Deregulation's influence on emergency situations

Milla Laisi and Jouko Karttunen

Lappeenranta University of Technology, Kouvola Research Unit, Prikaatintie 9, FI-45100 Kouvola, Finland, email: <u>milla.laisi@lut.fi</u>, jouko.karttunen@lut.fi

Abstract

Deregulation has been noted as one of the major functions in transport aggregate. During the last decades, it has attained countries' worldwide. Trend was started in the United States in 1980s, where after numerous nations have liberalized the transport markets. Furthermore, all major transport modes are deregulated, which sets pressure on countries' critical infrastructure protection. Based on literature analysis, the study suggests the countries worldwide should pay more attention to protect the critical infrastructure. In addition to terrorist attacks and natural disasters, in the future world might confront new types of emergency situations. In order to be able to act as needed, countries' need to be prepared.

Keywords: liberalization, deregulation, competition, Finland, emergency situation

1. Introduction

The transport field has confronted significant changes during the centuries. Globalization and its various trends have set pressure on transportation: produced goods need to be transported to the place of consumption. Therefore, transportation is often noted as one of the key economic functions. In compliance with World Trade Organization's statistics (2010), in 2009 world's merchandise trade (both import and export) amounted over \$ 12 000 billion. However, the economic downturn has affected strongly on foregoing years: During 2007 and 2008 the annual percentage change was positive both in exports and imports (fluctuating around 15-16 percent), but in 2009 export declined 23 percent and import 24 percent. European Union (EU27) followed the worldwide trend, and faced 23 percent decline in export and 25 percent in imports. (WTO, 2010)

Total freight transport activities in the EU27 were estimated to amount 4 228 billion tonne kilometers in 2007 (including intra-EU air and sea transport but excluding transport activities between the EU and rest of the world). In 2006 the road transport had the largest share, 72.2 percent; the other transport modes' parts were respectively railway 17.1 percent, inland waterways 5.4 percent and pipelines 5.3 percent. Comparably, in USA the same figures were road 31.8 percent, rail 45.6 percent, inland waterways 8.2 percent and pipelines 14.4 percent. Furthermore, transport has a significant role in Greenhouse Gas Emissions: According to EU (2009), transport is the only sector where emissions have increased; all other industries have been able to decline the annual figures. (European Union, 2009)

During the last decades deregulation has played an important role in transport market. Although deregulation has influenced the transport markets worldwide, the implementation methods have varied greatly. In the United States process started in 1980, when two major deregulations acts were introduced. Staggers Rail Act opened the railway market for competition, whereas the Motor Carrier Act deregulated the road transport industry. (Jahanshahi, 1998; Lafontaine and Malaguzzi, 2005) According to several studies, deregulation has affected on competitive forces: prices have decreased and services have expanded; furthermore, services have become better adapted to users' needs (see for example Joskow and Rose, 1989; Quinet and Vickerman, 2004; Rose, 1985; Rose, 1987; Winston et al., 1990; Ying and Keeler, 1991). However, in an expansive market area, the deregulation effects can alter significantly, due to discrepancies in operational environment (for example infrastructure). Nonetheless, deregulation and liberalization does not mean total withdrawal from the state. In order to have an effectively working market, it is essential that government enforces regulations. Furthermore, it is government's responsibility to ensure that external effects are sufficiently identified, in order to ensure the benefits of deregulation are actual and attainable. (Quinet and Vickerman, 2004) Countries worldwide have followed the path: the main deregulation wave befell during the last decades. For example, in European Union the transport markets have been opened for competition concurrently with

development of European Union; among the first countries to deregulate the transport markets were the United Kingdom, Sweden and Germany. (Jahanshahi, 1998)

One of the essential parts of national security is the protection of critical infrastructure. Various political and administrative initiatives require better solicitude due to their critical nature (see for example Brunner and Suter, 2008; Dunn-Cavelty and Kristersen, 2008; Dunn-Cavelty and Suter, 2009). Privatization and deregulation of several parts of public sector is noted as one of the main challenges. Since 1980s several parts of critical infrastructure has been delegated to private enterprises, which might impede the overall attention concerning the targets. Privatization and deregulation distributes the functions to parties who have the best possibilities to take care of them. According to Banister (1990), privatization has a positive effect on economy in functional market: Public sector can utilize limited resources in an economical way. Furthermore, societies need to figure out how they can ensure basic services in emergency situations, when various important trades are operated by private sector or multinational companies.

