsibility for parts of the infrastructure network (Andersson, 2012). The development of the railway infrastructure in regions can be one of the main factors creating the conditions for social and economic development of the region (Buslowska, 2015). The most salient conclusion of Cohen and Kamga's research (2013) is that public grants, loans and credit guarantees that greatly minimize financial risk are required to attract private sector participation in financing high costs railway projects. In both Britain and Sweden public financial support for the rail industry has grown enormously, particularly in terms of spending on infrastructure renewal and enhancement; public support has grown significantly less in Germany, but the growth there has been mainly in subsidies rather than investment (Nash et. al., 2013).

According to Council directive 2003/96/EC the member states can apply total or partial exemptions or tax reduction on energy products used for the carriage of goods and passengers by rail. Several member states apply partial or total exemption of the excise tax on diesel used in rail transport (see Table 1). However, excise duty on fuel used by railway transport is paid in full amount in Latvia.

Table 1

The excise tax on diesel used in rail transport

Country	EUR/1000 l	Country	EUR/1000 l
Belgium	0	Luxemburg	0
Denmark	60.99	Portugal	90.11
France	128.3	Slovenia	253.66
Estonia	110.95	Finland	214
Italy	185.22	Spain	0
Ireland	108.28	Hungary	0
Latvia	341	Sweden	0

Source: TAXUD, 2016

6. Infrastructure funding solution for tight national budget

National budgetary deficit in 2015 is EUR 306.2 million or 1.3% of GDP (Central Statistical Bureau 2016), which allows to assume political reluctance to provide urgently needed funding for railway infrastructure. The authors therefore sought solutions to the problem which would have no impact on the national budget and offer a fair remedy helping promotion of rail transport.

As mentioned before, in Latvia only a small proportion of railway lines is electrified for the use of passenger transportation, whereas all freight carriage by rail is performed using diesel traction. Full rate excise duty (EUR 341 per 1'000 liters) is imposed in Latvia for diesel fuel which operators use in railway carriage. No reduced taxation or tax exemption is provided in national legislation, although provided so under Council Directive 2003/96/EC and is observed in practice in number of Member states. Since any tax reduction would put additional constraint to the national budget, authors revive suggestion to redistribute excise duty collected from rail operators and reverting it back to the railway transport system, infrastructure in particular. Such settlement has been discussed in 2012 and suggested to government by The Latvian Port, Transit and Logistics Council in support of professional associations in the industry, however no results had been achieved.

The excise duty imposed on diesel is nested in the carriage tariff. The authors have estimated that subject to physical properties of the goods transported, power and fuel efficiency of the traction vehicle used, the carrying capacity and elevation of the rail track, etc. parameters, the excise duty forms 8–12% wedge in total carriage tariff (see Table 2).

Table 2

Excise duty wedge in rail carriage tariff

Carriage route (Eastern borders to seaports)	Transit freight volume	Excise duty cost, EUR/t	Total excise duty p.a., EUR
Indra/Kārsava/Zilupe–Ventspils	15 mln. t	0.72 EUR/t	EUR 10.8 mln.
Indra/Kārsava/Zilupe–Liepāja	3 mln. t	0.72 EUR/t	EUR 2.16 mln.
Indra/Kārsava/Zilupe–Rīga	30 mln. t	0.46 EUR/t	EUR 13.8 mln.
TOTAL	48 mln. t		EUR 26.76 mln.

Source: Estimations by authors

According to the calculations, Latvian railway transport sector provides in excess of EUR 26 million per year to the national budget in the form of excise duty contributions. This amount is sufficient to cover the EUR 20–25 million infrastructure funding deficit mentioned earlier.

In 2015 total revenue from excise tax collections imposed on petroleum products amounted EUR 428.3 million (SRS 2016) being used for various public necessities. Ironically, Motorway Law allows up to 80% of the total excise duty revenues from

petroleum products for motorway maintenance funding (p.12(4)), including contributions provided by railway transport, which authors find unjustified.

