

Why Do Open Rail Freight Markets Fail to Attract Competition? Analysis on Finnish Transport Policy

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Since the beginning of 2007, EU legislation has encouraged member states to deregulate their domestic rail freight markets. While many countries have benefited from the resultant liberalisation, in others, markets are changing fairly slowly. The incumbent railway undertaking has a total market share e.g. in Lithuania, Ireland, and Finland. This paper analyses Finnish transport policy as well as the question why deregulation has not brought competition to the rail freight transport market. The research material was collected by using the Delphi technique. This paper illustrates that competition is expected in Finland, and there is a need for structural changes. Market inequality is manifested in access to incumbent's services, governmental inactivity on market entry as well as in competition in general, traffic control organisation, and personnel training. This paper suggests that governments and governmental authorities should have an active transport policy in order to create a level playing field which could be a basis for equal and stimulating competition.

Keywords: competition, entry barriers, railway, transport policy, Delphi technique, Finland

1. Introduction

The transport policy of the European Union (EU) aims at developing an economically, socially, and environmentally sustainable transport system. The goal is to cut the growth of road and aviation transport and shift the balance towards environmentally friendly transport systems. According to the EU, railways should play an important role in the transport policy change, but the European Commission has not been pleased with either the performance of the railways or the quality of the rail transport services. Surely, there are plenty of reasons for the weak status, for example, the lack of interoperability and the poor condition of the infrastructure (European Commission, 2001; European Commission, 2008). However, the European Commission (2001) has stated that opening rail freight transport markets to competition is an obligatory precondition for revitalising rail transport and creating more competitive rail freight services, and that is why rail transport policy and rail legislation have progressed towards free markets. (European Commission, 2001; Mäkitalo, 2007; Hilmola, 2007; Ludvigsen, 2009) Transport policies and policy definitions are very important, as those speak out the aims and necessary actions. That is also why policy analyses are important. (Tuominen and Himanen, 2007; Tuominen et al., 2008)

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Even though domestic rail freight transport has been open to competition in most EU Member States since the beginning of 2007, transport markets have attracted few newcomers (Ludvigsen and Osland, 2009; Mäkitalo, 2007). However, some Member States have witnessed competition although their governments have supported incumbents and thus interfered the opening of the markets (Ludvigsen, 2009). New railway undertakings rarely reach a joint market share of more than 20 per cent which is why incumbent railway undertakings have endured and are expected to remain strong, and why markets are changing slowly. (European Commission, 2009; Laisi, 2009b; Slack and Vogt, 2007; cf. Ludvigsen and Osland, 2009.) Figure 1 illustrates the market shares of incumbent railway undertakings in the EU Member States at the end of 2008. The incumbent has a 100 per cent market share in Lithuania, Greece, Ireland, Slovenia, and Finland.

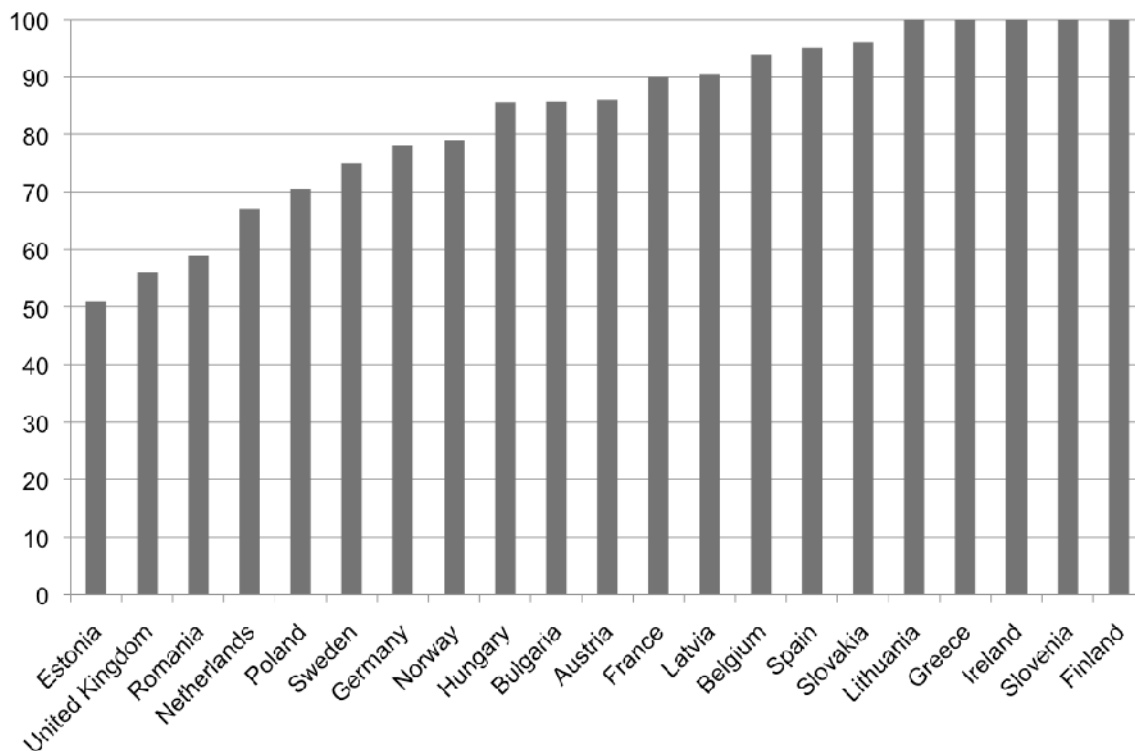


Figure 1. Incumbents' market shares. (Adapted from source: European Commission, 2009)

The United Kingdom and Sweden are often mentioned as pioneers in railway deregulation. Sweden reorganised the whole sector in the late 1980s and initiated action towards competition (see e.g. Nilsson, 2002; Mäkitalo, 2007), and, in the UK, the Conservative government decided to start privatisation of British Rail in 1992 (see, e.g., Nash, 2008; Woodburn, 2007). Despite the critics and process setbacks, competition has, in general, produced positive results (see e.g. Jensen and Stelling, 2007; Hilmola, 2007; Simola and Szekely, 2009). Ludvigsen and Osland (2009) argue that there is a great difference in legislative fulfilment grades, and their claim is based on their analysis of national implementation of the European Community (EC) legislation. The European Commission has not been satisfied with the inadequate or slow implementation, and it initiated official infringement procedures against nearly all Member States. However, the lack of EC legislation implementation does not mean that there would not be competition on railways (Ludvigsen and Osland, 2009; Ludvigsen, 2009.) Ludvigsen (2009) notes that deregulation was not conducted satisfactorily in the newly liberated countries, as governments safeguarded incumbent railway undertakings, incumbents' employees, and service continuity. Despite partial

transport policy, new companies managed to enter the markets and make profits in, for instance, Poland, the Czech Republic, and Romania. (Ludvigsen, 2009.)

National implementation of the EU regulation, white papers, and policies also form a broader question of the roles and powers of the Member States, the European Commission, the European Parliament, and the European Council of Ministers. The question is how to handle co-ordination, compatibility, and incompatibility at the EU level as well as national interests and preferences. (See e.g. Apostolopoulou and Pantis, 2009; Michelsen, 2009.) These kinds of conflicts have been seen also in transport policy and regulation implementation deficiencies (Mäkitalo, 2007; Ludvigsen and Osland, 2009; Ludvigsen, 2009).

In Finland, the domestic rail freight market has been opened to competition according to EU legislation, and its implementation has been completely conducted (Ludvigsen and Osland, 2009; Mäkitalo, 2007). However, despite comprehensive legislative actions, there are no new railway undertakings in the market, and the incumbent railway undertaking remains the only company in the market. A couple of firms have commenced the market entry process by applying for a safety certificate, but, later, the process has come to a standstill. (Mäkitalo, 2009; Ludvigsen, 2009.) As already said, there is no competition in some EU Member States, but it has to be remembered that incumbents have a strong role in every Member State rail freight market. That is why rail freight market openness and transport policy are important issues in the whole of Europe. In spite of the prevailing situation in Finland, competition has been expected: According to the earlier studies (Ikkänen, 2007; Mäkitalo, 2009), competition could start first in wood transport, and, subsequently, in goods transport. It is anticipated that metal and chemical industries are also active in offering competitive tenders for their transports.