Transport market's deregulation has crabbed researchers' interest worldwide. Although railway freight market has been a hot topic during the last decade due to changes in the market (see for example Boyer, 1987; Brewer, 1996; Cowie, 2009; Hilmola et al., 2007; Jahanshahi, 1998; Mäkitalo, 2007; OECD, 1997; Woodburn, 2003; Woodburn, 2007), also other main transport modes, road and sea transport, have been scrutinized. In European Union various directives, laws and white papers have regulated the transport market. Although the first initiative towards free movement of goods was launched in 1957, the final reinforcement happened in 1993, when the Single Market was completed: the four freedoms enabled goods, services, people and money to move freely. (European Union, 2010; History of EU, 2008) In road transport the European Union's decision of gradual liberalization came into force on 1 January 1974. However, it took a long time to achieve all goals. In 1980s European Economic Community (EEC) began the movement towards deregulating the strongly structured market. (Fulmini, 2006; Hilal, 2008) The Single European Act in 1985 (enforced on 1 July 1987) acted as a specific concept of internal markets (Bernadet, 2009; Cooper and Lybrand, 1996; Hilal, 2008) Once

regulations were adapted, the road transport market expanded to cover a wider area than only European Community. Railway freight market confronted first conjoined step towards harmonization in 1991, when the Directive 91/440 was launched. It separated the railway infrastructure and operations, and functioned as the basis for the deregulation process. (Alexandersson & Hulten, 2005; European Union, 2009) Sea transport has been deregulated worldwide; in European Union the process started in 1980s. Furthermore, in October 2004 Commission adopted a White Paper on review of Regulation 4056/86, applying the European Community rules to maritime transport in the legislation of COM(2004)675.

The study is part of STOCA (Study of Cargo Flows in the Gulf of Finland) project; objective of this paper was to examine the deregulation's effects on emergency situations. The study familiarized with the theoretical knowledge of deregulation of three main transport modes, road, sea and railway, and investigated whether deregulation has influence on emergency situations. The field of research has mainly been scrutinized in separated articles, the main transport modes are scantly garnered to one article. Furthermore, deregulation's effect in emergency situation is rather new topic for research. By developing the research's main objective, research questions were developed. The research questions of the study are:

- How transport deregulation is organized in various transport modes?
- Does deregulation has an influence on emergency situations?

This manuscript is structured as follows: In Section 2 we review the literature related to deregulation of transport modes. Subchapters are dedicated to road, railway and sea transport. In the following Section 3, the critical infrastructure is shortly presented. Discussion part in Section 4 gathers the findings and discusses the deregulation's influence on emergency situations. In final Section 5 we conclude our work, and provide paths for further research in the topic area.

2. Transport market deregulation

Correlation between developed and efficient transportation infrastructure and economic growth has been one of the reasons for deregulation development (Andersson and Strömquist, 1998). Regulation has bee criticized for misallocating the resources: Studies from the United States discovered connection between lower productivity and regulation (Backman, 1981). According to Andersen (1992), a common solution to poorly-performing markets has been deregulation, which will achieve intensive competition by promoting new operators to markets. Because competition is presumed to lead to effective resource allocation, deregulation is often noted to decrease the prices due to effectual changes in resource distribution (Backman, 1981; Banister, 1990; Kay and Vickers, 1988)

2.1 Road Transport Deregulation

In European Union the decision of the gradual liberalization of road freight transport came into force on 1 January 1974. Once regulation was adapted, the road transport market expanded to cover a wider area than only European Community, due to multilateral licenses. Licenses cover an agreement either with two non-European Union member countries or an EU member country and non-member country. In 2009, the total number of licenses was 6090. (Bernadet, 2009; European Union, 2010b) Road transport deregulation has crabbed researchers' interest worldwide; among the studies are for example White and Farrington (1998), who studied the bus deregulation in Great Britain and Marell and Westin (2002), who evaluated the effects of taxicab deregulation in rural areas of Sweden. According to their studies, service level and vehicle efficiency sharpened and cost and passenger payments increased. Furthermore, Hilal (2008) researched the unintended social deregulation effects of road freight transport in the European Union.