Discussions

Though redistribution of excise duty would have no impact on aggregate national budget, the authors recognize the effect it would have on national motorways maintenance budgets. Discussions within the railway industry therefore are on the proportion of reinvested excise duty which varies through 10–100%. Plain estimates show that 80% of EUR 428.3 million provides EUR 342.7 million for motorway maintenance, and EUR 26 million to be reverted to the rail transport sector is sensible.

The new approach to infrastructure access pricing has untwisted vast discussions in the railway industry, since the impact that access charge has to the carriage tariff. The authors suggest discussion over redistribution model of excise tax which is linked to distance a diesel train covers carrying the goods. This would balance competitive disadvantages of remote seaports such as Ventspils and Liepāja, a problem which exists in the industry.

Conclusions

Motivation to promote railway transport is evident – carriage by rail is more sustainable, environmentally effective and economically efficient in comparison to road transport. Several EU Member states apply partial or general exemption of the excise duty on diesel used in rail transport. At governments disposal there are number of options to choose from in determining the level of public aid for railway transport and techniques of its implementation.

Latvian railway operators fully cover all the rail network construction and maintenance costs. Railway operators in Latvia also contribute full rate excise duty to the General State Budget. Latvian government does not take part in co-financing of railway infrastructure maintenance and renewal, although the state is obliged to ensure that network funding and infrastructure expenditures are coordinated and that rail transport is able to compete with other modes of transport.

Considering the financial aspect of the infrastructure manager performance, clearly JSC “Latvian Railway” struggle to balance the incurred costs with the proceeds without the co-financing of EU funds. Due to the lack of sufficient government support, comparing with other EU countries, and consequently higher railway charges, the competitiveness of railway in Latvia has reduced; thereby there is risk that freight transit flow will shift away from Latvia. Therefore, state aid in form of excise duty relief on diesel used in carriage of goods and passengers by rail in Latvia or financial support is required. One form to do it is to redistribute revenue from excise tax on diesel used for rail transport back to railway system as funding for the infrastructure maintenance and development needs.

References

- Andersson, R., & Söderberg, B. (2012). Financing roads and railways with decentralized real estate taxes: the case of Sweden. *Annals Of Regional Science*, 48(3), pp. 839–853. doi:10.1007/s00168-009-0348-x
- Buśłowska, A. (2015). The impact of railways on regional development. *Proceedings Of The Multidisciplinary Academic Conference*, pp. 1–7.
- Cargo traffic by rail (thsd tonnes), TRG15. Central Statistical Bureau of Latvia. Retrieved from http://data.csb.gov.lv/pxweb/en/transp/transp_ikgad_transp/TR0150.px/table/tableViewLayout2/?rxid=a79839fe-11ba-4ecd-8cc3-4035692c5fc8
- Cargo turnover by mode of transport (mln tonne-kilometres), TRG134. Central Statistical Bureau of Latvia. Retrieved from http://data.csb.gov.lv/pxweb/en/transp/transp_ikgad_transp/TR0134.px/table/tableViewLayout2/?rxid=a79839fe-11ba-4ecd-8cc3-4035692c5fc8
- CEC (1998). White Paper: fair payment for infrastructure use: a phased approach to a common transport infrastructure charging framework in the EU. Commission of the European Communities, Brussels.
- Cohen, J., & Kamga, C. (2013). Financing high speed rail in the United States and France: The evolution of public-private partnerships. *Research In Transportation Business & Management*, 6 (Railroad privatization and deregulation: Lessons from three decades of experience worldwide), pp. 62–70. doi:10.1016/j.rtbm.2012.11.013
- Connecting Europe: Delivering the Trans-European Transport Network. European Commission, 2012. Retrieved from http://ec.europa.eu/transport/infrastructure/tentec/tentec-portal/site/brochures_images/CE_WEBdeliveringTETNbrochure.pdf
- Dehornoy, J. (2011). The evolution of public funding to the rail sector in 5 European countries – a comparison. Fourth Annual Competition and Regulation in Network Industries (CRNI) Conference.
- Dziuba, J. (2015). Environmental aspects in the system of local taxes and tax policy of cities with the powiat status in Poland. *Research Papers Of The Wroclaw University Of Economics / Prace Naukowe Uniwersytetu Ekonomicznego We Wroclawiu*, (397), pp. 78–88. doi:10.15611/pn.2015.397.06
- Excise Duty Tables. Part II – Energy products and Electricity. European Commission, 2016. Retrieved from http://ec.europa.eu/taxation_customs/resources/documents/taxation/excise_duties/energy_products/rates/excise_duties-part_ii_energy_products_en.pdf
- Kopsavilkums par budžeta ieņēmumu daļas izpildi 2015. gada 12 mēnešos. Valsts ieņēmumu dienests, 2016. Retrieved from <https://www.vid.gov.lv/lv/nodok%C4%BCu-ie%C5%86%C4%93mumi-2015gada-12-m%C4%93ne%C5%A1i>
- Latvijas dzelzceļš, JSC. Annual Financial Report for fiscal 2014. Retrieved from <https://www.lursoft.lv/lv/gada-parskati>
- Laurino, A., Ramella, F., & Beria, P. (2015). The economic regulation of railway networks: A worldwide survey. *Transportation Research Part A*, 77202-212. doi:10.1016/j.tra.2015.04.011
- Law On Public Transport Services, Section 6, clause 7. Retrieved from <http://likumi.lv/doc.php?id=159858>
- Ljungberg, A. (2013). Impacts of increased rail infrastructure charges in Sweden. *Research In Transportation Economics*, 39 (THREDBO 12: Recent developments in the reform of land passenger transport), pp. 90–103. doi:10.1016/j.retrec.2012.05.027