Nevertheless, it would be important to understand why there is no competition in Finland. Deregulation has spread competition in many countries, but why not in Finland? The aim of this study is to assess reasons for the unattractiveness of the Finnish rail freight market, and to identify the status of the rail freight transport market equality and transparency as well as to find out what kind of changes are needed in transport policy. As already stated, Finland has implemented the European Community rail transport deregulation legislation in full, and rail freight competition would be welcomed by the Finnish industry. Therefore, the hypotheses of the study could be formed as follows: As the EU legislative adherence and desire for competition do not generate competition, national orientation and politics affect market rivalry. Because of this, national transport policy may create market entry opportunities or hinder competition. As the situation in Finland is not unique, this study can also contribute to the debate on the European level. In addition, this paper discusses also how EU level policies and policy definitions are seen from a different perspective in certain EU Member States. This research aims at answering the following questions:

- Is there a level playing field in the Finnish rail freight transport market?
- What kinds of actions are expected from transport policy?

The paper is structured as follows: Chapter 2 describes competition and welfare economics' socioeconomic efficiency and discusses reasons for government interventions in market forces. Market entry barriers to rail transport are also presented in chapter 2. Short introduction of the Finnish transport sector and the rail freight market are provided in chapter 3. Chapter 4 describes research methodology of this study in detail, and empirical data analysis and the results of the study are presented in chapter 5. The last chapter, in turn, reviews and discusses the results and suggests a couple of ideas for further research.

2. Competition, Socioeconomic Efficiency, and Entry Barriers

Deregulation is conducted in order to boost industry's performance, as competition forces companies to take better care of their customers (see e.g. Mankiw, 2004; Porter, 1998). In this article, the focus is on the question of how to promote competition by government actions and transport policy. Encouraging competition has not materialised in all EU Member States, but, instead, some governments have hampered it (Ludvigsen, 2009). This paper discusses what the Government of Finland could do in order to create transparency and an equal playing field. In this section, transport policy will be put into a theoretical context in order to illuminate the role of government and transport policy. This is carried out by introducing economics framework and the structure-conduct-performance (SCP) model, which elucidates the role of the government policy in the industry's performance.

According to the neoclassical microeconomics theory, the allocation of resources is most efficient in perfect competition. Competing markets work better and are socio-economically more efficient than a monopoly. (Mankiw, 2004.) This is a logical reason why vertical separation and competition have been promoted in the EU rail transport policy (see e.g. Mäkitalo, 2007; cf. Pittman, 2007b). Competitive markets entail better customer-focus, innovations, and lower prices, also in rail transport (Ludvigsen and Osland, 2009; Mäkitalo, 2009; Laisi, 2009a). Simola and Szekely (2009) state that rail freight transport competition has created good service solutions and has lowered the price level by 20–30 per cent in Germany (see also Slack and Vogt, 2007). Rail freight transport customers have received lower prices as well in Sweden, and new business concepts have been developed. This has shifted freight transports from road to rail. (Alexandersson and Hultén, 2008.)

Porter (1998) argues that a company, its strategy and competitive situation ought to be viewed and analysed on the basis of the firm's environment. The competitive situation and environment can be seen in five forces (dimensions or threats), which, in the railway context, are 1) rail transport competition; 2) new railway undertakings; 3) substitute services from other transport modes; 4) the power of service buyers; and 5) the power of suppliers (Porter, 1998; Mäkitalo, 2010a). Porter's first two forces refer to dividing rail transport market amongst railway undertakings, and the third can enlarge or shrink market size. Should Porter's five forces model be scrutinised alongside government's transport policy, it could be concluded that the industry competitive situation may be affected in three model dimensions: Contributing to the first power by setting the competitive environment, and, to the second, by lowering entry barriers. Government policy can also influence the transport mode balance, for example, by taxation policy and infrastructure investment choices.

Welfare economics state that imperfect competition and imperfect market forces function as grounds for the government to intervene in competition and the market functions in order to increase socioeconomic efficiency. Central elements for causing imperfection are external effects, monopolistic competition, and public commodities. (See e.g. Corchón, 2008; Tang and Wälde, 2001; Boadway and Wildasin, 1984.) In cases of a monopoly or monopolistic competition, the market incumbent may set the price above its marginal costs, which decreases socioeconomic efficiency as well as social welfare. The government has a couple of alternatives to reduce negative effects: regulating monopolistic markets operations, cutting the price gap between the price and marginal costs by taxes or charges, and preventing monopolisation of the market. (Corchón, 2008; Boadway and Wildasin, 1984; Kerosuo, 1987.)

Governments may increase socioeconomic efficiency and social welfare also by intervening in the imperfect competition of rail transport. The means of intervention are explained in transport policy. External effects may be fixed or corrected within an industry, but it is possible to correct the external effects of the whole industry. For example, railways are used to correct socioeconomic efficiency distortions, which originate from external effects of road transport.

Therefore, it is rational to finance the potential shortfall of the whole railway sector – intending especially rail network management – in order to enhance the socioeconomic efficiency and public welfare. (Kerosuo, 1987; Corchón, 2008; Suvanto, 2004; Sonstegaard, 1992; Forkenbrock, 2001; see also Conrad, 2000.)

Government's role in the increase of socioeconomic efficiency and competition is illustrated in the structure–conduct–performance (SCP) model, which has been used in neoclassical studies on the industrial organisation and on market competition. The SCP model is used in assessing how market's basic conditions, structure, and company's competitiveness affect the performance and the efficient resource allocation of the industry. In the model, basic conditions equal industry's specific characteristics. The SCP model's market structure denotes buyers and sellers on the market. The market entry and market entry barriers are also linked to the market structure. The competition activity, in turn, signifies rivalry and competition actions as well as the behaviour of the companies. In the model, the next step is industry's performance, meaning output, and efficiency. (Scherer and Ross, 1990 see also Slade, 2004.)

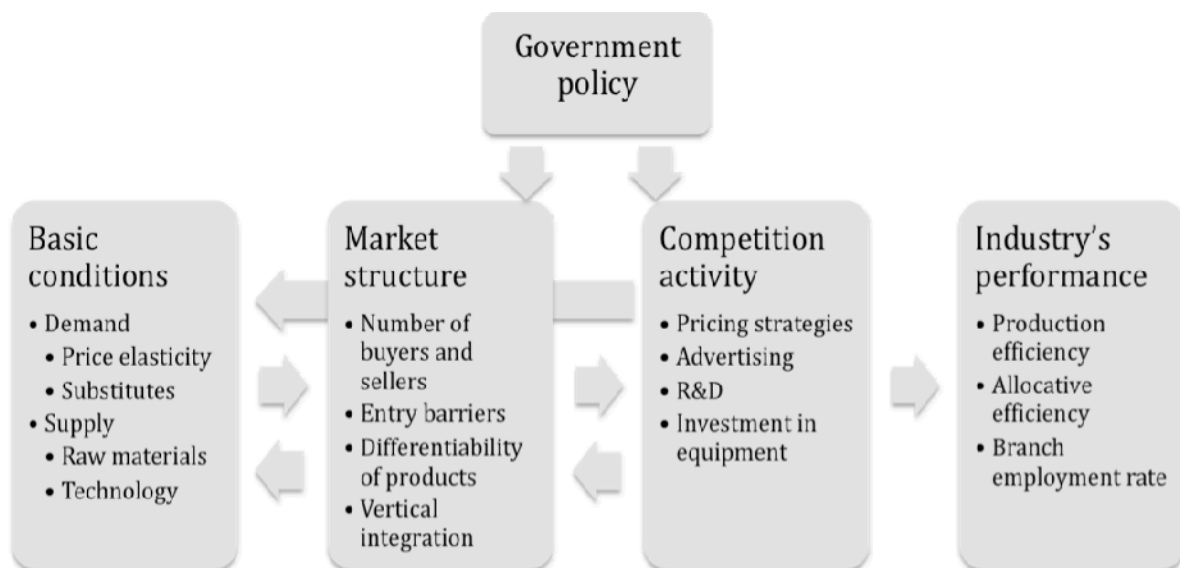


Figure 2. The SCP model (Adapted from source: Scherer and Ross, 1990)

In the structure–conduct–performance model, the government may affect the market structure and competition activity, and the government may, if necessary, intervene in reducing the influence of imperfect competition. Market entry barriers, especially, have a great effect on competition, as they signify that competition is imperfect and non-competitive actions may be seen. (Scherer and Ross, 1990; Audretsch et al., 2001; see also Slade, 2004; Mäkitalo, 2007; Ng and Gujar, 2009; Porter, 1998.) Scherer and Ross (1990) have stated that competition policy and market regulation actions are the most forceful tools for a government to affect market structures and the competition intensity of industries. In this paper, the focus is on government competition policy.

