

THE IMPACT OF THE TRANSPORTATION ROUTE ON THE PRICE FOR THE REALIZED TRANSPORT

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Summary

The price for the transport is determined by the carriers based on the costs incurred when the carriers transporting. Carriers are currently able to identify variable costs, the height of which changes with the change in the realized output and also fixed costs, which are dependent on the operating time of the means of transport. Carriers have the differences in the cost of the shipment for each destination they judge through the differences in charges for the use of the road network. It is also necessary to consider the possibility to backhaul transportation the vehicle for concrete transportation. The aim of this article is to verify the hypothesis, whether the change of the transport route is affected at the carrier's expense and in case, that is to quantify the impact of the transport route to the price for the transport carried out. We assume the effect of changing the shipping route also changes over time, therefore, the goal of the contribution is to identify changes the impact of the shipping route on the price within one week and to identify whether changes are developing in individual countries in the same process. Research is conducted on the basis of a situation survey in 19 European countries over a period of more than 3 months.

Keywords: transportation, freight transport, shipping offer, states of transport

1. Introduction

Each transport company enters the transport market with the intention of being a successful company. Competition in the road freight business is at a high level. This means that thousands of transport companies across Europe operate in the provision of transport services, where the free movement of goods and services is permitted. Carriers have their fleet with fewer or more vehicles. The size of the fleet may be affected to a certain extent price creation, but the pricing principle is the same for each carrier [1,2].

The price for the transport is determined by the carriers on a cost basis, which arise during the transport operation [3]. Carriers are currently able to identify variable costs, the height

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of which changes with the change in the realized performance and also fixed costs, which are dependent on the operating time of the means of transport. Carriers differ in the cost of transport for individual destinations through differences in charges for the use of the road network [4]. However, it is also necessary to deal with the possibility of back-loading of the means of on a specific shipment [5,6]. The aim of this article is to verify the hypothesis, whether the change in the route of transport at the carrier's cost is affected and in case, that is the truth, to quantify the impact of the transport route to the price for the transport carried out. We assume that the impact of the change in the route of travel also changes over time, therefore, the goal of the contribution is to identify changes the impact of the shipping route on the price within one week and to identify whether changes are developing in countries in the same course. Survey of change of supply was realized on the basis of the offer of transport by transport databases. They provide space for both hauliers and customers. Customers publish their shipping offers, how much they want to transport and where and carriers publish their free vehicles [7]. New bids are renewed each second from a great choice. Based on these published materials, research has been evaluated for this article with the output status queue output for the surveyed states in the database and the offer was also evaluated from day to week view [8]. The survey was conducted for transport offers from the Slovak Republic to 19 states of Europe, including the Slovak Republic. The offer of transport from Slovakia was thoroughly evaluated to the states on weekdays from Monday to Sunday. Subsequently, the states were categorized into 3 groups according to common features and characteristics.

2. Analysis of sources supply information of shipping offer

The traffic database tool helps carriers orientate themselves in the transport market. What is the supply and demand for transport to the place of transport and backhaul of the semi-trailer. First of all, it is help for smaller transport companies, which have no contracts with customers to load vehicles [9]. There are many companies in the transport market, which mediate transport. This is the conclusion of a transport contract between the customer – transporter and the transport operator itself – carrier [10]. Traffic carriers offer their services in transport databases through free vehicles, as well as customers by offering goods transport. The scope of transport services in the databases is wide and with databases and its scope of action throughout the world [11]. If a transport company has a contract of carriage with the customer, do not need to visit the traffic databases, in those cases where the carriage of goods is secured for the carriage of the vehicle, respectively is paid to customers [12]. When the carrier does not have a secure transport of the vehicle, often done through it by databases. From a long-term perspective, transport from transport databases not retaliation by transport companies, due to the very low prices offered by customers. The cost of shipping to customers does not cover many times nor the costs incurred by the carrier itself for the performed transport [13]. The transport company should consider all the risks related to the search for transportations and profitability itself, not to criminal activities, which are part of the global online market – phantom carriers, scams shipment of goods, etc. [14]. Through the selected transport data bank – TimoCom, which is one of the largest companies in the world in the area of freight forwarding, a survey of the transport market is carried out. Based on long-term view of the offer of loading

vehicles to see which countries can be transported from Slovakia without major problems the goods and where on the contrary, in which countries there is a problem with loading a vehicle. We will also find out through the survey on which days the shipping offer is highest and when it is advantageous for the carrier to carry out the transport.

