

DRAFT OF METHODOLOGY FOR COMPUTATION THE REGULATION LEVEL IN THE RAILWAY TRANSPORT

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Abstract: *The paper describes new draft for computation the regulation level in the railway transport. It brings new view and offers new regulation which can completely influence sustainable mobility in the transport. The transport regulation problems are large and serious and their solutions are divided in partial methods nowadays. This paper defines principles of the transport market and state interference with transport. The absence of market prices in the railway transport expresses itself negatively on the market of transport services. It deforms relative prices for individual services and so generates unbalance within means of transport. The road transport market share is higher in comparison with other means of transport. This fact makes overcharge of road infrastructure, increases risk and accident rate and pollutes environment.*

The transport regulation is an objective demand and it plays a key role in implementation within European Union transport policy.

Key words: *regulation, transport policy, railway transport, railway infrastructure*

INTRODUCTION

European transport policy development is based on important changes. It is necessary to implementate these changes into the transport policy in Slovak republic. Nowadays the transport policy within European Union aspires to the market harmonization and liberalization. These elementary aims can be successful only in the case of equal economic competition.

The necessity of regulation results from economic spirit of transport, from objective effect of the factors which invoke market defection and create inseparable part of transport. The deformed market with negative influence to environment and high social costs for transport results from the effect of these factors.

PRESENT STATE

The transport policy is a part of economic policy and also an instrument as expected by traffic needs on required quality level. The conformity of transport policy aims is essential

preconditions with a view of becoming dynamic component of economic development. The aims represent also presumption of connection of traffic system in Slovak republic into the integrated European traffic system.

The economic competition is one of the transport policy parts beginning from aims and principles assessment by the Rome Convention within its later novels till the present day. The new conception of transport liberalization was accepted in the period of creation of European Union and transformation of European community. The political agreement about railway and combined transport support was created and also discussions were realized about tools definition, state support and regulation. It is necessary to monitor conditions of liberalization maintenance. The monitoring covers technical and economic conditions and also European traffic market development.

The Slovak republic interest on participation in the international transport system requires

conforming to conditions that determine our participation on the traffic market. It also requires completely implement European Union directions into our law system. But Slovak transport policy does not respond enough to EU development trends nowadays. There is not sufficient space for regulation environment form in the transport and for legislation norms adoption in accordance with EU standards.

LEGISLATION FOR TRANSPORT REGULATION

The economic competition, services in public interest and state support in the railway transport are subjects of general binding rule of law, which hold for regulation of inland transport.

Following regulations are the most important:

- Regulation (EEC) No 1017/68 of the Council of 19 July 1968 applying rules of competition to transport by rail, road and waterway, amended by Regulations No 1629/69, 1630/69, 1/2003 and 773/2004.
- Regulation (EEC) No 1191/69 of the Council of 26 June 1969 on action by Member States concerning the obligations inherent in the concept of a public service in transport by rail, road and inland waterway, amended by Regulations No 3572/90, No 1893/91, No 1370/07.
- Regulation (EEC) No 1107/70 of the Council of 4 June 1970 on the granting of aids for transport by rail, road and inland waterway, amended by Regulations No 1473/78, No 1658/82, No 1100/89, No 3578/92, No 2255/96, No 543/97, No 1370/07.

Within straight applied acts belong regulations and resolutions about financial tools of the European Union – about cohesion fund and structural funds and legislation about trans-European network.

Besides these documents, the regulation and liberalization of the railway transport are adapted by directives, which are obligatory for member countries.

Following directives are primary:

- 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. This Directive replaces Directive 95/19/EC and covers

infrastructure capacity allocation and charging.

- 1995/18 on licensing of railway enterprises.

Both directives are considered to be executive act for transformation directive 1991/440 on the Development of the Community's Railway.

European Directive 91/440 marked the start of a change in the regulations governing rail organization. This Directive required an accounting separation between operation activities and infrastructure management activities and validated the European Commission's traditional approach which made a direct link between market openness and competitiveness.