Although the first initiative towards road transport deregulation was taken in 1974, it took a long time to achieve all goals. In 1980s European Economic Community (EEC) began the movement towards deregulating the heavily structured transport market (Fulmini, 2006; Hilal, 2008). The Single European Act in 1985 (enforced on 1 July 1987) acted as a specific concept of internal markets (Bernadet, 2009; Cooper and Lybrand, 1996; Hilal, 2008) Most of the directives approach road transportation's harmonisation via topics such as vehicles, operations, safety, payments and taxes (European Union, 2010b). Although international transport between EU Member States is fully liberalized, the cabotage regulations limit road transport, especially in the area outside of EU. Cabotage has been authorized in EU area subject to a Community license since 1 July 1998 (Hilal, 2008). Previously cabotage rules were applied inconsistently, which caused several problems in EU Member States: some countries (for example Germany and Spain) foresaw the adoption of regulation and transposed the rule restricting cabotage to three operations within seven days in their domestic legislation (Bergmann, 2007). However, same regulation will come into effect in whole EU during spring 2010 (Council of the EU, 2009; Road Transport, 2009). Besides, EU has limited road transportation between the new Member States (for example Slovenia and Bulgaria) within transition periods. (Bernadet, 2009; European Union, 2010)

Although border crossing between European Union Member States has been resolved, the border crossing between European Union and non-Member States is problematic. The International Road Transport Union (IRU) reported in 2009 that waiting times including slack and peak periods were increasing; for example, in Narva (between Estonia and Russia) an average waiting time was 130 hours in period between April and September 2009. During the same period, the border crossing time between Finland and Russia was around 2 days, while the whole trip to Moscow and back took 6 days (Bernadet, 2009). However, global recession has cut transit transportation in Baltic Sea region and an average waiting time in above mentioned borders is decreased to few hours. Furthermore, Finnish and Russian border crossing has served as a pilot project of electric customs service since autumn 2009 (Finnish Customs, 2010).

Increased taxation in international haulage activities has caused new taxes to foreign vehicles. For example Russian Federation has elaborated new taxes or levies as the

import/export to/from Russia has increased. Most of these taxes have been mobilized at short notice, which has hindered road transportation to Russia (European Customs Union, 2010; Finnish Customs, 2010; FRCC, 2010). However, increased taxation could be avoided by harmonizing rules of customs and tax tariffs (Bernadet, 2009; European Union, 2010b).

2.2 Railway Transport Deregulation

The European Directive 91/440 was conjoined with several White Papers, which enlarged on railways' contribution to European Union's transport. The first White Paper was published in 1992, dealing mainly with deregulating the transport markets. The direction was continued by the second White Paper called "A Strategy for Revitalizing the Community's Railways", which was published in 1996. According to paper's first section, "A new kind of railway is needed" (the White Paper, 1996). Paper stated the railway transport should play a bigger role in the future; according to its statement, social impact of transport could be reduced by transferring traffic from road to rail. Therefore, already in 1996 were noted that increasing the usage of railway transport would solve many problems, for example pollution and congestions. The White Paper states (1996) "It is paradoxical that, when many of the problems that rail could help to solve are increasing, its share of transport markets continues to decline". The paper introduced the concept of "Rail Freight Freeway", which noted the existence of national railway operators is hampering the railway market's development. Therefore, this paper can be seen as the first stride against the railway market deregulation. (Mäkitalo, 2007; The White Paper, 1996)

