

Alena Vavrová¹

MEDZINÁRODNÁ CESTNÁ PREPRAVA A ELEKTRONICKÉ MÝTO

INTERNATIONAL ROAD FREIGHT AND ELECTRONIC TOLL PAYMENT

Abstract

The main purpose of this paper is to point to the current state of transport infrastructure in Slovakia and to the comparison of costs associated with the implementation of road freight transport of goods in a particular session at various stages of the EURO emission class vehicles with a gross payload of 3.5 tons.

Transport is regarded as a key factor of modern society development. It has become an economic growth determinant as well as achievement of the social and regional coherence. Increased competition, newly attracted investors from abroad as well as speeding up the transport time made us think about building and improving transport infrastructure in Slovakia. Massive investments are demanded to rebuild infrastructure. Key words: international road freight, transport infrastructure, electronic toll payment.

Road haulage has become a key factor for national economy lately. A meaning of transport is an intentional transfer or movement of a kind of goods which is carried out by specific means of transport or it can mean an activity of any conveyances which are provided for transport in the time. Road haulage is the most used mode of transport. It defines itself as the transport that is carried out by conveyances on the road communications.

Enter of Slovakia in to EU in 2004 and followingly its enter into Schengen zone in 2007 created accurate opportunities which help foreign investors to come in our country but also support competition in domestic and foreign markets. Economic growth of the country and their openness against other economies is especially conditioned by quality of transport infrastructure in that time. The qualitative transport infrastructure is one of the most important determinants for increasing competitiveness of individual regions of the country and for attracting foreign investors on its territory.

1 The current state of transport infrastructure in Slovakia

Construction of the transport infrastructure requires huge investments. EU enables Slovakia to get finance intended for development of its transport infrastructure by drawing on finance from Cohesion Fund and from European Regional Development Fund. Operational programme on Transport was adapted by Slovakia government act in compliance with EU programme set up for 2007-2013 period. Its specific aims are especially modernization of road, railway and intermodal transport infrastructure as well as development of public transport. There was occurred information in Slovak media environment lately that EU stopped funding of the construction activities relate to the Slovak road transport infrastructure. It happened because a control audit had found too many inconsistencies which related to verifying of unauthorised spent expenditures in 2011. The audit found that the direction of OPD approved the unauthorised expenditures of EU funds beneficiaries; especially National Motorway Company. These expenditures concerned unnecessary work activities which were not enforced by unpredictable circumstances.

¹ Alena Vavrová, Ing., Mgr., Kovexim, s.r.o. Kukučínova 386/40,02001 Púchov, vavrova.alena@gmail.com

The inconsistencies involves for example: a changing of chosen type of central road guard rails was based on investor's requirements, a changing of access road communications to the building site, even

inconsistencies between project documentations and objective reality on the field, or exchange of ground floor because of unfit statistical tests. Ministry of Transport began negotiating with European Commission about ways how to remedy founded inconsistencies. The resolution of European Commission was expected on March of the year. There were presented two requests of total payment 44 million euro in Brussels lately.

2 Electronic toll

Electronic toll for the use of specified sections of road communications is governed by the Act No. 25/2007 Coll. The electronic toll collecting represents an electronic money transfers which sum is calculated according to vehicle category per 1km of a specified road section. Specified road section can be used by vehicle with the total vehicle weight from 3.5t or lorries with total weight more than 3.5t which enable the transport of goods or by motor vehicles enabling the transport of more than nine persons including a driver just if determined toll rate is paid.

Toll Rate per 1 km of specified road section is determined according to the vehicle with total vehicle weight from 3.5 t up to 12 t, with total vehicle weight more than 12t and motor vehicles enabling the transport of more than nine persons including a driver. The method of Toll Rate calculation considering at least a type of road, an EURO emission class and a number of vehicle axles.

Overview of specified vehicle categories and tool rates for the use of specified sections of highways and expressways is presented in Tab. 1 and Tab. 2.

		Emission class		
	Vehicle category	EURO 0 - II	EURO III	EURO IV,V,EEV
Lorries	3.5 t – 12 t	0.093	0.086	0.083
	12 t and more 2 axles	0.193	0.183	0.179
	3 axles	0.202	0.193	0.189
	4 axles	0.209	0.199	0.196
	5 and more axles	0.206	0.193	0.189
Busses	3.5 t – 12 t	0.060	0.050	0.030
	12 t and more	0.110	0.100	0.060

Tab.1: Toll rates for the use of specified sections of highway and expressways. (Resource: Government regulation no. 350/2007 Coll., Addition no. 1., 2010)