- Lubāns, A. JSC Pasažieru vilciens, Darbības stratēģija 2015.–2020. gadam [Presentation].
- Matthews, B., Evangelinos, C., Johnson, D., Meunier, D. (2009). Impacts and incentives of differentiated rail infrastructure charges in Europe – focus on freight. *European Transport/Trasporti Europei*, 43, pp. 83–112.
- May, R. T. (2014). *Road Infrastructure Funding: Selected Practices and Lessons From Around the Globe*. New York [New York]: Nova Science Publishers, Inc.
- Merkert, R., & Nash, C. A. (2013). Investigating European railway managers' perception of transaction costs at the train operation/infrastructure interface. *Transportation Research Part A*, 5414-25. doi:10.1016/j.tra.2013.07.014
- Nash, C. (2004). Editorial: Rail policy and planning in Europe. *International Journal Of Transport Management*, 2 (Rail Policy and Planning in Europe), pp. 1–3. doi:10.1016/j.ijtm.2004.06.002
- Nash, C. (2010). European rail reform and passenger services – the next steps. *Research In Transportation Economics*, 29 (Reforming Public Transport throughout the World), pp. 204–211. doi:10.1016/j.retrec.2010.07.025
- Nash, C. A., Nilsson, J. E., Link, H. (2013). Comparing three models for introduction of competition into railways. *Research In Transportation Economics*, 47 (Competition and Ownership in Land Passenger Transport), pp. 191–206. doi:10.1016/j.retrec.2013.09.027
- NERA (2004). Study of the Financing of and Public Budget Contributions to Railways. Report to the European Commission – DG Tren, London.
- Niitra, Nils. The long and winding Lithuanian Rail Baltic. Postimees, 24 March 2016. Retrieved from <http://news.postimees.ee/3630533/the-long-and-winding-lithuanian-rail-baltic>
- Number of vessels, vehicles and aircraft at end of year, TR0050. Central Statistical Bureau of Latvia. Retrieved from http://data.csb.gov.lv/pxweb/en/transp/transp_ikgad_transp/TR0050.px/table/tableViewLayout2/?rxid=a79839fe-11ba-4ecd-8cc3-4035692c5fc8
- On the Baltic slow train: The geopolitics of the EU's flagship railway project. *The Economist*, 19 October 2013. Retrieved from <http://www.economist.com/news/europe/21588070-geopolitics-eus-flagship-railway-project-baltic-slow-train>
- Passenger turnover (mln passenger-kilometres), TRG28. Central Statistical Bureau of Latvia. Retrieved from http://data.csb.gov.lv/pxweb/en/transp/transp_ikgad_transp/TR0280.px/table/tableViewLayout2/?rxid=a79839fe-11ba-4ecd-8cc3-4035692c5fc8
- Perkins, S. (2005). The role of government in European railway investment and funding. In: European Conference of Ministers of Transport, China Railway Investment & Finance Reform Forum. Beijing, China, vol. 20.
- Proost, S., & Zaporozhets, V. (2013). The political economy of fixed regional public expenditure shares with an illustration for Belgian railway investments. *Regional Science And Urban Economics*, 43808-815. doi:10.1016/j.regsciurbeco.2013.08.001
- Raux, C., Mercier, A., & Souche, S. (2007). Chapter 11 French multi-modal transport funds: issues of cross-financing and pricing. *Research In Transportation Economics*, 19 (Investment and the Use of Tax and Toll Revenues in the Transport Sector), pp. 243–268. doi:10.1016/S0739-8859(07)19011-9
- Report: Fourth report on Monitoring Development in the Rail Market: Report from the Commission to the Council and the European Parliament of 2014 [COM92014 0353 final] [Electronic resource] // European Commission. – Cited August 2016 – available: http://ec.europa.eu/transport/modes/rail/market/market_monitoring_en.htm
- Review of The Ports Sector of Latvia: Competitiveness and Governance. World Bank, October 2013. Retrieved from http://www.sam.gov.lv/images/modules/items/PDF/item_4501_LATVIA_PORTS_FINAL_ENG.pdf