The third White Paper (2001) noted during the last decades the "stock economy" has moved towards "flow economy". Industries try to reduce production costs by relocating factories to low-cost countries, although the distance between the production unit and end-consumer might be thousands of kilometers. However, free movement of goods enables to confirm "just-in-time" and "revolving stock" production system. White Paper revealed the Commission's concern towards increasing traffic in European Union: in 2000 railway transports' market share was eight percent, while the figure in US was 40 percent. In 2001 the European Union Member States feared unless new measures were not taken by 2010, heavy goods' road transport share will increase by nearly 50 percent from the 1990s level. (the summary of White Paper, 2001; Vassallo & Fagan, 2007)

The European Union railway reform continued in 2003 by introducing the Second Railway Package. In October 2003, Members of the European Parliament voted to liberalize the European railway market. The intention was to grant free access to rail networks in all EU countries by 1 January 2006. (Euractiv, 2008) The European Parliament and Council approved the Railway Package in April 2004; it was agreed the national railway freight transport will be deregulated in member countries on 1st January 2007 (Mäkitalo, 2007). Some European countries decided to deregulate the railway freight market before the legislative demand of the European Union. Among the first countries were United Kingdom (UK), Germany and Sweden (Jahanshahi, 1998). In compliance with Alexandersson and Hulten (2005), the liberalization process in the European Union Member States have been guided by various types of economic, institutional and legal concerns. Alexandersson and Hulten (2005; 2008) conclude in UK objective was towards market liberal agenda, whereas in Sweden the main force was to find new possibilities to finance railway investments. European Member States utilized four broad types of deregulation. The United Kingdom utilized rationalist approach, while Sweden relied on incremental way. Alexandersson and Hulten (2005) describe the German and Dutch approach as "wait and see" and French as a reluctant applying approach. (Alexandersson and Hulten, 2005; Alexandersson and Hulten, 2008)

Requirements concerning separation of infrastructure and operations were originally included in Directive 91/440, when the principle of accounting separation was introduced. It was followed by the Directive 2001/12/EC, which noted independent organizational aggregates must be established for infrastructure management and transport operations. According to the Directive, Member States could determine whether to achieve the objective by distinct divisions within a single undertaking (the holding company model) or by establishing a separate entity. (Holvad, 2006) Although in

separated structure infrastructure is managed by own company, all parties can access network under the terms of access regime. One of the example countries is UK; the process divided market into two: Railtrack became responsible for the infrastructure and operators got the responsibility of the railway services. (Alexandersson & Hulten, 2005) However, UK liberalization process is recognized as a failure. The railway infrastructure company Railtrack failed to operate the market efficiently. Because of lack of investments rails were not in decent condition, passenger trains accuracy decreased significantly from 90 per cent down to 60 per cent and train accidents increased. After five years it was badly in debt and finally bankrupted in 2001. (Hilmola et al., 2007; Szekely, 2009) In 2002 UK accepted investment plans worth of £ 34 billion to increase the safety level and reorganize the infrastructure; today the rail network is in better condition than ever. (Hilmola et al., 2007) In integrated structure incumbent remains integrated with infrastructure management, whereas new entrants pay for access to infrastructure. This structure is utilized for example in Poland, Germany and Russia (Laisi, 2009; Laisi, 2010; Simola and Szekely, 2009).

2.3 Sea Transport Deregulation

Privatization of port management has been the driving force for competition. The enticement towards privatization is due to earlier experiences; trade liberalization enabled possibilities for logistics services. Privatization has spread worldwide; China changed the port system in 2001, when national government gave all responsibility to local government, which in turn appointed particular port administration bodies. Today, national government is responsible for national port planning and policies. In Taiwan, commercial ports are managed by the state. Furthermore, four of country's six major ports are free trade zone harbors. In Japan, legislation leads back to 1950s and Port and Harbor Law. Basically, ports are governed by local public authorities, but the national government administers the ports, mainly via providing subsidies. (Ports and Harbors Bureau, 2006; Sutton, 2008)