The other Directives that followed (95/18, 95/19 and the recent Directives stemming from the 2001 Transport White Book (Directives 2001/12, 13 and 14 as well as Directives 2007/58, 2007/59) endeavored progressively to lay down the network access conditions and the measures to separate rail operation, infrastructure and management which resulted in the creation of competition between European networks for companies possessing the necessary licenses.

Concrete measure, concept and forms for regulation of the railway transport are kept to state hands.

The Slovak republic, as a member state of EU, must accept European legislation. National law, which adapted European directives into railway transport, is Act No. 164/1996 on Railroads and on amendment to Trade Licensing Act No. 455/1991 as amended by Act No. 58/1997. Regulation of the railway transport was secured through last amendment of this law, also in institutional framework, in accordance with the directives 14/2001 and 18/95.

REGULATION REASONS – DEFAULTS OF MARKET MECHANISM

Among the most relevant reasons, for why the state should enter the economics, belong following defaults:

A. the competition is not perfect, therefore the market is not able to work effectively and it permits producer/provider to obtain dominant state above user.

Basic elements of perfect competition are as follows:

- existence of large number of providers and users,
- neither of them has such force to be able to manipulate with the price, the company must

accept the price, which exists on the market, it is not in a position to change the price, therefore it is marked as price receiver,

- existence of equal conditions for all providers, who offer same products and services,
- liberty of entrance to the market and exit from the market,
- fully flexible demand.

Perfect competition is only a theory; it does not exist in practice.

Market situation, when provider can, in a certain measure, influence price of his production on the market (as price creator), is defined as an imperfect competition.

Three forms of imperfect competition are well-known:

- monopolistic competition – the lowest rank of imperfect competition, large number of providers, each has his own offer, by means of offer he covers little part of the market, every company sells products or services partly different from similar product or service provided by competitive company,
- oligopoly – in the sector exist few big companies, which participate on command of the market, they have economic force, they defend entrance of other providers to transport sector, they put pressure on user to buy at higher prices,
- absolute monopoly – there is only one provider of services, who has privileged economic position, he commands the whole market, he determines monopoly high prices, no suitable substitutes exist and the provider is protected from entrance of competitors to the market, he sells at higher prices than prices in conditions of perfect competition, he does not try to minimize production costs because there is a lack of competition pressure, he does not achieve maximum possible outputs, the volume of his production is little, it does not cover the demand.

B. creation of externalities, the market is not able to work effectively.

Externalities are side effects from production or consumption, which do not enter through the market. They can be negative – damaging factors of production or consumption, they represent creation of additional costs, which will not be covered and which were developed by activity of other subjects. Major problem is environment pollution. Causer of detriment transfers costs

associated with abolishment to the whole society. Main negative transport externalities are costs of infrastructure and congestions, traffic accidents, noise and air pollution. [3]

Transport is the most power consumption. In the Slovak republic power consumption grows mainly in the road transport. It is caused of increase transportation output. The following figure presents the comparison consumption energy for road and railway transport which is calculated in GJ.

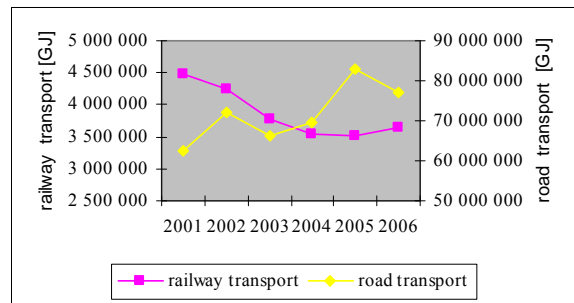


Fig.1. Power consumption for road and railway transport in the Slovak republic during 2001 - 2006

The road transport use up four times energy more to one kilometer than railway transport. Power consumption causes an environment pollution and climate change. In the Slovak republic is monitored mainly pollutants which is produced transport since 1990. The following figures present production emissions for road and railway transport.

