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THE INFLUENCE OF CONTRACT FORM CHOICE OF THE TRANSPORT SERVICES ENSURING ON PERFORMANCE CONTRACTING ENTITY REQUIREMENT

Summary. The paper deals with the issue of the influence of contract form choice of the transport services ensuring on performance contracting entity requirement. In the first part, it describes the current state of transport services financing in the Slovak Republic and risk analysis, which is related to conclusion of the service contract in the transport services ensuring. The rest of the paper defines the impact of services contracts of ensuring the transport services on performance contracting entity requirement.

DIE AUSWIRKUNGEN VON DER AUSWAHL DER VERTRAGSARTEN DER SICHERSTELLUNG DER VERKEHRSLAISTUNGEN AUF DIE ANSPRÜCHE DER LEISTUNGSBESTELLER

Zusammenfassung. Beitrag beschäftigt sich mit dem Problem der Auswirkungen von der Auswahl der Vertragsarten der Sicherstellung der Verkehrsleistungen auf die Ansprüche der Leistungbesteller. Der erste Teil beschreibt den aktuellen Stand der Transportdienstleistungen Finanzierungen in der Slowakischen Republik und die Risikoanalyse, die im Zusammenhang mit Abschluß des Dienstleistungsvertrags in der Sicherstellung der Verkehrsleistungen ist. Der Rest des Betrags definiert die Auswirkungen der Verträgen der Sicherstellung der Verkehrsleistungen auf die Ansprüche der Leistungbesteller.

1. INTRODUCTION

Under the present conditions, in terms of general economic interest, all the passenger transport services may not be provided on a commercial basis in the Slovak Republic. Public authorities must provide the transport service even in times of low demand due to the fact that the automobilization in the Slovak Republic is significantly lower than in other European countries¹. The transport services ensuring relates to ensuring the access to basic needs for population such as work, health care and education. Furthermore, it is necessary to carry out transport services with regard to social and environmental factors and to provide special tariff conditions for certain population groups such as students and pensioners who have no other transportation options such as public passenger transport ("Regulation EC No. 1370/2007," 2007). In the Slovak republic any region or city transport services by 2009 has been secured without tender by direct performance award to specific operator mostly by contract form with assignation of gross cost. Usually it is about such operators who traditionally provide transport service performance in a particular region. Performance contracting entity awards to

operator the exclusive right to provide transport services and also provides financial defrayment to the operator for the transport services ensuring in the case that revenues from passenger transport do not cover costs plus reasonable profit of operator.

Regulation no. 1370/2007 was adopted in 2007, valid throughout the European Union, according to which the bus transport services by direct award can be procured with a maximum annual performance of 300 000 km or maximum price of performance 1 million € per year [26]. In the Slovak Republic the transport services by direct award are procured by public authority² approximately at the level of 25 million km per year in each of the eight regions. This means that after the currently valid contracts to ensure the transport services the procurement of following transport services must be implemented through public procurement. On the basis of transport service public procurement it is possible to conclude the three basic forms of transport service contracts between the contracting authority and carrier. These contracts are eligible in any member state of the European Union, also in the Slovak Republic whether in transport service ensuring of region or city. The aim of this paper is to highlight the influence of contract form choice of the transport services ensuring on providing service for passengers.

2. THE CURRENT STATE OF TRANSPORT SERVICES FINANCING IN SLOVAK REPUBLIC

In the Slovak Republic it is difficult to assess the justification of costs incurred to ensure the transport service from a position of the contracting entity for the direct award of public service contracts. Also the reasonable profit to economically justified costs belongs to the operator. Level of this profit under the current rules governing the award of contracts for public services (by Act no. 56/2012 concerning road transport), in terms of its setting, is left to the contracting parties – transport services buyer (public authority - self-governing region or city) and operator. Reasonable profit in all contracts concluded in Slovakia by 2012 is set in the range from 3.5 to 5.0% of the economically justified costs³. Similar procedure is also in other EU member states, despite the fact that the percentage determination of a reasonable profit of costs is not economically the correct procedure [21]. For example, in Hungary the contract between operator and contracting authority (city Budapest) contains provisions whereby the level of reasonable profit is maximum 4% of economically justified costs (“The contract for services in urban transport,” 2008). In the Czech Republic in 2010 was adopted ordinance⁴, which sets a reasonable amount of profit a maximum of 7.5% per annum of operating assets.