		Emission class		
	Vehicle category	EURO 0 - II	EURO III	EURO IV,V,EEV
Lorries	3.5 t – 12 t	0.070	0.063	0.063
	12 t and more 2 axles	0.146	0.136	0.136
	3 axles	0.153	0.146	0.143
	4 axles	0.156	0.149	0.146
	5 and more axles	0.153	0.146	0.143
Busses	3.5 t – 12 t	0.040	0.030	0.020
	12 t and more	0.080	0.070	0.040

Tab.2: Toll rates for the use of specified first class road sections
(Resource: Government regulation no. 350/2007 Coll., Addition no. 2., 2010)

National Motorway Company, Ltd. is appointed as the administrator of the electronic toll collection. There has been so far collected overall 451.42 million euro since the start of the electronic toll system operation. It was collected 141.8 million euro in 2010 and 154.1 mil. euro in the year 2011 which represented nearly 8,6% increase and 155.52 million euro in 2012 represented 1% increase against the previous year.

The finance means mentioned above should be used for construction, rebuilding or maintaining of the Slovak transport infrastructure.

2.1 *The calculation example of electronic toll for specified relation*

If we want to be able to sum up transport costs which are not determined by a kind of transported goods, we must know following factors:

- Vehicle category
- Toll rate for the use of specified sections of road communications
- Relation
- Route

In the following example, we take into consideration a vehicle with its total weight more than 12t, with number of 5 axles and EEV emission class founded out from the vehicle registration document.

The electronic toll rate of the Slovak Republic for the use of highway and expressways is 0.189 euro/ per 1km according to the Tab. 1 and the toll rate for the use of specified sections of the first class road is 0.143eur/ per 1km according to the Tab. 2. Specific relation for Lorries regardless of a kind of transported goods is /SK/ Poprad - /D/ Schwabisch Gmund. Total distance of mentioned relation is 1000km, considering the Czech Republic as the transit country.

Route: /SK/ Poprad - /D/ Schwabisch Gmund: 149.48 euro

Slovak Republic: 44.90 euro

/SK/ Poprad - /SK/ Drietoma (board crossing): 240km

Highways: 230km x 0.189 euro = 43.47 euro

The 1st class roads: 10km x 0.143euro = 1.43euro

Czech Republic: 72.03 euro

/SK/ Drietoma (border crossing) - /CZ/ Rozvadov (board crossing); total transit distance: 500km

Highways: 380km x 4.12CZK (0.1648 euro) = 62.624 euro

The 1st class roads: 120km x 1.96CZK (0.0784 euro) = 9.408 euro

Germany: 32.55euro

/CZ/ Rozvadov (board crossing) - /D/ Schwabisch Gmund: 260km

Highways: 210km x 0,155eur = 32.55 euro

The 1st class roads: 50 km (Only German highways come under its electronic toll system)

We can see according to our calculation of the transport of goods on the paid highway sections and on the 1st class roads in overall distance 1000km and by the specified transport relation through Czech as a transit country, that a carrier must totally pay 149.48 euro. Only

44.90 euro of this total amount represents income for the Slovak Republic government budget.

In the following example, we consider an alternative of the mentioned relation. The relation /SK/ Poprad - /D/ Schwabisch Gmund goes through Austria as a transit country and its total number of kilometres equals the previous example. It is 1000 km too.

Route: /SK/ Poprad - /D/ Schwabisch Gmund: 203.86 euro
Slovakia Republic: 69.36 euro
/SK/ Poprad - /A/ Kitsse (board crossing); highway: 367 km x 0.189 euro
Austria: 73.58 euro
/A/ Kitsse - /A/ Suben (transit point): highway: 240km x 0.3066 euro
Germany: 60.92 euro
/A/ Suben (board crossing) - /D/ Schwabisch Gmund: highway: 393 km x 0.155 euro

Weekly expenditures on export in case of collecting toll charges in Austria as a transit country, which carrier is obliged to pay are 407.72 euro/ per week, 1630.88 euro / per month and 19570.56 euro/ per year.

The difference between the comparing transits countries is 5220.48 euro/ per year, considering lorries with their total weight 12t and more, with number of 5 axles and emission class EEF. It is calculated for the specific export relation: /SK/ Poprad - /D/ Schwabisch Gmund. The total number of performed kilometres is equal in case of the both transit countries, considering a fact that a kind of goods is irrelevant.

Along with the comparison of costs which relate to the electronic toll collection, we compare Lorries with total weight 12t and more, with number of 5 axles and emission class EURO 0-II and III – IV for the same transport relation.