Within sea transport, port industries as well as shipping have become increasingly privatized. Basically, governments have stepped aside and ports and terminals are operated and managed by multinational companies via long term leases (Wang et al., 2004). Globalization and quick development of economy and industry in Asia, especially in China, has supported this trend. However, USA and Canada among many other countries have provided financial assistance to ports infrastructure development under the national stimulus packages (Slack, 2010). On the other hand, in Asia the governments (for example in South Korea) have established funds helping shipping lines to retire ships through purchasing those at commercial prices. Therefore, it can be noted the governments have realized shipping is one of the vital functions, and serve as key factors in economic development and internal trade. Short sea shipping and port gateway policies (maritime security and environmental questions) have been the most important areas in the EU region in re-balancing the relationships between public and private sector. (Slack, 2010)

Regulation 4055/86 of 22 December 1986 applied the principles of freedom to provide services to maritime transport between Member States and third countries. Regulation included cargo-sharing arrangements for third countries except the linear shipping in exceptional circumstances. Furthermore, regulation 4058/86 ensured the coordinated action to secure free access to cargoes in ocean trade and enabled the Community to take retaliatory measures if European Union ship owners or ships registered in Member States encounter restriction on the free access to cargoes. Council Regulation 3577/92 of December 1992 enacted the cabotage rules from 1 July 1993 for ship owners operating vessels registered in a Member State (Danklefsen, 2008; European Union, 2010b).

On 13 October 2004, Commission adopted a White Paper on review of Regulation 4056/86, applying the European Community rules to maritime transport in the legislation of COM(2004)675. In particular, White Paper analyzes whether to maintain, modify or repeal the currently applicable provisions of Regulation 4056/86. Furthermore, the paper discusses whether it would be appropriate to replace the present block exemption for linear conferences laid down in Regulation 4056/86 with other Community instruments

covering any new business framework of co-operation between linear services operators on trades to and from EU (Commission of the European Communities, 2004).

Shipping liberation and deregulation contributed to a lower shipping rates and greater choice of port calls. Due to these reasons, advantages such as saving in labor costs have caused fleets' out flagging to countries which have lower labor cost level. However, nearly all European countries have different labor legislations and working advantages, wherefore great majority of fleets have been flagged to countries such as Greece, Netherland and Germany. Worldwide, Bahamas and Liberia have attracted the greatest amount of out-flagging. Generally, in the world 93 percent of ships are flagged to 35 countries or regions; Bahamas (23 percent) and Liberia (10.6 percent) are the leaders. In the EU countries shares are much smaller (United Nations, 2009): Greece (5.3 percent), Malta (4.3 percent), Cyprus (2.6 percent), Norway (1.7 percent) and Germany (1.5 percent). From Finnish fleet nearly 90 percent is out flagged mostly to Sweden, Bahamas, Germany and Netherlands (Merenkulkulaitos, 2010a).

3. Critical Infrastructure Protection

Critical infrastructure protection is recognized as an essential part of national security in numerous countries worldwide. Broad range of political and administrative initiatives and efforts are underway for example in the US and Europe; the main intention is to better secure critical infrastructures (Brunner and Suter, 2008; Dunn-Cavelty and Kristersen, 2008; Dunn-Cavelty and Suter, 2009). Weak economical situation has led to privatization and deregulation of services, which has placed a large part of critical infrastructure in the hands of private companies since 1980s. However, frequently market forces alone are not sufficient to provide security in most of critical infrastructure areas (Anderson and Moore, 2006). In addition, the state cannot provide the public good of security on its own; therefore, the Public–Private Partnership (PPP), a form of co-operation between the state and the private sector, has been noted as a solution for co-operation and security problems. Previously PPP was used in urban construction sites in order to facilitate joint development and reforms of urban problems, but later it has been utilized as well in

partnerships in the area of education, health care and building projects. Though in the 1980s the aim of PPP was rescission of monopoly in public services and the promotion of privatization, in time PPP has developed to the multiform networked operation method between public and private sector. Co-operation between the state and private enterprises have been seen fundamental in many sectors of society up to Critical Infrastructure, but form of co-operation has varied in each situation (Assaf, 2008). Nowadays governments' role consists of less directing and more coordinating; especially networking has been noted as an important factor in Critical infrastructure protection. The character of PPP is goaled to exploit advantages by utilizing innovative resources such as knowledge, staff and devices. (Linder and Rosenau, 2000)

