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EVALUATION OF THE DEGREE OF INFLUENCE OF THE SAFETY REGULATORY ISSUES ON INTERNATIONAL ROAD FREIGHT TRANSPORT

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The differences in the estimates of the main risks of road safety of Heavy Goods Vehicles (HGV) by the representatives of competent authorities and heads of the transportation companies have been compared and assessed within the framework of the present research.

In view of international HGV traffic safety in Latvia, the respondents rank the most problematic regulatory issues for a Latvian truck and driver in Latvia, for a truck and a driver originating from another EU country in Latvia, and for a truck and a driver originating from Russia and Belarus in Latvia from the following viewpoints:

- a) Non-compliance with the carrier, shipper and/or the driver;
- b) Enforcement by road police, transport inspectorate or other Competent Authority.

In order to evaluate the relevance of the problems associated with road safety, the methodology for assessment the order of importance of each of the regulatory issue on the basis of the dimensionless weight coefficients has been applied. This study is carried out by the C.A.S.H. project ("Connecting Authorities for Safer Heavy Goods Traffic in the Baltic Sea Region"), which aims to develop practical solutions to make international road freight transport safer, more predictable and affordable in the Baltic Sea Region (BSR). The research project "The Impact of Market Structure on Safety and Security" (TIMSS) is a part of the C.A.S.H. project, which is coordinated by Turku School of Economics (Finland).

Keywords: traffic safety, security of drivers, weight coefficients, regulatory issue

1. Introduction

There are about one million road haulage companies in Europe and they perform over 560 billion ton-kilometre of goods transported annually on the roads of the Baltic Sea region. This indicates that road freight transport is big business, as well as a significant factor for the regions' development.

Despite having similar regulations, the authorities in European countries may apply different practices and equipment to inspect traffic. This puts additional pressure on road haulage companies which have to comply with the regulations when they are already facing the challenges of a competitive market. In addition, more than 1,300 fatalities involving a heavy vehicle took place in the Baltic Sea region in 2007, which comprises about 10% of all road accidents that happened in EU countries. Therefore, the compliance with and enforcement of the regulations of the international road haulage is an important issue of the European Union transport policy.

The Baltic Sea Region (BSR) Programme 2007-2013 [1] has been designed under the European Community's territorial co-operation objective, while integrating the objectives of the European Neighbourhood and Partnership Instrument's cross-border co-operation (ENPI CBC). The BSR Programme is focused on preparation of investments and actions aimed at improving the territorial potential of the region, minimizing the considerable differences in the level of socio-economic development between the western and eastern parts of the region and resolving several issues of common concern for all the countries around the Baltic Sea.

This is why 12 organizations from 7 countries in the Baltic Sea area created the C.A.S.H. project [2]. (C.A.S.H. – stands for "Connecting Authorities for Safer Heavy Goods Traffic in the Baltic Sea Region" running from Sept.2009 to Sept. 2012, and it is part-financed by EU's European Regional Development Fund through the Baltic Sea Region Programme 2007–2013). The project aims to develop practical solutions to make international road freight transport safer, more predictable and affordable in the BSR. The project brings together police officers and other authorities inspecting Heavy Goods Vehicles (HGVs) in the Baltic Sea area in order to spread good inspection practices across the region. The term HGV (Heavy Goods Vehicle) refers to vehicles with a mass of 26 tonnes and/or a length of 16.5 meters or more as defined in Directive 96/53/EC. The project will be beneficial not only for the authorities inspecting the traffic through harmonized practices, but the logistics business in general.

Within the framework of the interview held in the beginning of 2011 with the Latvian authorities (Road police, Traffic Inspectorate, Latvian Transport Union, Latvian Association of Road Carriers “Latvijas Auto”) and Latvian haulage companies engaged in border-crossing road transport, the information which enables providing the understanding of the main issues connected with road safety in the areas of border-crossing road transport was analysed and processed.

The research project “The Impact of Market Structure on Safety and Security” (TIMSS) is a part of the C.A.S.H. project, which is coordinated by Turku School of Economics (Finland).

The aim of the interviews is to provide the understanding of how the prevailing market conditions in the Baltic Sea Region may have affected [3]

- a) Traffic safety;
- b) Security of drivers, trucks and cargo.