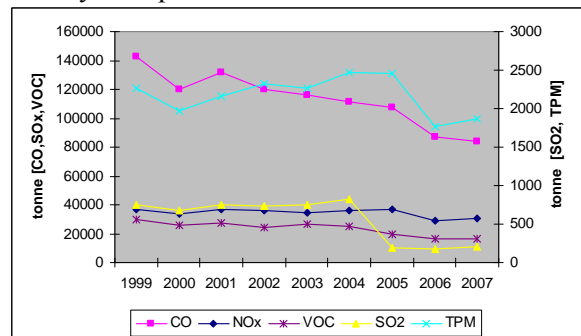


Fig.2. Total emissions for road transport in the Slovak republic during the period 1999 - 2007

Production emissions for road transport are after in agreement with methodic CORINIAR. This methodic is founded on calculation power consumption different vehicle and their emissions factors for different mode traffic.

There are big differences between different vehicle categories. The best contaminator of climate for road transport is individual passenger transport and heavy vehicle transport. The

production pollutants of private car are two times greater to one passenger kilometer than bus.

Methodic assessment production emissions for railway transport are based on calculation total power consumption and application emission factors of diesel locomotives, diesel rail vehicles and mechanization vehicle.

Production emissions by year for railways transport bring down because there is reduced performance.

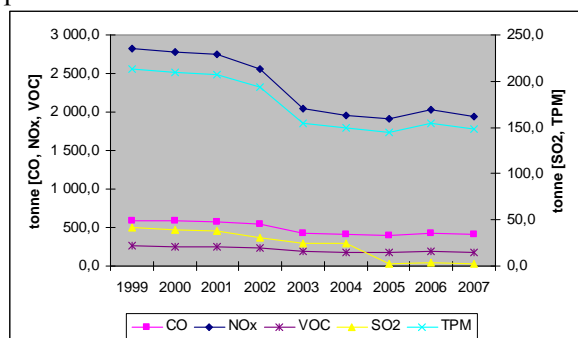


Fig.3. Total emissions for railway transport in the Slovak republic during the period 1999 - 2007

Positive externalities represent advantage or utility. They exit when the marginal social benefit of production and/or consumption exceeds the marginal private benefit, e. g. using of infrastructure by industry or citizen, lighting in the town).

Transport externalities refer to situation, when user of transport:

- either does not pay for entire costs of his transport activity (including ecological costs, congestions or accidents)
- or does not obtain absolute prosperity (infrastructure, costs)

Existence of externalities shows, that market is not able to solve all problems with production. State can influence them i.e. by support, spread positive externalities and eliminate negative externalities.

C. the market is not able to provide public good in required volume

Public good represents activities which bring benefits for society, and which can not be remained on private enterprises. The problem of public good in continuity with market operation is founded on markets inability to encourage production. Public good can be hardly ever effective, because they need high costs and therefore they exceed possibilities of private sector. They are insured by public sector. [3]

Beyond these factors mentioned in A, B and C, defaults on market mechanism are caused also by discrimination on employment market.

REGULATION RULES AND TOOLS

The definition of rules and tools for regulation of transport including their consequences and effects on transport efficiency in accordance with Slovak and European Union legislative requirements is very important. It is one of the basic preconditions of effective function of the trans-European transport system in the immediate time horizon.

It is necessary to allocate positive and negative consequences of transport regulation tools and design a suitable regulation tools and methods with regard to:

- support of sustainable mobility by advanced public transport and environmental friendly and safe means of transport,
- market economy principles applied in the transport conditions,
- receive transport as an integrated transport system,
- harmonization of conditions in the transport market especially in the railway and road transport,
- transport operation within trans-European transport system.

The necessity of state intervention results from above mentioned defaults on market mechanism. State creates law system, defines rules for economic competition, financing rules, rules for safeness, technical specifications and social safeness.

State assures access to services, transport availability and filling of international responsibilities. Liberalization of transport, including railway transport, necessitated the change of regulation tools. Main regulation tools are contract, order, common programs and grants for special purpose, price regulation in passenger transport, regulation of charge for use of the railway infrastructure, public competition and independent regulators.