Transit country: Czech Republic
Emission class: EURO 0-II
Route: /SK/ Poprad - /D/ Schwabisch Gmund: 235.82 euro

Slovak Republic: 48.91 euro
/SK/ Poprad - /SK/ Drietoma (board crossing): 240 km
Highway: 230 km x 0.206 euro = 47.38 euro
The 1st class roads: 10km x 0.153 euro = 1.53 euro
Czech Republic: 144.07 euro
/SK/ Drietoma (board crossing) - /CZ/ Rozvadov (board crossing) – transit: 500km
Highway: 380 km x 8.24 CZK= 125.25 euro
The 1st class roads: 120 km x 3.92 CZK= 18.82 euro

Germany: 42.84 euro
/CZ/ Rozvadov (board crossing) – /D/ Schwabisch Gmund: 260 km
Highway: 210 km x 0.204 euro = 42.84 euro

Alternatives:
Transit country: Austria
Emission class: EURO 0-II
Route: /SK/ Poprad - /D/ Schwabisch Gmund: 240.71 euro
Slovak Republic: 69.36 euro

/SK/ Poprad - /A/ Kitsse (board crossing): Highway: - 367 km x 0.193 euro

Austria: 89.71 euro

/A/ Kitsse - /A/ Suben; transit: Highway: - 240 km x 0.3738 euro

Germany: 80.17 euro

/A/ Suben (board crossing) - /D/ Schwabisch Gmund: Highway – 393 km x 0.204 euro

Transit country: Czech Republic

Emission class: EURO III - IV

Route: /SK/ Poprad - /D/ Schwabisch Gmund: 196.86 euro

Slovak Republic: 45.85 euro

/SK/ Poprad - /SK/ Drietoma (board crossing): 240 km

Highway: 230 km x 0.193 euro = 44.39 euro

The 1st class roads: 10 km x 0.146 euro = 1.46 euro

Czech Republic: 112.58 euro

/SK/ Drietoma (board crossing) - /CZ/ Rozvadov (board crossing) – transit: 500km

Highway: 380 km x 6.44 CZK= 97.89 euro

The 1st class roads: 120 km x 3.06 CZK= 14.69 euro

Germany: 38.43 euro

/CZ/ Rozvadov (board crossing) – /D/ Schwabisch Gmund: 260 km

Highway: 210 km x 0.183 euro = 38.43 euro

Alternatives:

Transit country: Austria

Emission class: EURO III - IV

Route: /SK/ Poprad - /D/ Schwabisch Gmund: 221.37 euro

Slovak Republic: 70.83 euro

/SK/ Poprad - /A/ Kitsse (board crossing): Highway: - 367 km x 0.193 euro

Austria: 78.62 euro

/A/ Kitsse - /A/ Suben; transit: Highway: - 240 km x 0.3276 euro

Germany: 71.92 euro

/A/ Suben (board crossing) - /D/ Schwabisch Gmund: Highway – 393 km x 0.183 euro

Following calculations are showed in Tab. 3.

Transport relation: Poprad /SK/ - SchwabischGmund /DE/	Transit country: Czech republic			Transit country: Austria		
	EURO 0 - II	EURO III - IV	EURO V, EEV	EURO 0 - II	EURO III - IV	EURO V, EEV
Export in one way/ Euro	235.82	196.89	149.48	240.71	221.37	203.86
Weekly costs (twice a week)	471.64	393.78	298.96	481.42	442.74	407.72
Monthly costs	1886.56	1575.12	1195.84	1925.68	1770.96	1630.88
Yearly costs	22638.72	18901.44	14350.08	23108.16	21251.52	19570.56

Tab. 3: The comparison of electronic toll rates / per EURO emission class (in Euro)
(Resource: own data processing, 2013)

Tab.3 shows the amount of carrier's costs of toll charges relates to the individual transit countries, which are arranged in order of the different emission classes. Yearly costs for carrier are 14350.08 euro considering the highest emission class EURO V and EEV for lorry with total weight 12t and more, with 5 axles, and considering Czech Republic as a transit country.

If carrier owned a lorry of EURO III-IV emission class and with the same number of axles, it would increase yearly costs for carrier by 4551.36 euro. In case of EURO 0-II emission class, it would almost increase yearly costs of toll charges by 8288.64 euro. If carrier decided to use of qualitative Austrian highway, yearly costs of toll charges would be 19570.56 euro for emission class EURO V and EEV, which would mean an increase by 1680.96 euro for emission class EURO III-IV and in case of comparison between emission class EURO 0-II and EURO V and EEV it would be an increase by 3537.60 euro.

Based on the description, we can see that differences between the transit through Austria and the transit through Czech are not so noticeable in case of emission class EURO.

But, if we compare costs of toll charges in both transit countries, it is evident that a preferable alternative for a carrier is the use of road communication through Czech as a transit country.

Difference according to emission class EURO V and EEV is 5220.48 euro in the comparing countries. It is 2350.08 euro in case of emission class EURO III-IV and yearly difference in toll charges is 469.44 euro for emission class EURO 0-II

2.1.1 *Transport time*

Transportation is one of the most developing, but also the most needed sector of national economy. Road transport represents itself as the most dynamic, but also the lowest economical-demanding type of all four basic modes of transports. Every consignor or consignee of goods wants to have goods delivered perfectly in time, or in the shortest possible time. It is not permitted to transport goods without limitations in the road haulage.