The purpose of this study is to show and compare the differences in the estimates of the main risks of road safety by the representatives of competent authorities and heads of the transportation companies.

2. Algorithm for analysis of respondents’ opinions

In view of international HGV traffic safety in Latvia, the respondents rank the most problematic regulatory issues for options I, II and III:

- I: For a Latvian truck and driver in Latvia;
- II: For a truck and a driver originating from another EU country in Latvia;
- III: For a truck and a driver originating from Russia and Belarus in Latvia.

From the following viewpoints:

- a) Non-compliance with the carrier, shipper and/or the driver;
- b) Enforcement by road police, transport inspectorate or other Competent Authority.

2.1. Regulatory issues

Safety and Security of international transportations of goods depends on compliance with rules, regulations of international road haulage (the shipper, the transport company, the driver of the vehicle), as well as the enforcement of the competent authorities (the level of control and the level of punishment).

To assess and analyses the factors, that influence the safety of international HGV transportations, consider the following regulatory issues (in alphabetical order):

- | | |
|--|--|
| 1) Alcohol and/or drug use by drivers; | 7) Driver licenses and certification; |
| 2) Cabotage; | 8) Overloads; |
| 3) Cargo documents; | 9) Speeding; |
| 4) Cargo securing; | 10) Technical standard of vehicles incl. trailers; |
| 5) Dangerous Goods transport (ADR); | 11) Vehicle documents; |
| 6) Drive and rest hours (AETR); | 12) Other. |

To estimate the priority of regulatory issues (r) each respondent is invited to select and evaluate the four most problematic factors, using a ball estimate (rank):

- rank 1 - the most problematic factors; rank 2 - the 2nd most problematic;* (1)
- rank 3 - the 3rd most problematic;*
- rank 4 - the 4th most problematic;*

2.2. Algorithm to rank determine

Considering the different opinions of the respondents (using a ball system), for further submission the research results are expedient to use the dimensionless weight coefficients $\omega(k)$, with the following amount:

$$\begin{aligned} \omega(\text{rank } 1) &= 0,4; \\ \omega(\text{rank } 2) &= 0,3; \\ \omega(\text{rank } 3) &= 0,2; \\ \omega(\text{rank } 4) &= 0,1 \end{aligned} \tag{2}$$

The weights coefficients are framed in such a way as to satisfy the condition:

$$\sum \omega(i) = 1, \tag{3}$$

Thus, the overall rating for each factor (using the n-assessment of respondents), is defined as:

$$R(i) = \frac{n(1) \cdot \omega(\text{rank } 1) + n(2) \cdot \omega(\text{rank } 2) + n(3) \cdot \omega(\text{rank } 3) + n(4) \cdot \omega(\text{rank } 4)}{p}, \tag{4}$$

where:

p – the total number of respondents;

$n(1,2,3,4)$ – the number of respondents who rated the i -regulatory issues by scores 1-2-3-4, respectively.

Considering values of weight coefficients (2) the relation (3) can be expressed as follows:

$$R(i) = \frac{n(1) \cdot 0,4 + n(2) \cdot 0,3 + n(3) \cdot 0,2 + n(4) \cdot 0,1}{p} \cdot 100\%, \tag{5}$$

Operation of this approach allows obtaining numerical results to assess the each of regulatory issue to affect the safety and security of HGV transportations. Such approach allows illustrate importance of the problem as an example the numerical evaluation of four (most important) regulatory issues.

3. Relevance of the problem

Using the proposed methodology to assess the order of importance of each of the regulatory issues, we can estimate the relevance of the problems associated with road safety. The results of the questionnaire of the stakeholders are presented in the following charts for options I, II, III:

Options I:

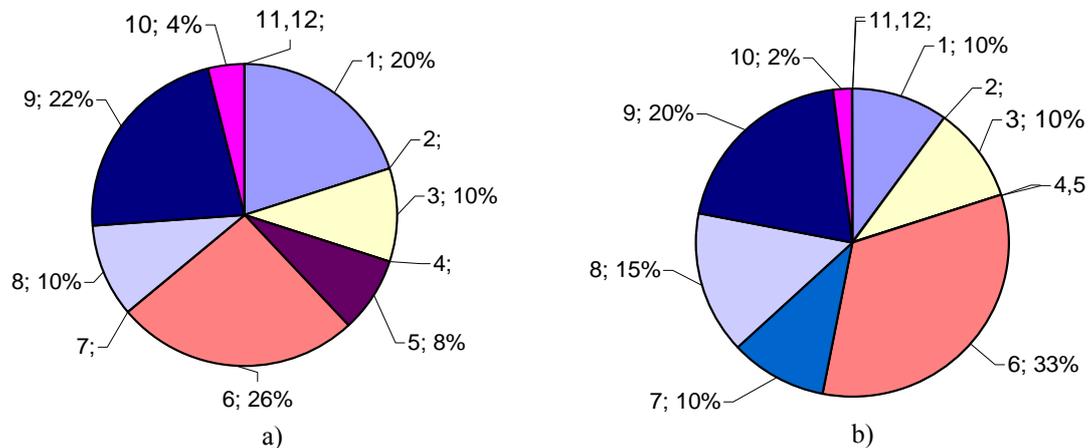


Figure 1. The degree of importance factors of the safety of traffic by the competent authority (a) and heads of haulage companies (b) for a Latvian truck and a driver in Latvia

As it is showed on Figure 1, according to the competent authorities, the most problematic factors for the road safety are as follows:

1. Drive and rest hours (AETR) – 26%;
2. Speeding – 22%;
3. Alcohol and/or drug use by drivers in the border crossing area – 20%;
4. Driver licenses and certification – 10%, and cargo documents – 10%.

However, according to the heads of haulage companies the degree of importance factors of the safety of traffic are as follows:

1. Drive and rest hours (AETR) – 33%;
2. Speeding – 20%;
3. Overloads of HGV – 15%;
4. Alcohol and/or drug use by drivers in the border crossing area (10%), driver licenses and certification – 10%, and cargo documents – 10%.

Options II:

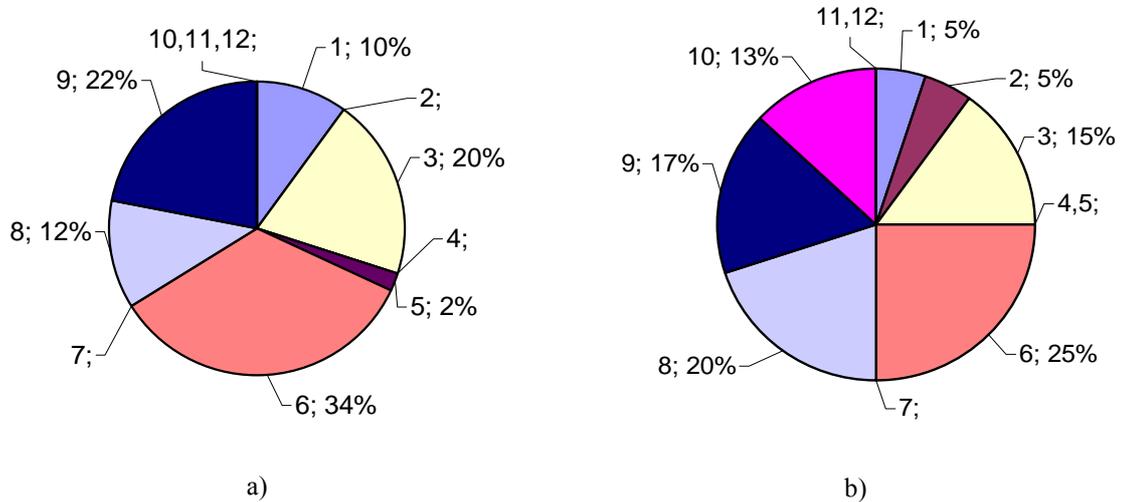


Figure 2. The degree of importance factors of the safety of traffic by the competent authority (a) and heads of the haulage companies (b) for a truck and a driver originating from another EU country in Latvia

As it is indicated on Figure 2, according to the competent authorities, the most problematic factors for road safety for this option are:

1. Drive and rest hours (AETR) – 34%;
2. Speeding – 22%;
2. Problem with cargo documents – 20%;
3. Overloads of HGV – 12%.