Rubesa, Baiba. Izstrādājot sistēmu, kā Rail Baltica projektā apgūt piešķirtos līdzekļus, lielākā problēma ir laiks. LETA, 13 January 2016. Retrieved from <http://www.diena.lv/latvija/viedokli/rubesa-izstradajot-sistemu-ka-rail-baltica-projekta-apgut-pieskirtos-lidzeklus-lielaka-problema-ir-l-14126052>

Sánchez-Borràs, M., Nash, C., Abrantes, P., & López-Pita, A. (2010). Rail access charges and the competitiveness of high speed trains. *Transport Policy*, 17102-109. doi:10.1016/j.tranpol.2009.12.001 SRS (2015). Tax revenues. The State Revenue Service. Riga. Latvia.

The Council of the European Union (2003). Council Directive 2003/96/EC of 27 October 2003 restructuring the Community framework for the taxation of energy products and electricity (Text with EEA relevance). *Official Journal*, L 283, 31/10/2003, pp. 0051 – 0070.

Total value added by kind of economic activity and its share by statistical region (at current prices), IKG100012 Central Statistical Bureau of Latvia. Retrieved from http://data.csb.gov.lv/pxweb/en/ekfin/ekfin_ikgad_ikp/IK10_0120.px/table/tableViewLayout2/?rxid=a79839fe-11ba-4ecd-8cc3-4035692c5fc8

What is the Swiss Travel System? Swiss Travel System. Retrieved from <http://www.swisstravelsystem.com/en/highlights-en/what-is-swiss-travel-system.html>

White Paper: Roadmap to a single European transport area - Towards a competitive and resource-efficient transport system: Commission White paper of 28 March 2011 [COM(2011) 144 final]. European Commission. Retrieved from <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52011DC0144>

World Energy Outlook 2013. International Energy Agency, 2013. Retrieved from <http://www.worldenergyoutlook.org/weo2013/>

Распоряжение Правительства РФ от 17.06.2008 N 877-р «О Стратегии развития железнодорожного транспорта в Российской Федерации до 2030 года» (вместе с «Планом мероприятий по реализации в 2008 – 2015 годах Стратегии развития железнодорожного транспорта в Российской Федерации до 2030 года»). Retrieved from http://www.consultant.ru/document/cons_doc_LAW_92060/

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