Contracting entities of transport services in the Slovak Republic have problems with the financial resources to cover the demonstrable loss of operators, thus they are looking for mechanism to reduce the financial cost of transport service ensuring. Table 1 provides an overview of the development of paid financial means of transport service entities in the Slovak Republic. The railway passenger transport for the period 2000-2011 increased demand for public support of 156 million euros to the level of 205 million euros. It is equivalent to an increase by 31.4% of requirement. In the case of regular bus transport outside the urban areas, the subsidy increased from a level of 26 million euros to 106 million euros, an increase by 308%. Contracting entities of urban public transport during the period were forced to raise means to cover the demonstrated loss of carriers of 276%.

The significant increase in the required public funds of transport services authorities does not mean an increase in transportation service or a significant change in the quality of transport. The increase in means is related to some extent with the decrease in the number of passengers thus reducing the transport performance of operators. Performance of operators declined in the period from 2000 to 2011 by 15% in rail passenger transport, and regular bus transport by 45%. Under current rules the transport services authority bears any risks associated with a decrease in the number of passengers. To some extent, they also bears risks of changes in costs, because the concluded contracts are accounted annually. For this reason, they are looking for opportunities to transfer all the cost risks or cost and revenue risks associated with the transport services ensuring by concluding the contract with gross costs or by the contract with net costs of transport services ensuring.

Table 1

Development of paid financial means by transport service entities from public funds

Type of transport	2000	2005	2007	2008	2009	2010	2011	% change from 2000 to 2011
Rail passenger transport	156	119	160	166	270	228	205	31%
Regular bus transport	26	39	65	71	98	100	106	308%
Urban public transport	21	43	54	78	80	79	79	276%
Total	203	201	279	315	448	407	390	92%

Table 2

The development of transport performance (million passenger-kilometres)

Type of transport	2000	2005	2008	2009	2010	2011	% change from 2000 to 2011
Rail passenger transport	2870	2182	2296	2264	2309	2431	-0,15
Regular bus transport	8435	7525	6446	4538	4436	4611	-0,45
Urban public transport	1173	1399	1370	1127	1119	1172	0,00

3. RISKS AND OPPORTUNITIES OF SERVICE CONTRACTS CONCLUSION IN ENSURING THE TRANSPORT SERVICES

Transport service financing cannot be assessed independently without risk analysis, carried by the carrier in the transportation service ensuring. Existing risks can be categorized:

- Systematic risk: among these risks we can include political risks (government decisions, changing government policies...), international risks (changes in foreign exchange rates...), economic risk (price developments, the purchasing power of the population...), interest rate changes, the risk of inflation and the risk of unforeseen events.
- Unsystematic risk is the risk associated with the revenues of the company and its ability to meet their obligations and it is possible to affect it by the quality of investment projects, the deployment environment, management skills and so on [10, 25].

In connection with the procurement of transport services van de Velde et al. deals in detail with the risk analysis and he divides the risks into:

- Cost risk: the risk associated with improper anticipated level of operating costs and incorrectly determined residual value at the end of the contract period of the investment cost.
- Yield risk: the risk is related with a decrease in turnover due to a decline in demand for services due to changes in the passenger structure [27].

3.1. Cost risk of operating costs

These costs are characterized as costs incurred by the difference of presumed calculated costs and actual costs after implementation performance. In other words, the risk is related with the allocation of payment of the difference to the person who bears the risk. If operating costs are higher or lower than anticipated in the contract, it is necessary to determine who will be responsible for any losses.