Daily working time is limited to 13 hours, with just 9 continuous driving hours in the same time period and along with that a driver must keep 45 minutes rest after 4.5 hours long driving time considering lorry with total weight more than 3.5t driven by a driver. Driver must also keep 11 hours rest after 9 driving hours. There are just following exceptions in the working time regulations, when a driver can drive entirely 10 hours two times a week and keep 11 hours rest or to short the main rest from 11 hours up to 9 hours two times a week. It happens very often, that goods must be delivered urgently and then it is possible to drive a lorry with total weight 3.5t and more driven by two drivers. In the case, total daily working time can't exceed 21 hours and total driving time is 18 hours. It is not obligatory to take a rest after the first half of driving time. If you don't keep the stated driving time standards and obligations relate to the taking a rest, a driver may be heavy fined.

3 Conclusion

Operating is not easy in transport marketplace nowadays. It is especially not easy for small and micro transport companies, exporters and importers. Therefore, if such companies want to satisfy their clients, they must be able to react to their demands dynamically and flexibly. Coming up to the conditions of competitiveness means that such companies must be able to provide complex and reliable services for acceptable price.

Transportation prices are constantly cutting down, because of the situation in transport market. Hence, carriers also strive for maximum cost reduction, but of course in the manner of well satisfying client's needs. Only satisfied client will come back again. The launch of electronic toll system has been very challenging for all carriers. Toll rates increases their costs multiply. There are calculations of carrier's toll charges for the specified transport relation,

the number of performed kilometres and concerning the different transit countries in this article. Highways and the 1st class roads are not according to drivers experience in the best condition in the Czech Republic, but just the lower toll rates force drivers to make use of them.

Austrian highways are in much better condition, but the calculations clearly show, that yearly costs of export by a lorry with its total weight 12t and more with number of 5 axles and emission class EURO V and EEV exceed the sum 5220 euro, which is not negligible in case of many performed transports and a huge vehicle fleet. Slovak transport infrastructure is in a phase of construction and building boom. In spite of that, we can't see new quality roads. They are damaged by weather conditions and a chemical used for their maintenance but the most relevant is traffic congestion. Lorry drivers constantly bypass highways and the 1st class roads because of using the 2nd road communications or less class roads, in order to save more money which is to spend on toll charges. The manner of drivers behaving directly brings about enormous roads damage and obstructions with collecting toll charges for the state. Just for comparison, there is liability to pay only for the use of the 1st class roads and highways by the vehicles with total weight 12t and more in Germany. It is allowed to drive at the speed of 60 km per hour on the 2nd and 3rd class road there. Carriers may be heavy fined in case of breaking these regulations, which could be fatal especially for small sized transport companies.

The speed limits evidently cause a lengthening of transport time and it is also vital to mention a well known saying „the time is money“. Therefore, drivers usually decide to use highways as to the Germany road communications. There is nothing wrong with it, if we would try to take an advantage of the countries where the system operates properly without any problems and also brings a desired effect.

Resources:

[1] BUKOVÁ, B. a kol. 2008. Zasielateľstvo a logistické činnosti. Bratislava: Iura Edition, 2008. 294 s. ISBN 978-80-8078-232-0

[2] SITA. 2013. MŽP: Pozastavenie eurofondov sa dotklo aj programu životné prostredie. [online]. Bratislava : SITA, 2013. [cit. 2013.02.25] Dostupné na internete: <<http://www.sita.sk/sk/blog/2013/02/mzp-pozastavenie-eurofondov-sa-dotklo-aj-programu-zivotne-prostredie/>>.

[3] Zákon č. 25/2007 Zb. o elektronickom výbere mýta za užívanie vymedzených úsekov pozemných komunikácií a o zmene a doplnení niektorých zákonov. [online]. Bratislava : Iura Edition, 2010. [cit. 2013.03.16] Dostupné na internete: <[http://www.zbierka.sk/sk/vyhľadavanie?filter_sent=1&_filter_predpis_aspi_id=25%2F2007+Z.z.&q=/](http://www.zbierka.sk/sk/vyhľadavanie?filter_sent=1&_filter_predpis_aspi_id=25%2F2007+Z.z.&q=/>)>.

[4] Stella Centrum. 2013. Dialničné poplatky. [online]. Bratislava : 2013. [cit. 2013.03.16] Dostupné na internete: <http://www.stellaservis.sk/dialnicne_poplatky.php?id=_0editable/dialnicne_poplatky/countries/>.

[5] Kovexim. s.r.o., 2013. Interná dokumentácia.

[6] Andrej Vavro – VAVROTRANS, 2012 – 2013. Interná dokumentácia.