Hilmola and Szekely (2006) argue that government policy and the actions of governmental authorities have a massive effect on the performance of the rail transport industry – just as the SCP method illustrates. That is why it is important for governments to define the ends and means for railway sector in the society. Also, necessary actions are important in order to enable the sector to meet the objectives and to increase the performance of the industry. (Mäkitalo, 2007, 2009; Ludvigsen and Osland, 2009; Ludvigsen, 2009.)

Rail transport deregulation is not an old field of research interest, as the topic has come up in the late 80's and early 90's when the pioneers, the UK and Sweden, started restructuring the sector and encouraged competition. Consequently, rail transport competition studies have focused on these countries, especially on the UK. (See e.g. Brewer, 1996; Cowie, 2009; Nash, 2008; Alexandersson and Hultén, 2008; Woodburn, 2007; Nilsson, 2002.) In the European Union as well as in Finland, international rail freight transport was opened to competition in March 2003, in accordance with the first railway package. As far as intensive rivalry is concerned, opening domestic rail freight transport to competition from the beginning of 2007, as the second railway package intended, was more significant. Open competition has connoted that a company meeting the regulations may enter the market. (Directive 2001/14/EC; Mäkitalo, 2009.) After deregulation in the EU, rail transport competition research has also boomed, and recently, there have been studies concentrating on the countries, which have been slow to deregulate rail transport (see e.g. Hilmola & Szekely, 2007; Ludvigsen & Osland, 2009; Ludvigsen, 2009; Szekely, 2009, Mäkitalo, 2009, 2010; Laisi, 2009b).

Previous studies conducted in the Finnish rail transport market argue that despite deregulation, only small changes in the rail transport sector structure and organisation have been carried out, and governmental authorities are claimed to have been passive (Mäkitalo, 2008, 2009, 2010a; Iikkanen, 2007; Laisi, 2009b). However, at the same time, the public declaration is nearly reversed as the official definitions of transport policies have been supporting competition (e.g. Prime Minister's Office, 2007; Ministry of Transports and Communications, 2005, 2010). The Finnish Ministry of Transports and Communications has stated (2005, 2010) that several functions need to be changed in the railway sector, including the organisation of traffic control, education, and access to services. However, these actions have not materialised (Mäkitalo, 2010a, Ministry of Transports and Communications, 2010).

Furthermore, there are several studies of the market entry barriers in rail freight transport which have identified the following as barriers: railway stock acquisition, access to the railway services owned by others, actions of the incumbent railway undertaking, and recruiting skilled staff. (Nash and Preston, 1992; Bergdahl, 2005; Alexandersson and Hultén, 2005; Nordenlöw and Alexandersson, 1999; Slack and Vogt, 2007.) The issues of the market entry and entry deterrence are important in economics theories and also in competition legislation and certainly in railways as entry barriers encourage imperfect competition in which case non-competitive actions may take place (Stehmann and Zellhofer, 2004; Mankiw, 2004; Mäkitalo, 2010a).

In the European Union, market entry in rail transport consists of four steps, at least from the administrative perspective. Market entry begins with applying for a safety certificate from the national safety authority. The entrant needs also an operating licence, which is valid in the whole of the European Economic Area. After the acquirement of the safety certificate and the operating licence, the entrant may send a rail capacity application for the infrastructure manager. The last phase is an access contract with the infrastructure manager concerning rail network use and certain services. (Directive 2001/14/EC; Finnish Rail Administration, 2009b.) In his recent study, Mäkitalo (2007) suggests that market entry barriers may be divided into three dimensions: financial, technical, and administrative. Previous studies (Laisi, 2009b, 2010; Szekely, 2009; Simola and Szekely, 2009) have also underlined sector-related bureaucracy as an entry barrier. It is important for competition stimulation that government is active in lowering market entry barriers (Mäkitalo, 2007, 2010a; Ludvigsen, 2009). Anyhow, there are a lot of country-specific elements (see e.g. Laisi, 2009b; Simola and Szekely, 2009). Market entry phases and market entry barriers are presented in Figure 3. In the figure, the box size portrays the difficulty of the certain phase and/or the barrier.

Even though market entry is said to be difficult in Europe, market entry barriers are greater in other parts of the world, for example, in the United States and in China where rail transport markets are vertically integrated. (See Hilmola et al., 2007; Pittman, 2004.) Russia is also taking

steps towards rail transport competition, as Russian railways RZD has launched a major reform programme. The aim is to increase competition, which is partly conducted by privatising some parts of the state-owned railway company RZD. In Russia, rail transport competition has a unique form, as only RZD operates rail transport, i.e., it is the only company with locomotives that run trains. RZD offers transport services to companies, which, in turn, sell rail freight transport services, capacity, and wagons to their own customers. (Pittman, 2007a; Laisi, 2010; Mäkitalo, 2010b.)

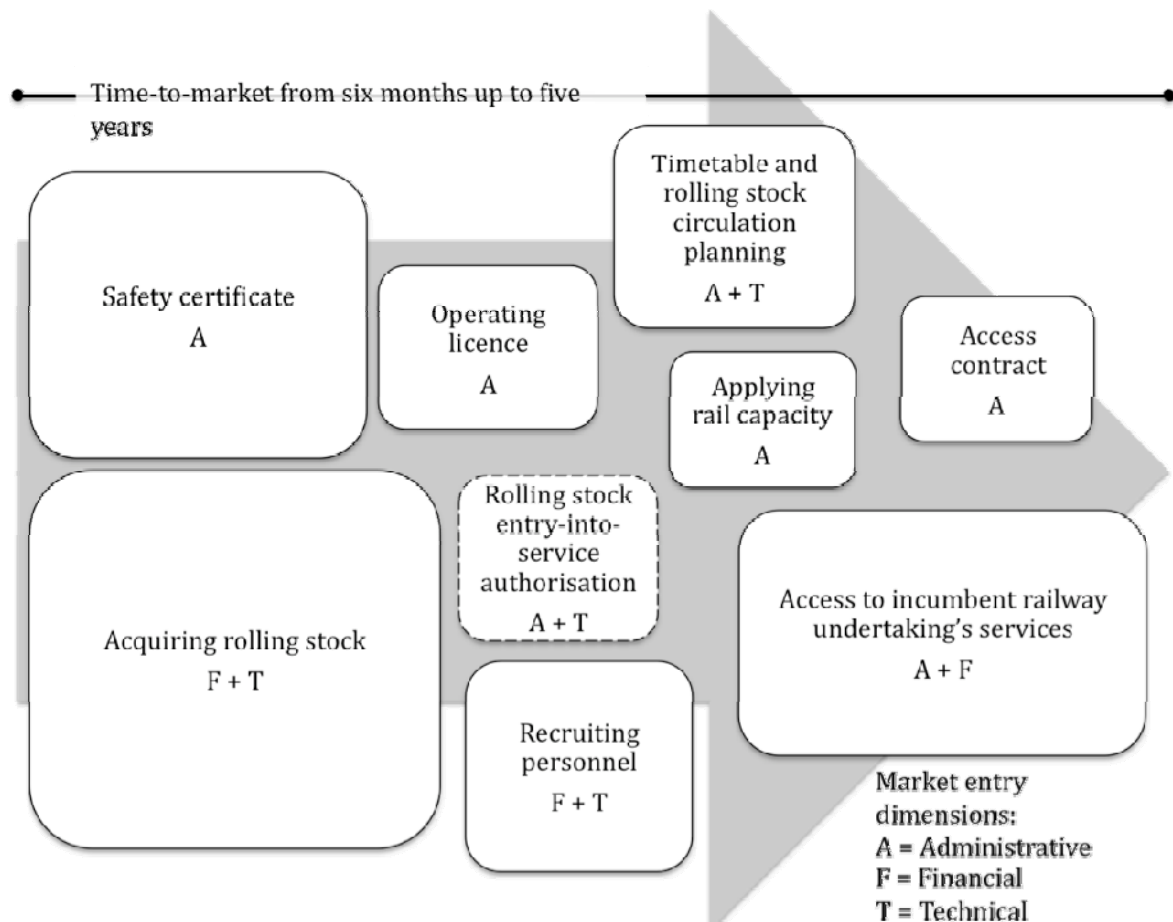


Figure 3. Market entry phases and entry barriers in rail freight transport (Source: Mäkitalo, 2010a.)