Serious liberalization of railway transport sector should be founded on basic columns of single market economy. Liberalization should remain respectable structure of relations and common rules of co-ordination and co-operation on business subjects. These common rules are very important for effective operation of

transport services and development of integrated railway network.

NEW DRAFT OF METHODOLOGY FOR COMPUTATION THE REGULATION LEVEL

To determine the impact of the various instruments of regulation of railway infrastructure, it is possible to use a comprehensive (complex) indicator of the impact of regulation, which is a combination of selected sub-indicators.

When constructing a similar indicator, we must take into account that in some sub-indicators - instruments of regulation, is required increasing level of regulation and in the other sub-indicators is required decreasing level of regulation. For the calculation of the complex indicator of the impact of regulation - U_R we can use the following formula:

$$U_R = \sum_{v=1}^V w_{RV} \times U_{RV} + \sum_{n=1}^N w_{RN} \times \frac{1}{U_{RN}} \quad (1)$$

Where:

V - The number of sub-indicators, which is a positive trend with increasing value.

U_{RV} - The value of the V-th sub-indicator of this kind.

N - The number of partial indicators, which is a positive trend with decreasing value.

U_{RN} - The value of N-th sub-indicator of this kind.

w_{RV} , w_{RN} - importance of sub-indicators, where must be applied:

$$\sum_{v=1}^V w_{RV} + \sum_{n=1}^N w_{RN} = 1 \quad (2)$$

Importance and values of sub-indicators can be entered in the form of Table 1.

For specific regulatory instruments it is necessary to determine the individual importance. Method of application this complex indicator of the impact of regulation is currently being designed in research in the Department of Railway Transport.

Tab.1. Sample of scheme for importance and values of sub-indicators of regulation in year...

Sub-indicator	Positive trend*	Importance	Value /level	Positive trend achieved
Subsidies from the state budget for the development of railway infrastructure	V/N	0,1/0,2/...	value	Yes/No

* Positive trend from the view of the state, or infrastructure manager or transport operators

CONCLUSION

The transport market means the existence of modern traffic system which enables large trade traffic output and simultaneous activity of transport sector.

The quality of the transport system has a major impact on economic growth, social development and environment of countries. Developing advanced, high-quality transport system requires the constant improvement of the system in all its areas. The objectives of sustainable development of transport system each state sets in its design and development documents, transport policies and the resulting documents. To meet the objectives of transport policies, are using different policy instruments and regulations of transport.

The article is a part of research project VEGA no. 1/0411/08 Complex analysis and classification of the regulation instruments of transport in continuity with perspectives and calls of liberalize transport market within EU.

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ПРОЕКТ ЗА МЕТОДОЛОГИЯ ЗА ИЗЧИСЛЯВАНЕ НИВОТО НА РЕГУЛИРАНЕ В ЖЕЛЕЗОПЪТНИЯ ТРАНСПОРТ

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СЛОВАКИЯ

Ключови думи: регулиране, транспортна политика, железопътен транспорт, железопътна инфраструктура.

Резюме: Документът описва нов проект за изчисляване нивото на регулиране в областта на железопътния транспорт. Той внася ново виждане и предлага нов регламент, който може напълно да повлияе върху устойчивата мобилност в транспорта. Проблемите за регламентиране на транспорта са големи и сериозни, а сега тяхното решаване става с отделни методи. Този документ определя принципите на транспортния пазар и намесата на държавата в транспорта. Липсата на пазарни цени в железопътния транспорт се отразява негативно на пазара на транспортни услуги. Това деформира относителните цени за отделните услуги и по този начин създава дисбаланс между транспортни средства. Делът на автомобилния транспорт в транспортния пазар е по-висок в сравнение с другите видове транспорт. Този факт води до претоварване на пътната инфраструктура, увеличава риска и процента на злополуки и замърсява околната среда.

Транспортното регулиране е обективно изискване и играе ключова роля в прилагането на транспортната политика на ЕС.