We were using the traffic databases tool - traffic loading it is also possible to determine transport demand in the analyzed countries. It is a tool for transport databases, which states, how much of the total database of transport databases represents an offer of free capacity of vehicles and what transport offer. The ideal condition is in the case, if the share of transport represents 50 % and the offer of vehicles 50 %. In case, if the vehicle supply is above the level 50 % it means, that some vehicles will not carry the shipment [15].

3. Exploration processed on a shipping offer

A survey was processed using the transport data bank of transport offers for carriers from the Slovak Republic. This survey is possible to carry out from any country, which is available in the data base of the transport data bank. For better orientation, we've worked just that from the outset of Slovakia, from where the transportation will be finding within Europe. At the 3-month horizon from March to May 2018 a shipping offer has been observed on a daily basis to 19 countries of dispatch of goods. The research was conducted 7 days a week, including weekend days, as well as during public holidays in the relevant states. In Table 1 can be observed recorded average shipping offer values measured in research.

Table 1. Average shipping offer values from Slovakia for each country

States	Mon	Tue	Wed	Thur	Fri	Sat	Sun	Average (%)
Belgium	14.6	8.1	9.7	9.3	6.0	3.4	3.5	7.8
Bulgaria	13.5	7.2	7.1	7.8	9.7	13.0	13.2	10.2
Czechrepublic	57.8	60.8	62.8	60.3	62.6	57.5	57.4	59.9
France	42.3	43.1	49.8	53.8	49.2	40.7	36.5	45.1
Netherland	6.3	10.5	12.2	11.7	12.6	6.0	6.2	9.4
Luxemburg	3.7	4.8	7.5	5.6	7.0	3.1	3.2	5.1
Hungary	77.1	79.7	79.5	77.8	78.7	78.0	77.0	78.2
Germany	53.7	61.1	64.8	64.3	60.4	53.8	53.0	58.7
Poland	49.0	59.1	50.7	42.3	47.3	52.0	51.7	50.3
Austria	65.3	70.0	72.1	70.3	69.8	66.4	65.4	68.5
Romania	68.8	69.1	64.7	67.3	69.6	69.0	71.1	68.5
Slovakia	70.0	70.0	73.0	73.0	73.0	70.0	68.0	71.0
Slovenia	29.7	33.7	39.8	36.8	33.2	28.5	28.8	32.9
Serbia	48.6	40.2	45.6	45.7	40.7	42.8	44.8	44.1
Spain	22.5	27.5	27.8	31.0	32.4	23.4	24.5	27.1
Switzerland	17.3	27.5	24.5	23.5	20.0	15.2	16.0	20.6

Table 1. Average shipping offer values from Slovakia for each country; cont.

States	Mon	Tue	Wed	Thur	Fri	Sat	Sun	Average (%)
Italy	35.6	44.8	54.0	52.7	47.7	35.4	36.7	43.8
Turkey	2.6	2.0	6.6	4.3	5.3	2.5	2.8	3.7
GreatBritain	42.1	42.4	48.2	49.8	46.6	40.5	45.1	45.1
Average (%)	37.9	40.1	42.1	41.4	40.6	36.9	37.1	39.5

Source: processed by the authors

From the Table 1 can be read as the shipping offer moved from the Slovak Republic for individual states for a given time interval. We can also read the average shipping offer values for specific countries and for what days the bid reached its maximum, respectively minimum values. More graphically, it is possible to observe the supply curve during the week in the figure 1.