3. The Finnish Rail Transport Market

The Finnish rail transport organisations are 1) the administrative sector of the Ministry of Transport and Communications, which grants operating licences for Finland-based railway undertakings; 2) the rail network infrastructure manager, i.e., the Finnish Transport Agency, which is in charge of accessing and the usage of the network and capacity allocation, and 3) Finland's national safety authority – the one issuing safety certificates – called the Finnish Transport Safety Agency. There are also other offices in the sector: the Finnish Competition Authority, the Accident Investigation Board, and the Prime Minister's Office, which is in charge of the corporate governance of the state-owned incumbent railway undertaking, VR Ltd. Sector players are presented in Figure 4.

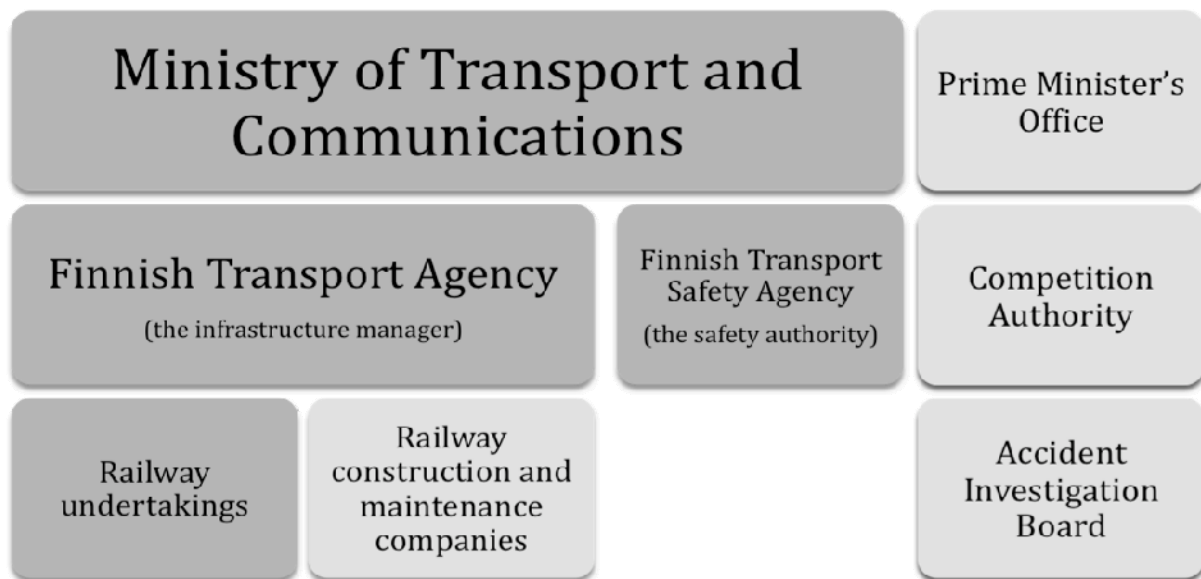


Figure 4. The railway sector structure of Finland

According to an argument based on transport mode characteristics, rail freight service is best suited for heavy and long transports. In Finland, typical rail freight transports are for the metal, forest, and chemical industries. The majority of transport volumes hail from raw material transport to factories and production units as well as from product transports between factories and production units and harbours (Ikkänen, 2007; Mäkitalo, 2007, 2009). In 2008, total transport volume was 41.9 tonnes, and 10.8 billion tonne-kilometres (Finnish Rail Administration, 2009a). Transport volumes by product groups are presented in Figure 5. The Finnish rail transport market share of the whole transport market measured by tonne-kilometres is 25 per cent, as the EU-27 modal split for rail transport is around 10 per cent (Lahelma, 2010; European Commission, 2009).

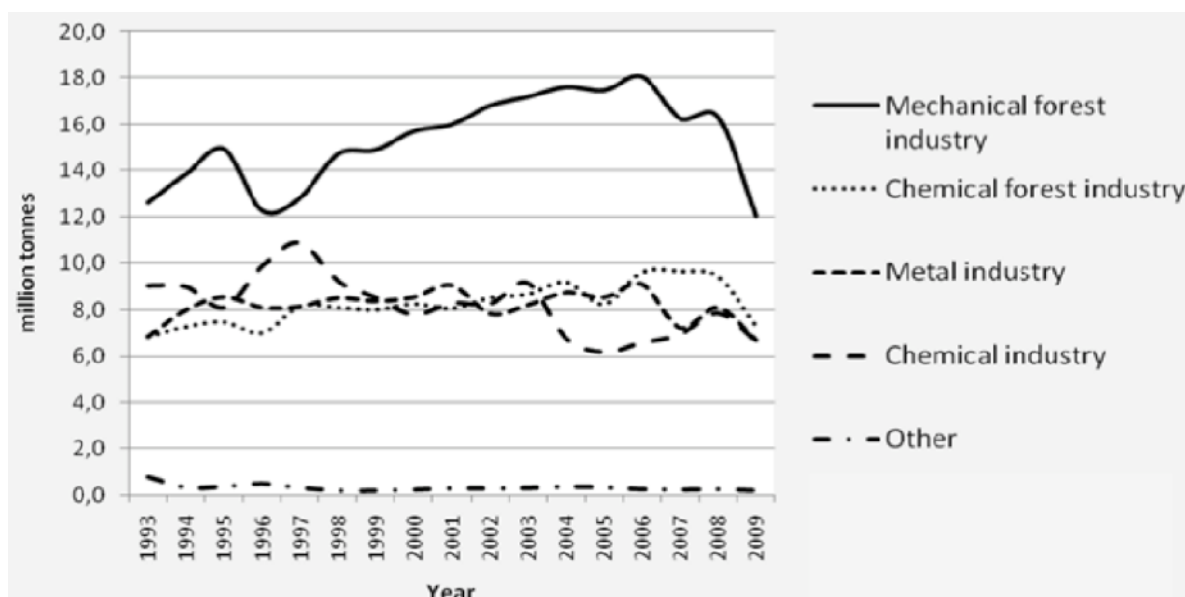


Figure 5. Finnish rail transport volume development by product groups 1993–2009 (Source: Lahelma, 2010)

Rail transport volumes are affected largely by the financial position and the changes in basic manufacturing industry (Finnish Forest Industries, 2010; Mäkitalo, 2007). Economic crisis hit rail transport volumes in the end of 2008 – transport volumes dropped by almost a third, which can be seen also in Figure 5. The situation accelerates structural change, as huge forest industry factories are closing down and the production is moved to locations which are closer to the markets and where production costs are lower. This has, of course, a great impact on the Finnish rail transport market.

International transport to and from Russia is playing a big role in Finland's rail transport volumes, as it covers around forty per cent of total volume. A majority (approximately $\frac{3}{4}$) of this consists of Finnish industry's raw material transport. (Iikkanen, 2007, Iikkanen et al., 2009; Mäkitalo, 2007.) Russia has announced that they will raise raw wood export tolls. The rise to such a level will shrink rail transport flows from Russia which has an effect on Finland's domestic traffic flows. (Iikkanen et al., 2009.) Russian-bound transport has not been deregulated, even though the industry in Finland has expected it (Iikkanen, 2007.)

4. Research Methods

Deregulation of rail transport and structural changes in order to increase competition have been sensitive issues in Europe as well as in Finland (Mäkitalo, 2007; Ludvigsen, 2009). Railway sector organisations, industrial companies, and interest groups may have strong publicly expressed positions, which may complicate the collection of research data, if it is done by interviews as interviewees can stick to their official positions. In Finland, there is only the incumbent railway undertaking on the market, and any other railway undertaking's first-hand experiences of the level playing field could not have been collected. For these reasons, the Delphi technique fitted well to the research questions and was chosen to the data collecting methods.

The Delphi technique is a research material collection method used in futures studies (see e.g. Popper, 2008; Vinnari and Tapio, 2009). The technique is used for studying indefinable or multidimensional questions and for the assessment of development and futures possibilities. The method was traditionally used as a tool for forming consensus, but lately the focus has been more on arguments and dissenting views. Research data is collected from an expert panel participating in consecutive questionnaire rounds. Latter rounds' questionnaires may reveal arguments from earlier rounds. The names of the participants may be revealed amongst the panellists, but it is characteristic and essential in the method that experts remain anonymous. (Turoff, 1975, Linstone, 1978, Aligica and Herritt 2009, Kuusi 1999.)