4. Discussion

Deregulation has changed the transport aggregate. The trend started in 1980s in the United States, when Staggers Rail Act and Motor Carrier Act were implemented (Jahanshahi, 1998; Lafontaine and Malaguzzi, 2005). Other countries have followed the path: in European Union the United Kingdom, Sweden and Germany were among the first countries to liberalize the markets. Although recently the interest has concentrated on railway market, other major transport modes, road and sea, has also confronted versatile situations while deregulation processes. Shipping has become increasingly privatized; governments have stepped aside, and ports and terminals are managed by multinational companies (Wang et al., 2004). Road transport was gradually liberalized in 1974; however, the first actual movements to deregulate the road transport market were taken in 1980s. Railway deregulation has caused vociferous discussions with dissenting opinions. Although transport market deregulation is often noted to have various positive effects on transport market, such as increasing the service level and decreasing the prices, history provides examples of failures. One of the most severe situations was confronted in the United Kingdom; although the separation of infrastructure and operations was done properly, the process was said to be a failure. The infrastructure company Railtrack failed to operate the market efficiently, wherefore the company became badly debt and bankrupted in 2001. (Alexandersson & Hulten, 2005; Hilmola et al., 2007; Scekely, 2009) However, the situation improved in 2002 when UK accepted £ 34 billion investment plans, in order to reorganize the infrastructure and increase the safety level. Currently, British network is in better condition than ever. (Hilmola et al., 2007)

When discussing the national security, the emergency situations cannot be neglected. Although the major concerns during the last decades have been natural disasters and terrorist attacks, nations need to be prepared for possible crises. In transport sector the examples could include oil vessel leakage nearby logistically important harbour or gas leakage in railway yard, to name few. Therefore, countries need to have emergency plans ready. Deregulation has complicated the process: because the transport equipment fleet is partly or wholly owned by private enterprises, governments do not have such a strong control. Furthermore, in case of emergency countries most probably would hail own fleet, which would decrease the amount of available fleet. For example, in the case of oil leakage in Gulf of Finland, most probably Finland would be dependent on own transport fleet. Furthermore, countries' location might set limitations. For example, due to Finland's location, country is dependent on sea transport: over 77 percent of imported and 88 percent of exported cargo tonnes travelled through seaports in 2009 (National Board of Customs, 2010). Therefore, if sea transport would be incapacitated by oil leakage or congruent situation, it would prejudice the Finnish trade.

5. Conclusions

Globalization has set an increasing demand for transport. Therefore, all major transport modes have confronted significant modifications. One of the major modulations has been deregulation, which has reformed the transport markets. The main transport modes are deregulated in numerous countries: the trend was started in the US, followed by the nations worldwide. Furthermore, deregulation concerns all main transport modes, railway, road and sea. Therefore, significant changes have happened in transport aggregate during the last decades.

Due to increasing amount of emergency situations, countries need to have emergency plans ready. Critical infrastructure protection represents an important role. However, due to the trend of deregulation of various transport markets, the governments are losing the share of ownership in transport equipment fleet. Although privatization has various positive sides (decreased price level and increased customer service to name few), several negative factors are revealed. Declining ownership of transport equipment fleet decreases the countries' possibilities to affect on fleets utilization in emergency situations. Therefore, deregulation and privatization has had a great impact on emergency situations. Due to 9/11 and other emergency occasions, critical infrastructure protection and overall emergency related issues are crabbing researchers' interest worldwide. Furthermore, aggregate is rather interesting for business world as well. Therefore, further studies are required. In order to fulfil the knowledge, wider literature analyses are needed. Additionally, empirical study investigating the standpoints of operators, logistics companies and customers could unfold new knowledge.

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