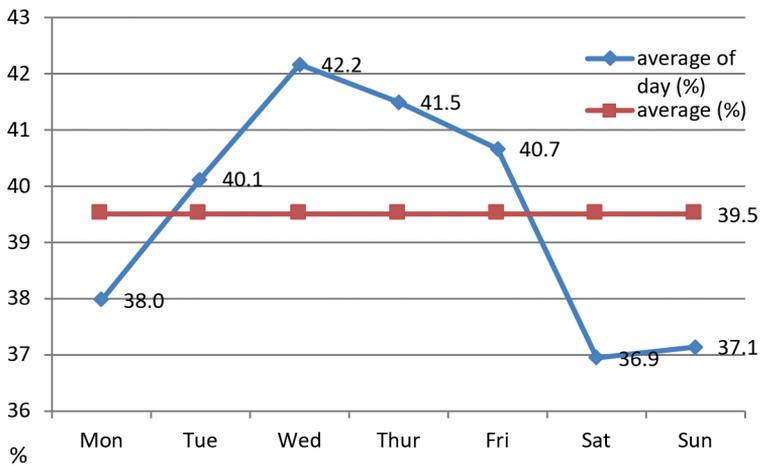


Fig. 1 Offer vehicle traffic averaged over all countries within days of the week

Source: processed by the authors

It can be seen from Figure 1, that the supply curve reaches its peak in the middle of the week, specifically on Wednesday. From the beginning of the week on Monday the curve starts to rise, from Tuesday to Wednesday, when it reaches the top of the value offer 42.16 %. Subsequently, the supply curve starts to drop from Thursday to Saturday and starts rising again on Sunday. Average value of shipping offer recorded in the research is of value 39.5 %. Three days a week – Monday, Saturday and Sunday are below the average of the measured value. The remaining days Tuesday, Wednesday, Thursday and Friday reach the value of the shipping offer above the calculated average. This development is related to social and traffic law in road transport. A higher shipment offer is in the middle of the

week for that reason, that fewer carriers are willing to implement from the SR transport to the end of the week and thereafter, because of a driving ban waiting for a vehicle abroad. For carriers it is preferable effect loading at the beginning of the week and by the end of the week also carry back shipping. If we proceed from this assumption, developments in the neighboring states to the SR should be different such as the development of supply to distant states. The fact is, that the transport offer was being carried out from the Slovak Republic to states within Europe, we divided the states into three specific, the characters of related groups. Each group of states is specific their classification and grouping of states. The first group has a working name Eastern Europe this group includes countries bordering the Slovak Republic, including the offer of transport, right to the Slovak Republic. The only country in this group that does not directly border with the Slovak Republic is Slovenia. Other states like Poland, Hungary, the Czech Republic and Austria are border states. For this reason, these countries have been grouped into one group. The average shipping offer for this group is greater than 60 %, which means that there is no problem for carriers transport to one of the countries included in this group. We can see this situation in Figure 3, where percentages are listed in transit bids for each country in the group.

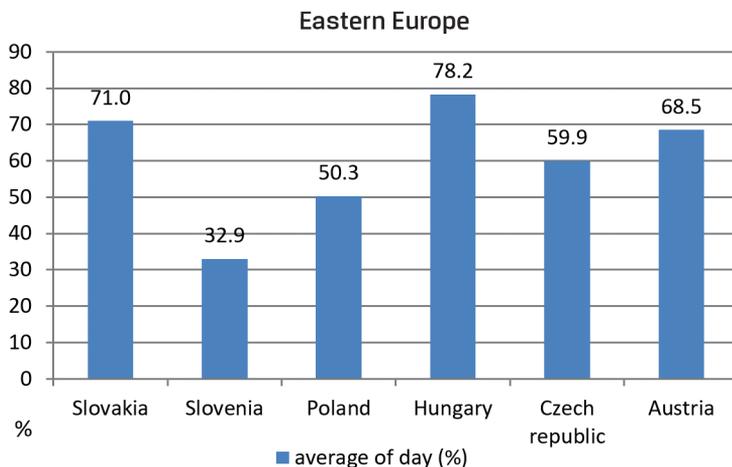


Fig. 2 Offer of transport from Slovakia within the group Eastern Europe

Source: processed by the authors

It can be seen from Figure 2, that the best offer and the easiest to find transport from Slovakia to Hungary, the worst was Slovenia among the countries in the group, which has a weaker shipping offer compared with other countries also because of that Slovenia has no common borders with Slovakia, but is still reasonably close to Slovak Republic.

Figure 3 shows the progress of the shipping offer for individual countries in the Eastern Europe group. It can also be seen from the graph, although the transport offer is, on average, for all countries in the group of approximately value 60 %, but Slovenia and Poland

achieve sub-average values for the group. Other countries have an average to a modest offer of transportation over the days of the week. The best in transport offer is state Hungary.

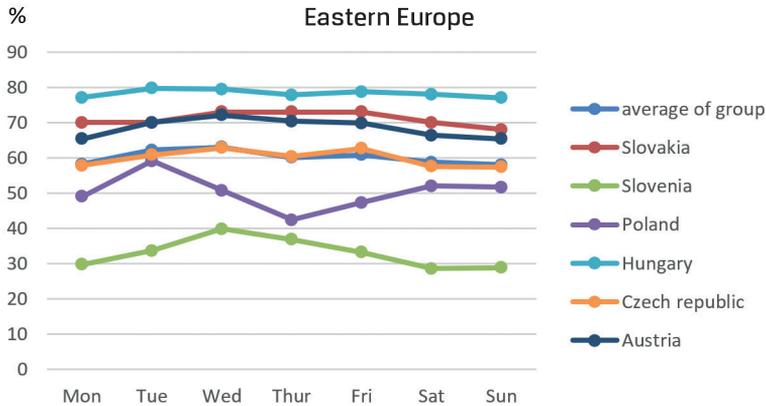


Fig. 3. The transportation offer for individual Eastern European countries for the days of the week