In this research, the Delphi expert panel comprised of 52 people from all rail transport interest groups: manufacturing industry, the Finnish Ministry of Transport and Communications, the Finnish Rail Administration (the infrastructure manager) which became part of the Finnish Transport Agency after 1.1.2010, safety authority's personnel, which became a part of the Finnish Rail Agency – after 1.1.2010 part of the Finnish Transport Safety Agency, VR Group (the incumbent railway undertaking in Finland, former Finnish State Railways), the Finnish Competition Authority, labour organisations, and other logistics specialists. The aim of the study was to find out different arguments on rail transport competition, and that goal was considered when experts were chosen.

The goal of the Delphi technique data collection was to acquire material and arguments on the rail freight transport market, assess the extent of the level playing field and the need for change. In the research, two consecutive Delphi rounds were conducted in 2005. As there are still no new railway undertakings in the market in Finland, Delphi material remains valid because of the market situation. Questionnaires' questions and statements were based on theories and the goal of the research. The questionnaire consisted mostly of open-ended questions, but quantitative

material was also collected by seven-step Likert scale. The questionnaire response rate was 77 per cent on the first round. On the second round, it was 45 per cent. The drop-off in the response rate in the second round is considerable, and the reasons can only be speculated: it may be a consequence of boredom in answering the same kind of questionnaire again, somebody might have been provoked by the questions or first-round answers, the study subject was considered dangerous, or maybe the reason is the lack of time, since answering required about an hour on the first round. However, the drop-off did not have an effect on the material, as a gamut of views was just as well balanced as in the first round. That is important in a qualitative study.

In the first questionnaire round, several questions regarding a level playing field were asked. Questions and statements were formulated in a way that they would collect arguments, counter-arguments and reasoning for the expressed opinion, and thus, they were leading and provocative by nature. This also made it possible to check for the response consistency of the panellists. For example, a following statement on rail traffic control was presented to the panel: *The existing organisation of traffic control under VR Limited does not constitute a problem pertaining to impartial competition.* After the statement, the expert evaluated it on a seven-step scale with the following: *fully disagree – disagree – disagree to some extent – neither agree nor disagree – agree to some extent – agree – fully agree.*

After the statement evaluation, the expert was asked to argue for his/her view. Also actions of the incumbent railway undertaking were asked: *According to theories of market entry barriers, the market monopolist (the existing operator in the railway markets) can in many ways promote or prevent competition.* Several statements with seven-step scale and supporting arguments were given for pondering: 1) *The railway market monopolist will allow access for new operators to its existing services, e.g. depots and service points, at a reasonable price,* 2) *The opening of competition will not influence the monopolist's pricing,* 3) *The monopolist will actively try to influence the opinions and decisions of the Finnish Rail Administration and the Ministry of Transport and Communications.* Besides these, experts were also asked what other means the monopolist would exploit in promoting or preventing competition.

As it is typical in the Delphi technique, in the second round, the questionnaire was formulated on the basis of answers in the first round and on the round's themes with wide divergence and important for the research goal. Also some answers and arguments in the first round were presented to the panel. Experts could also assess their opinions again.

5. Empirical Data Analysis and Results

The focus of the Delphi questionnaires' data analysis and results, as well as the research questions, lies in transport policy, and the referential literature was described in chapter 2. The most important findings are presented under sections named as follows: passiveness of the governmental offices, traffic control organising, access to services and actions of the incumbent railway undertaking.

According to this research, there is no consensus on market impartiality or on necessary government actions. On the contrary, there are a lot of conflicting views on virtually anything, as expected. Different organisations and individuals have different stances on rail transport deregulation and market change. This is why the Delphi technique is a good method for collecting this kind of data. In general, expert panellists may be divided into four different groups based on their expressed opinions (Figure 6). Panellists' qualitative and quantitative answers were coded on a scale, which illustrates the need for governmental actions on creating a level playing field. When the scale is split into four, experts fall to these groups as Figure 6 shows.

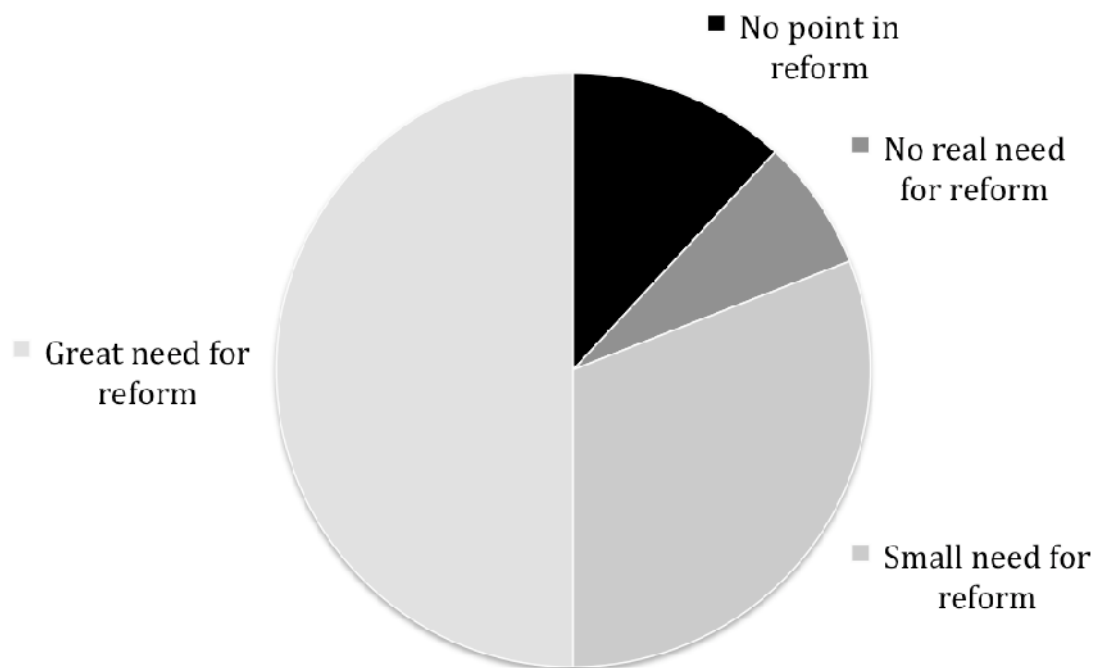


Figure 6. Delphi panellists distribution based on their view on reform for equal preconditions.

Figure 6 illustrates that instead of the two opposite views – promoting competition versus safeguarding the incumbent – there is a full scale of views on rail transport market openness and equality as well as on the need for active transport policy and changes. In fact, people see the expedient need for change differently. Therefore, transport policy faces a question when and how to act on market transparency issues. Even the moderates say that changes might be made, but only when there is rivalry and a real need for resolving an issue. Experts supporting progressive views argue that all changes should be made at once, no matter whether there are newcomers on the market or not. These views and the whole gamut are also seen in the following sections.

5.1 Passiveness of the Governmental Offices

As described in chapter 2, the aim of deregulation is to promote competition, and naturally government actions and transport policy have an important role to play in this. The EU rail transport policy aims are clear, but the question is how this is manifested on the national level. Were all entities coherent, governments would act in accordance with mutual decisions and EU regulations. In an ideal situation, governmental offices would also stimulate competition in compliance with the EU level objectives. However, as described earlier, some EU Member States have hindered deregulation (Ludvigsen, 2009). As the SCP model illustrates, government policies – and governmental offices' actions on operational level – have an effect on market structure and competition activity, and, thus, on industry's performance.

The Delphi material analysis reveals that Finnish governmental offices are partly accused of partiality and passiveness on competition related tasks. This is alarming, since it suggests that offices are reluctant to recognise their role in deregulation and in increasing the performance of the railway industry, as the SCP model specifies. This study indicates that the rail transport sector has not been organised in a way that it would be described as a level playing field. This has been seen as a signal on transport policy. It is expected that government offices would be active,

customer friendly, and swift. This kind of result underlines that transport policy actions speak louder than words (see also Ludvigsen, 2009; Slack and Vogt, 2007).