According to the heads of haulage companies the degree of importance factors of the safety of traffic are the following:

1. Drive and rest hours (AETR) – 25%;
2. Overloads of HGV – 20%;
3. Speeding – 17%;
4. Problem with cargo documents – 15%.

Options III:

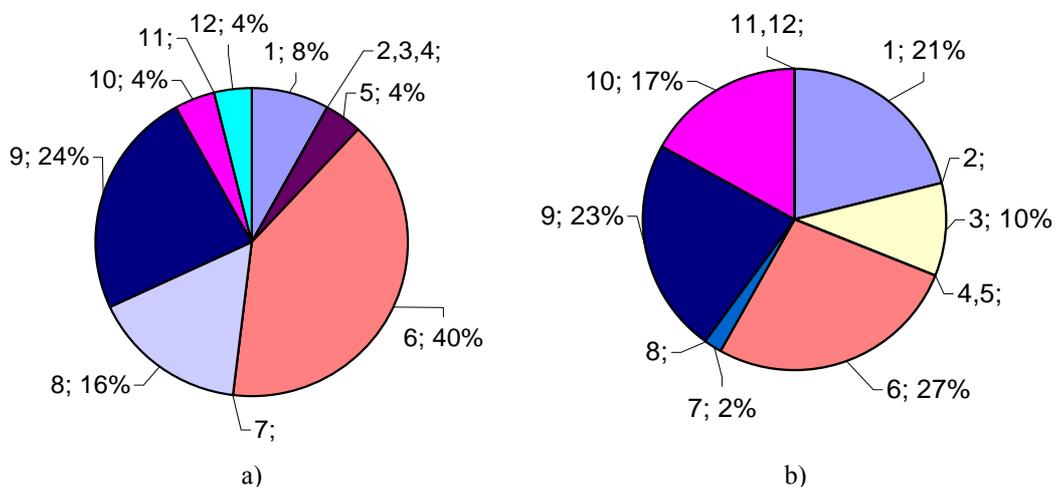


Figure 3. The degree of importance factors of the safety of traffic by the competent authority (a) and heads of haulage companies (b) for a truck and a driver originating from Russia and Belarus in Latvia

As it is indicated on Figure 3, according to the competent authorities, the most problematic factors for road safety for these options are as follows:

1. Drive and rest hours (AETR) – 40%;
2. Speeding – 24%;
3. Overloads of HGV – 16%;
4. Alcohol and/or drug use by drivers in the border crossing area – 8%.

According to the heads of haulage companies the degree of importance factors of the safety of traffic are the following:

1. Drive and rest hours (AETR) – 27%;
2. Speeding – 23%;
3. Alcohol and/or drug use by drivers in the border crossing area – 21%;
4. Technical standard of vehicles incl. trailers – 17%.

4. Conclusions

The studies have shown that the issue of compliance with the regulatory issues for the driver's work and rest schedule still remains one of the most important issues of regulation, but nevertheless, the situation in the transport market in Latvia has a tendency for a gradual convergence with the European transport market. The answers concerning the market for international HGV road freight transport reveal that the stakeholders consider that the market situation is similar in the BSR. It is promoted by the entry into effect in 2010 of the unified European AETR rules (Regulation 561/2006 of the European Parliament on the harmonization of certain social legislation relating to road transport), and therefore, the requirements of this indicator aligned.

The negative impact on the safety of traffic by drivers exceeding the speed limit, as well as possible alcohol and (or) drugs usage at border crossings should be noted. This is due to recurring long queues at the Latvian-Russian border, which stimulates drivers to violate the regime AETR and speed limits.

The urgent problem for the Latvian transport market is also a possible overloading of the vehicle, which is especially important when transporting loose material (sand, gravel) in the semi-trailers, exposed to moisture, and, accordingly, a substantial increase in the total weight of the HGV. This leads to disagreement in the assessment of the competent authorities and heads of haulage companies.

The studies have shown that the opinion of Latvian authorities differs from the views of the heads of the transport companies, but in recent years, this difference has been significantly reduced.

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