Source: processed by the authors

Another group of states in the research is the working group Southern Europe, which includes states, which have a similar geographic arrangement and their southern position in Europe. For this reason, these countries have been grouped together into group two – South Europe. Figure 4 shows the shipping offer with the states of Serbia, Bulgaria, Romania, Spain, Italy and Turkey. The best have survived with the offer of transportation from Slovakia states like Italy, Serbia, which have a shipping offer value above 40 %, but the best with the transport offer is from the group is Romania with a value above 68 %. On the other hand, the average of the group Southern Europe, which is worth less than 33 % decrease in particular Bulgaria and Turkey with the smallest transport offer worth value less than 4 %.

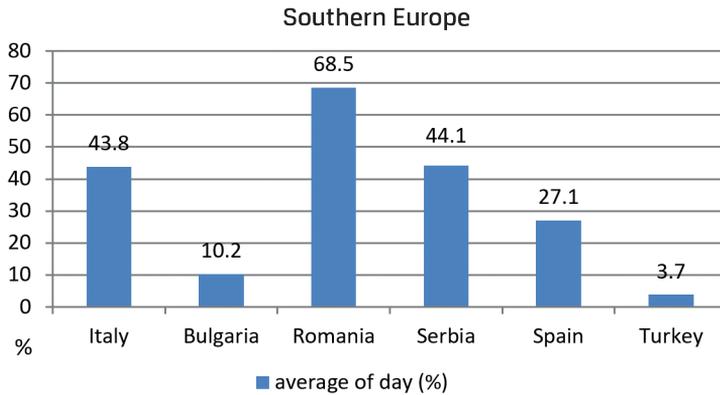


Fig. 4. Offer of transport from Slovakia within the group Southern Europe

Source: processed by the authors

Figure 5 shows the range of the offer for the individual countries of the group South Europe. During the week the shipment changed different in countries. Average total shipping value for the entire group in one day is value 33 %. Progress of the offer within days of the week is below the average countries like Turkey, Spain and Bulgaria. These countries have low bid values. Countries like Italy and Romania have a higher than average supply value for each day of the week.

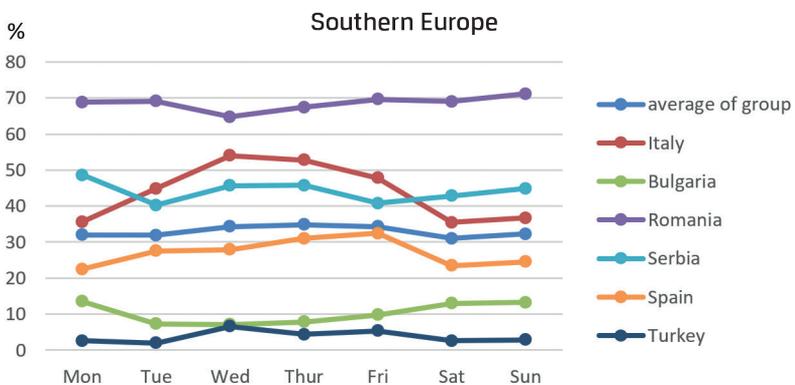


Fig. 5. The transportation offer for individual Southern European countries for the days of the week

Source: processed by the authors

The last working group in the survey of transport offers is a group in Western Europe. These countries are in this group because of their geographic location within Europe. This group includes states of Benelux such as Luxembourg, Belgium, the Netherlands, as well as states such as France, Great Britain, Germany and Switzerland. Average value of the shipping offer achieved research has come out of value for this cluster of states 27.4 %. It is the least among three groups of states. The reason for the low average value of the shipping offer is at a greater kilometer distance of these states from the borders of Slovakia, as is the case with other groups. The biggest share and best offer from this group has been reached by Germany with the value of a transport offer worth less than 59 %. Also the Great Britain and France had a high transport offer in a survey above 45 %. Conversely, the smallest shipping offer values reported by the Benelux countries with a value below 10 %. Figure 6 shows shipping offers for a third group of states – Western Europe.