However, despite general doubts, the Finnish Transport Agency is regarded as a neutral infrastructure manager in capacity allocation. In this case, the Finnish Transport Agency as a governmental office is expected to act impartially which would be a natural aim of deregulation and of the SCP model. Even though, according to this study, it seems impending that when the first entrant applies for capacity, it is the infrastructure manager who has to co-ordinate all capacity requests after which one – if not all – parties shall file a claim for rectification allocated by the Regulatory Body, which is the Finnish Transport Safety Agency. However, the results imply that it is likely that the process continues in the Administrative Court and in the Supreme Administrative Court.

5.2 Traffic Control Organising

Traffic control is a function, which sets train paths on the operational level and ensures that trains are running safely and on time. Traffic control is part of infrastructure management, and therefore it is a public duty. In Finland, traffic control has been organised differently compared to most European Union Member States. The Finnish Transport Agency is in charge of traffic control, but it is outsourced for the incumbent railway undertaking.

View and arguments on both ends were presented. Those who feel that traffic control is just an operational performer, view that traffic control only executes what the governmental infrastructure manager has decided earlier in the capacity allocation. One possibility would be to define rules for traffic control operations, and the Finnish Transport Agency could monitor traffic control actions. However, many experts view that the existing organising of traffic control is or may be in favour of the incumbent, and therefore it is problematic for transparency and impartiality. Traffic control is considered an important governmental task, and the organisation in question and corporate governance should be neutral.

If traffic control were organised as it is typically done in EU Member States – as part of the infrastructure manager (the Finnish Transport Agency in Finland) – doubts about the traffic disruption solution bias would drop dramatically. In any case, traffic control is regarded as a governmental task, and therefore it would be presumable that the organisational dependence reflected that.

Furthermore, the results of this study suggest that outsourcing traffic control to a railway undertaking is not considered a transparent solution as it is regarded as a task for a governmental office. As the current situation is seen problematic as far as competition neutrality is concerned, and traffic control organising is in the jurisdiction of the government policy, it would be advisable to re-organise traffic control in order to enhance transparency and equality, and to give the right kind of signal to the rail transport market.

5.3 Access to Services

At the moment, the incumbent railway undertaking, VR Ltd, owns most of the services related to railway transport production. Services include, for example, depots, maintenance facilities, and terminals. The Finnish Transport Agency owns railway yards, but the incumbent owns cranes and cargo handling equipment.

The Finnish railway act says that the incumbent must allow access to its services if it has service capacity to spare. There were differing opinions about a reasonable price for an access to incumbent's services. It was expected that new railway undertakings' access is conceivable, as it is based on legal provisions and it would be assured with monitoring. It was expected that VR Ltd

would open up access especially to companies, which are working with or for the incumbent. On the other hand, there were also great doubts of access pricing impartiality, as it is expected that companies in rivalry will defend their market share. Consequently, it was regarded that access to services is difficult or overpriced without extensive monitoring or strict regulation.

However, blocking access may be interpreted as a misuse of dominant market position, and it may have negative consequences based on competition legislation (see e.g. Stehmann and Zellhofer, 2004). Earlier studies (e.g. Nash and Preston, 1992; Slack and Vogt, 2007; Mäkitalo, 2010a) have regarded inaccessibility to services as a major market entry barrier. In the SCP model, market entry barriers are part of market structure, which may be effected by government policy.

This is also an important topic for the government policy to address. It is important for market transparency and neutrality that there is access to services. The lack of access has a great impact on industry's performance, as the SCP model illustrates. For transport operations, it is vital to have basic services, whereas for small railway undertakings, it is impossible to invest in nationwide service network.

From the point of view of socioeconomic efficiency and the SCP model as well as the results of this study, it would be advisable for the Government of Finland to solve the market inequality problems found in this study: Access to services should be made possible by enforcing access with some of the following methods, listed in accordance with the level of governmental intervening: 1) an access guarantee with a price ceiling, 2) giving an access-monitoring task for a governmental authority, for example the Finnish Transport Agency or by 3) changing ownership of central rail transport facilities to a governmental office. This is just a question of transport policy, as the Ministry of Transport and Communications and the Prime Minister's Office are responsible for transport and ownership policies of the state-owned incumbent railway undertaking.

5.4 Actions of the Incumbent Railway Undertaking

As well as in other countries (see e.g. Slack and Vogt, 2007; Ludvigsen and Osland, 2009; Simola and Szekely, 2009), it is foreseen also in Finland that the incumbent railway undertaking has several opportunities to hamper competition. This way the incumbent can have an effect on two of the Porter's five forces: internal rail transport competition as well as new railway undertakings – if the incumbent can give a warning signal to the entrants. Study results imply that opening of rail freight transport to competition affects transport prices. It is expected that even the threat of competition will decrease price level, as entrants have to attract customers with better price-quality level and the incumbent may lower its prices in order to keep a high market share. This is in accordance with previous studies (see e.g. Laisi, 2009b; Simola and Szekely, 2009; Iikkanen, 2007). It can be concluded that in Finland the incumbent is seen as powerful, which may hinder and complicate the realisation of competition, as it has been in Germany (Slack and Vogt, 2007).

Lobbying is another anticipated way of interfering competition: It is inevitable for the incumbent to communicate with the Finnish Ministry of Transport and Communications and governmental offices. Of course, it is normal that companies have active communication with its interest group. However, it was also suspected that the incumbent would try to ensure its market position by influencing market structure, decisions, and legislation preparation, in part directly and also on the political level. National incumbents are also contributing to lobbying at the EU level via their joint communities, for example, through the community of European railway and infrastructure companies CER.

The study result implies that acquisition of staff may not be easy, as the incumbent employs skilled staff, since there are no other railway undertakings. Recruiting from the incumbent is of

course a possibility, but terms have to be good. However, earlier results have indicated that acquisition of staff has actually been an easy task (see e.g. Laisi, 2009b; Nordenlöw and Alexandersson, 1999). Training staff is also a choice, but the only training centre for train drivers, for example, is governed by the incumbent. The incumbent's Training Centre's services are argued to be equal, but there are also a lot of doubts and speculations according to which the Training Centre services may not be neutral.

Railway undertakings need personnel, and there has to be available training. The training centre in the incumbent's organisation may not need to be regulated, if there are several training schools competing for customers. It is typical in the EU Member States that there are plenty of training schools and that it is also possible for the railway undertakings to organise training by themselves. All together, based on this, it could be said that acquisition of staff may be more difficult in Finland than in other EU Member States. Access to train driver education is important for market neutrality, and governmental offices should assure that education is available for all railway undertakings.

6. Discussion and Conclusions

The transport policy of the European Union is coherent: competitiveness of rail transport needs to be improved and, in this objective, competition is a focal means (European Commission, 2001, 2008). As the SCP model suggests, government policy has a big role in boosting industry's performance. It can be concluded that the Finnish rail freight transport market has been opened to competition, but the market has not attracted new players in three years. In this respect, it could be said that Finland has competition only on paper. As a scientific contribution to the literature, this study result demonstrates that deregulation or the fully implemented European Community legislation do not automatically bring competition to the market. This is an important implication also at the European level: the Finnish example suggests that the European Community legislation does not extend to the required actions but allows too much space for national manoeuvres. Market entry barriers are high in Europe (Laisi, 2009b; Szekely, 2009; Simola and Szekely, 2009), and maybe even higher in Finland (Mäkitalo, 2007, 2010a). Besides, this study suggests that there is an unlevel playing field in Finland.

This research suggests that, as far as government policy influence is concerned, inequality and market entry problems are considered to consist of governmental passivity on market entry, access to incumbent's services, traffic control organisation, and training. It could be estimated that, due to these issues, the Finnish rail freight transport market is partial, and market structure distortion favours the incumbent railway undertaking. These kinds of results have been found also in earlier studies (see Ludvigsen, 2009; Laisi, 2009b; Iikkanen, 2007; Mäkitalo, 2010a; Simola and Szekely, 2009). These issues are again questions of transport policy and have an effect on market openness and competition activity.

Due to the suggested partiality, this study suggests that the Finnish transport policy and governmental actions are not defined on the basis of the EU transport policy aims, and reform is moderate and slightly resembles competition interference and slow policy changes found in a couple of EU Member States (Ludvigsen, 2009). Welfare economics suggest that government may improve socioeconomic efficiency by reducing negative effects of imperfect competition. The SCP model also illustrates that government policy affects industry's performance. To achieve fair competition prerequisite necessitates that governments and governmental authorities have active transport policy in order to create an equal competition environment and a level playing field. Also from this perspective, the Government of Finland has been dilatory in re-organising railway sector and creating an impartial market, even though that has not been the stated objective (Prime Minister's Office, 2007; Ministry of Transports and Communications, 2005, 2010). Hereby

it seems that the Finnish rail transport deregulation policy resembles Sweden's poorly focused policy in the early years. The Swedish policy was criticised by Nordenlöv and Alexandersson (1999) (see also Alexandersson and Hultén, 2008). Socioeconomic efficiency pursuit, together with the results of this study concerning competition equality problems, emphasise the importance of an active transport policy.

As an important practical implication, it should be obvious that governmental authorities – the Finnish Ministry of Transport and Communications, the Finnish Transport Agency and the Finnish Transport Safety Agency – should be active, customer friendly, and swift in order to give a positive signal on their activities on deregulation and changed situation. Competition policy and market regulatory actions are the most powerful governmental means to influence market structures and competition (Scherer and Ross, 1990). This is of, course, the case in a railway context as well; Hilmola and Szekely (2006) argue that government policy and the actions of governmental authorities have a massive effect on the performance of the industry – just as the SCP method illustrates.

Welfare economics state that government may improve the socioeconomic efficiency of an industry by intervening in incomplete competition forces, which would be a basis for equal competition. Therefore, it would be expected that after conducting tasks raised in this paper, it would be more likely to have real competition on the Finnish rail freight transport market. This is also why the European Commission has been active in finding means to lower market entry barriers (European Commission, 2008; Ludvigsen, 2009; see also Laisi, 2009a, Hilmola et al., 2007).

The objective of governmental policy is to improve the performance of industry, which will create welfare for the whole of society. Governmental offices should be active in carrying out actions derived from the EU and national transport policy goals. Even though government policy has a huge effect on markets as the SCP model suggests, the realisation of rail freight transport competition is not in the hands of government or governmental offices. The industry has the key to market change, as it is the customer (Iikkanen, 2007; Mäkitalo, 2007; Laisi, 2009b). It must be remembered that despite some EU Member State governments' obstructed deregulation and competition actions (Ludvigsen, 2009b), these countries received newcomers to the rail transport markets.

This research has highlighted that governmental transport policy actions would make the market more transparent and equal, and would therefore stimulate competition. As the opposite – safeguarding incumbent railway undertaking and hampering competition – would decrease market attractiveness. In this sense, it could be concluded that transport policy actions have an effect on competition and economic development. It would be also assessed in general that government policies have an effect on economy and business, and on socioeconomic efficiency and social welfare. Thus, the research supports implications of welfare economics and the SCP method.

The last scientific contribution of this research is the applicability of the research methods in solving the research problem. The Delphi technique worked very well in this study, as it displayed different views, raised and highlighted many issues on market inequality. It may be possible that these kinds of results would not have been achieved by interviews, since it may not be as suitable or easy to criticise and assess market functions and governmental authorities. Also, it can be argued that the Delphi technique is workable in environments that are defined by business operations and governmental or public administration.

This study has also raised a few interesting topics for further research. It would be valuable to scrutinise what other reasons there are for the slow market change. This would be important in order to understand market dynamics. Correlation between market openness and the intensity of the market competition would also be a good subject.

References

- Alexandersson, G. and Hultén, S. (2005). Swedish Railways: from Deregulation to Privatisation and Internationalisation in a European Context. *Third Conference on Railroad Industry Structure, Competition and Investment*, Stockholm, 20–22 October 2005.
- Alexandersson, G. and Hultén, S. (2008). The Swedish Railway Deregulation Path. *Review of Network Economics*, Vol. 7, no. 1, pp.18-36.
- Aligica, P.D., and Herritt, R. (2009). Epistemology, social technology, and expert judgement: Olaf Helmer's contribution to futures research. *Futures*, Vol. 41, no. 5, pp. 253-259.
- Apostolopoulou, E. and Pantis J.D. (2009). Conceptual gaps in the national strategy for the implementation of the European Natura 2000 conservation policy in Greece. *Biological Conservation*, Vol. 142, no. 1, pp. 221-237.
- Audretsch, D.B., Baumol, W.J. and Burke, A.E. (2001). Competition policy in dynamic markets. *International Journal of Industrial Organization*, Vol. 19, no. 5, pp. 613-634.
- Bergdahl, P. (2005). *Six deregulations. Liberalisation of the markets for electricity, postal services, telecommunications, domestic air traffic, rail and taxi services in Sweden*. publications of Swedish Agency for Public Management 8/2005.
- Boadway, R.W. and Wildasin, D.E. (1984). *Public Sector Economics*, Boston, MA: Little, Brown & Company.
- Brewer, P.R. (1996). Contestability in UK Rail Freight Markets. *Transport Policy*, Vol. 3, No. 3, pp. 91-98.
- Conrad, K. (2000). Competition in Transport Models and the Provision of Infrastructure Services. *Journal of Transport Economics and Policy*, Vol. 34, no. 3, pp. 333-358.
- Corchón, L.C. (2008). Welfare losses under Cournot competition', *International Journal of Industrial Organization*. Vol. 26, no. 5, pp. 1120-1131.
- Cowie, J. (2009). The British Passenger Rail Privatisation. Conclusions on Subsidy and Efficiency from the First Round of Franchises. *Journal of Transport Economics and Policy*, Vol. 43, No. 1, pp. 85–104.
- Directive 2001/14/EC of the European Parliament and of the Council of 26 February 2001 on the allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure and safety certification.
- European Commission (2001). White Paper: European transport policy for 2010: time to decide, COM(2001) 370 final.
- European Commission (2008). Communication from the Commission to the Council and the European Parliament: The quality of rail freight services, COM(2008) 536 final.
- European Commission (2009). Second Report on Monitoring Development of the Rail Market from the Commission to the Council and the European Parliament, COM(2009) 676 final.
- Finnish Forest Industries (2010). Structural change affects Finland as well. Available at URL: <http://www.forestindustries.fi/Infokortit/structuralchange/Pages/default.aspx>, the Finnish Forest Industries Federation, Retrieved February, 2010.
- Finnish Rail Administration (2009a). *Finnish Railway Statistics 2009*, publications of the Finnish Rail Administration.
- Finnish Rail Administration (2009b). *Finnish Network Statement 2011*, publications of the Finnish Rail Administration F 6/2009.

Forkenbrock, D. J. (2001). Comparison of external costs of rail and truck freight transportation. *Transportation Research Part A: Policy and Practice*, Vol. 35, no. 4, pp. 321-337.

Hilmola, O-P. (2007). European railway freight transportation and adaptation to demand decline – Efficiency and partial productivity analysis from period of 1980–2003. *International Journal of Productivity and Performance Management*, Vol. 56, no. 3, pp. 205-225.

Hilmola, O-P. and Szekely, B. (2006). *Deregulation of Railroads and Future Development Scenarios in Europe – Literature Analysis of Privatization Process Taken Place in US, UK and Sweden*, Lappeenranta University of Technology, Department of Industrial Engineering and Management, Research Report 169, 2006.

Hilmola, O-P., Ujvari, S. and Szekely, B. (2007). Deregulation of railroads and future development scenarios in Europe: analysis of the privatisation process taken place in the USA, the UK and Sweden. *World Review of Intermodal Transportation Research*, Vol. 1, no. 2, pp. 146-169.

Iikkanen, P. (2007). *Rautateiden tavaraliikenteen kilpailun kohdistuminen ja vaikutusten arviointi*, Strategies and studies by the Finnish Rail Administration 1/2007. Helsinki: Finnish Rail Administration. [The Realisation of Competition in Railway Goods Traffic and an Evaluation of Its Effects, in Finnish]

Iikkanen, P., Mukula, M., Kosonen, T. and Kiuru, T. (2009). *Raakapuun terminaali- ja kuormauspaikkaverkon kehittäminen*, publications of the Finnish Rail Administration A 4/2009. [Developing of raw wood's terminal and loading area network, in Finnish]

Jensen, A. and Stelling, P. (2007). Economic impacts of Swedish railway deregulation: A longitudinal study. *Transportation Research Part E*, Vol. 43, no. 5, pp. 516-534.

Kerosuo, M. (1987). *Valtion liikelaitoksen tulostavoitteen asettaminen ja yhteiskuntataloudellinen tehokkuus*, Licentiate dissertation, University of Helsinki. [Setting a Profit Target to Public Enterprises, in Finnish]

Kuusi, O. (1999). *Expertise in the Future Use of Generic Technologies. Epistemic and Methodological Considerations Concerning Delphi Studies*. Doctoral dissertation, Helsinki School of Economics. A-159.