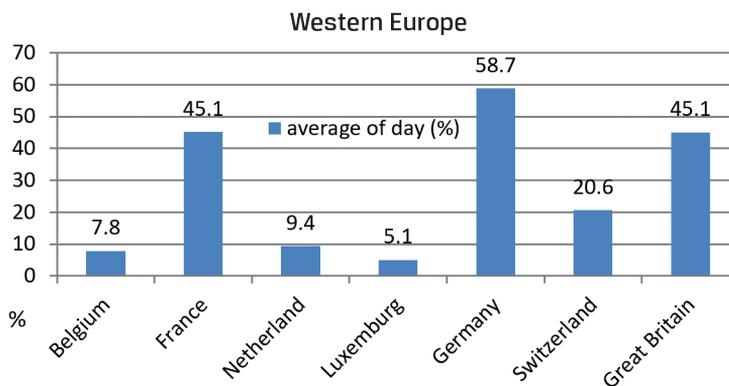


Fig. 6 Offer of transport from Slovakia within the group Western Europe

Source: processed by the authors

Figure 7 shows the progress of the shipping offer for countries in the Western Europe group. The average shipping offer value per day of the week is 27.5 %, but the Benelux countries achieve sub-average shipping values. Other countries in this group are above average shipping offer values.

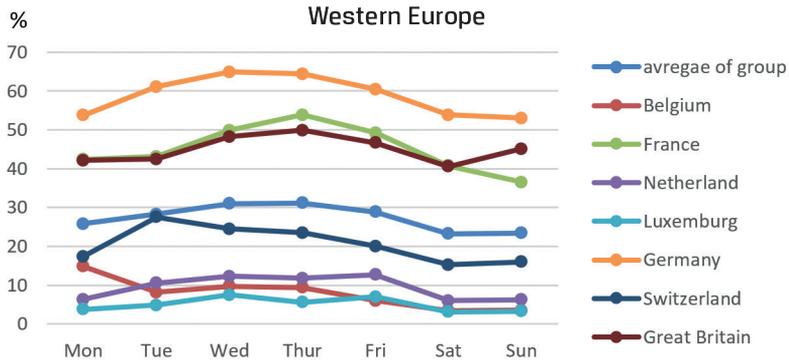


Fig. 7 The transportation offer for individual Western European countries for the days of the week

Source: processed by the authors

Overall assessment of the 3-month survey with 19 countries divided into 3 working groups can be seen in Figure 8. Average value of shipping offer from observation research came out of value less than 40 %. This means that 60 % is offered free vehicles on the freight exchange. The ideal state would be on the stock exchange, if it were 50 % offered free transports and the same 50 % would be on the stock market, where they looking for transport. There is no problem for some states to find offers from Slovakia, with other countries, there is a bigger problem. It is just the carrier which state will choose to carry out the transport of goods.

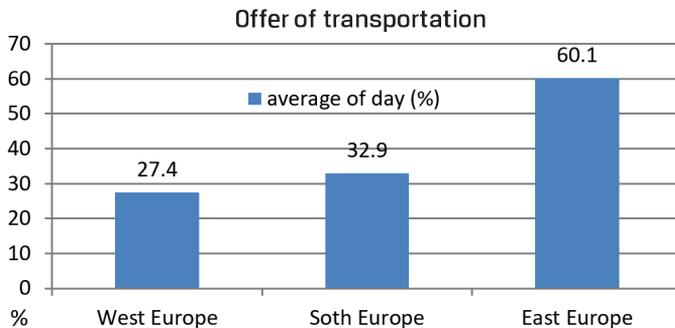


Fig. 8 Offer of transport from Slovakia within the group Western Europe

Source: processed by the authors

4. Conclusion

In this article, the authors focused on the assessment of shipping offers from the point of view of the carrier and based on data analysis, they processed hypothesis verification defined in the introduction. We can be said, that the possibility of backhaul the vehicle is different between countries, which affects the shipping cost. The highest offer in the case of the Slovak Republic it is in the countries, which authors have been included in a group of Eastern European countries. The author has also been able to identify the change of offer during the week, which does not change same in all countries. This research can be carried out in any country in Europe. The research method implemented in this post can be implemented in any country with a greater or lesser reporting value. Each carrier should have at to track the price not only costs variable, which include, for example, fuel costs, vehicle repair costs, and so on and fixed costs depending on the time of vehicle operation for example vehicle depreciation, but they should deal with also due to the reuse of the vehicle on the shipping cost. The research worked out in this article points to differences not only among states, but also at a specific time of transport in a particular state.

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