Lahelma, H. (2010). *Finnish Rail Freight Statistics*. Presentation material by Senior Officer Harri Lahelma from the Finnish Transport Agency.

Laisi, M. (2009a). Swedish and Polish railway freight operators' market entry', in Hilmola, O-P. and Korovyakovsky, E. (Eds.): *North-European Logistics in the Era of Global Economic Turmoil, Fifth International Railway Logistics Seminar*. Kouvola, Finland 2 June 2009, Lappeenranta University of Technology, Department of Industrial Management, Research Report 213, pp. 119-131.

Laisi, M. (2009b). *Market Entry Strategies and Confronted Barriers on Liberalized Railway Freight Markets in Sweden and Poland*. publications of the Finnish Rail Administration A 11/2009.

Laisi, M. (2010). Boosting Business Opportunities by Understanding the Russian Railway Freight Market's Peculiarities. *16th International Working Seminar on Production Economics*, 1-5 March 2010 Innsbruck, Austria.

Linstone, H.A. (1978). The Delphi Technique', in: Fowles, J. (ed.) *Handbook of Futures Research*, (pp.273–300). Greenwood Press, Westport, CT.

Ludvigsen, J. (2009). Liberalisation of Rail Freight Markets in Central and South-Eastern Europe: What the European Commission Can Do to Facilitate Rail Market Opening. *European Journal of Transport and Infrastructure Research*, Vol. 9, no. 1, pp. 46-62.

Ludvigsen, J. and Osland, O. (2009). Liberalization of Rail Freight Markets in the Old and New EU-Member States. *European Journal of Transport and Infrastructure Research*, Vol. 9, no. 1, pp. 31-45.

Mankiw, G.N. (2004). *Principles of Economics*, Thomson South-Western, Mason, OH.

Michelsen, J. (2009). The Europeanization of organic agriculture and conflicts over agricultural policy. *Food Policy*, Vol. 34, no. 3, pp. 252-257.

Ministry of Transport and Communications (2005). Rautatiepolitiikan linjaukset, 5th December 2005, the Finnish Ministry of Transport and Communications. Available at <http://www.mintc.fi/files/upt646-Rautatiepolitiikan%20linjauksia.pdf> Retrieved June 2010. [The Railway Policy Definitions, in Finnish]

Ministry of Transport and Communications. (2010). Rautateiden henkilöliikenteen avaaminen kilpailulle: edellytykset ja etenemispolku, publications of the Finnish Ministry of Transport and Communications 17/2010. [Opening passenger rail transport to competition – requirements and further steps, in Finnish]

Mäkitalo, M. (2007). *Market Entry and the Change in Rail Transport Market when Domestic Freight Transport Opens to Competition in Finland*. Doctoral dissertation, Tampere University of Technology, publication 702, <http://URN.fi/URN:NBN:fi:ty-200810021074>.

Mäkitalo, M. (2009). The rise of competition in Finland's rail transport', in Hilmola, O-P. and Korovyakovsky. E. (eds.) *North-European Logistics in the Era of Global Economic Turmoil, Fifth International Railway Logistics Seminar*. Kouvola, Finland 2 June 2009, Lappeenranta University of Technology, Department of Industrial Management, Research Report 213, pp. 101-109.

Mäkitalo, M. (2010a). Market entry barriers in Finland's rail freight transport. *World Review of Intermodal Transportation Research*, Vol. 3, Nos. 1/2, pp.181-195.

Mäkitalo, M. (2010b). Finland–Russia rail transport deregulation: future scenarios of market development. *International Journal of Shipping and Transport Logistics*, accepted, forthcoming.

Nash, C. (2008). Passenger Railway Reform in the last 20 Years – European Experience Reconsidered. *Research in Transportation Economics*, Vol. 22, no.1, pp. 61-70.

Nash, C. and Preston, J.M. (1992). *Barriers to Entry in the Railway Industry*, Working paper 354, Liverpool University.

Nilsson, J-E. (2002). Restructuring Sweden's railways: the unintentional deregulation. *Swedish Economic Policy Review*, Vol. 9, no. 2, pp. 229-254.

Ng, K.Y.A. and Gujar, G.C. (2009). Government policies, efficiency and competitiveness: The case of dry ports in India, *Transport Policy*, Vol. 16 no. 5, pp.232-239.

Nordenlöw, L. and Alexandersson, G. (1999). Standing in the Shadow of the Giants. Conditions for Entry and Survival of Small Businesses on the Deregulated Bus and Railway Markets in Sweden. *Sixth International Conference on Competition and Ownership in Land Passenger Transport*, Cape Town, South Africa, 19–23 September 1999.

Pittman, R. (2004). Chinese Railway Reform and Competition. Lessons from the Experience in Other Countries. *Journal of Transport Economics and Policy*, Vol. 38, no. 2, pp. 309-332.

Pittman, R. (2007a). Make or buy on the Russian railway? Coase, Williamson, and Tsar Nicholas II. *Economic Change and Restructuring*, Vol. 40, no. 3, pp. 207-221.

Pittman, R. (2007b). Options for Restructuring the State-Owned Monopoly Railway. *Research in Transportation Economics*, Vol. 20, pp. 179-198.

Popper, R. (2008). How are foresight methods selected. *Foresight*, Vol. 10, no. 6, pp. 62-89.

Porter, M.E. (1998). *Competitive Strategy. Techniques for Analyzing Industries and Competitors*, The Free Press, New York, NY.

Prime Minister's Office (2007). *Government Programme of Prime Minister Matti Vanhanen's second Cabinet*, publications of the Finnish Prime Minister's Office.

Scherer, F.M. and Ross, D. (1990). *Industrial Market Structure and Economic Performance*, Boston, MA: Houghton Mifflin Company.

Simola, M. and Szekely, B. (2009). *The liberalization process in Europe. Market entry barriers versus competition stimulation – cases of Germany and Hungary*, publications of the Finnish Rail Administration A 20/2009.

Slack, B. and Vogt, A. (2007). Challenges confronting new traction providers of rail freight in Germany. *Transport Policy*, Vol. 14, no. 5, pp. 399-409.

Slade, M.E. (2004). 'Competing models of firm profitability', *International Journal of Industrial Organization*, Vol. 22, no. 3, pp. 289-308.

Sonstegaard, M.H. (1992). Balance and coordination for road and rail. *Transportation Research Part A: Policy and Practice*, Vol. 26, no. 5, pp. 419-432.

Stehmann, O. and Zellhofer, G. (2004). Dominant rail undertakings under European competition policy. *European Law Journal*, Vol. 10, no 3, pp.327-353.

Suvanto, T. (2004). *Rautatielikenteen haasteita*, presentation at Ministry of Transport and Communications. [Challenges in Railway Policy, in Finnish]

Szekely, B. (2009). The process of liberalizing the rail freight transport markets in Hungary: market entry conditions and competition dynamics. in Hilmola, O-P. and Korovyakovsky, E. (eds.): *North-European Logistics in the Era of Global Economic Turmoil, Fifth International Railway Logistics Seminar*, Kouvola, Finland 2.6.2009, Lappeenranta University of Technology, Department of Industrial Management, Research Report 213, pp. 59-71.

Tang, P.J.G. and Wälde, K. (2001). International competition, growth and welfare. *European Economic Review*, Vol. 45, no. 8, pp. 1439-1459.

Tuominen, A., Himanen, V. (2007). Assessing the interaction between transport policy targets and policy implementation – A Finnish case study. *Transport Policy*, Vol. 14, no. 5, pp. 388-398.

Tuominen, A., Leonardi, J. and Rizet, C. (2008). Assessing the Fitness-For-Purpose of strategic transport research in support of European transport policy. *European Journal of Transport and Infrastructure Research*, Vol. 8, no. 3, pp. 183-200.

Turoff, M. (1975). The Policy Delphi. in: Linstone, H.A., Turoff, M. (eds.) *The Delphi Method, Techniques and Applications*, Addison-Wesley, Reading, MA, pp. 84-101.

Vinnari, M. and Tapio, P. (2009). Future images of meat consumption in 2030. *Futures*, Vol. 41, no. 5, pp. 269-278.

Woodburn, A. (2007). Appropriate indicators of rail freight activity and market share: A review of UK practice and recommendations for change. *Transport Policy*, Vol. 14, no. 1, pp. 59-69.