It is also possible cost risks divided into:

- External cost risk: this is the risk, that the carrier cannot influence the amount of incurred costs (such as natural disasters, which act adequately to increased costs) or carrier can

influence it only indirectly and in a small scale (in the case of changes in fuel prices, legislative changes related to the amount of the employee's salary, etc.).

- Internal cost risks: the costs, which are influenced by the carrier (maintenance costs, repairs, etc., they are controllable to some extent).

3.2. Cost risks of investments

In this case, it is basically the determination of the residual asset value at the end of the contract period. In other words, the determination of risk liability associated with asset and the value of assets (in the case of collective passenger transport it is the infrastructure, stops, vehicles, etc.).

3.3. Yield risk

The yield risk is characterized as risk of expected returns decrease / increase. It is also the determination of responsibility in the case that revenues are lower than anticipated in the contract. This risk may bear transport services customer, also the carrier. The yield risk can be divided into the following groups:

- Yield risk associated with a decrease in demand: risk of yield reduction associated with changes in the number of passengers in providing transport services. If this risk is assumed by the buyer (regional units, municipality) it is necessary to appropriately involve the carrier to compliance with the required quality of transport, because the amount of compensation is not directly dependent on the number of passengers.
- Yield risk associated with changing of passenger structure: the risk of yield changes because the structure of passengers is changed.

According to the risk dividing between the parties it is necessary to conclude the contract between the carrier and the transport services contract entity. We distinguish the following forms of contracts:

- Carrier bears no risk: in principle it is called **management contract**, where the service buyer bears both risks (cost and yield risk) in the public interest and thus carrier (as the name implies) bears no risk.
- Carrier bears the cost risks: a **simple contract with specifying of gross cost**. In this case, the carrier bears the risks of implementation costs and authority take the yield risk.
- Carrier bears the cost and risk yield: a **simple contract with specifying of net costs**, where the carrier assumes both types of mentioned risks and authority bears no risk [27].

Table 3 shows the cities in which the carrier assumes the cost risk. This means that the entity assumes the risk of yield or the case where the carrier takes both of the above risks.

Risk can also be divided between the parties by certain share regardless of whether it is a cost or yield risk:

- The full range of risk is assigned to only one of the parties (a difference of risk between expected costs and actually incurred costs, as well as the difference between actual yields and expected yields).
- Risk percentage of difference between the expected and actual costs, respectively yields, which is divided among the parties.
- Allocation of risk between the respective parties pro rata basis up to a certain limit (e.g. carrier shall bear the yield risk to the level of € 100,000 and above this level of risk is allocated pro rata - 50% each contracting party) [27].

Table 3

Allocation of cost and yield risk to carrier

The carrier take over	Cost risks	Krakow, Innsbruck, Rome, Dublin, Gifhorn, London, Oviedo, Elmshorn, Frankfurt, Halmstadt, Munich, Stockholm, Warsaw
	Cost and yield risks	Amsterdam, Barcelona, Brussels, Budapest, Dijon, Gifhorn, London, Lyon, Parla, Porto, Santiago, Trieste, Greenland, Haarlem, Manchester, Sondrio, Sundsvall, Wittenberg

4. IMPACT OF SERVICE CONTRACTS OF THE TRANSPORT SERVICES ENSURING ON PERFORMANCE CONTRACTING ENTITY REQUIREMENT

The most advantageous contract form is contract with specifying of net costs but only from the position of transport services customer who in advance plans the means in the budget to ensure transport services. In this agreement all the risks, cost and yield, are borne by the carrier. The transport services contracting authority shall pay to the carrier the contribution which is fixed predetermined in the contract. Only selected carrier that has the ability to set fares provides transport services at a fixed territory by this way of transport services procurement. Contract with specifying of gross cost is advantageous for the carrier, which does not bear the risk of a decline in yields, which are commonly associated with factors that the carrier is unable to influence.

Based on mathematical modelling of price regulation and determining a reasonable profit of enterprise in network industry Poliak according to Fendeková and Fendek mathematically model the approach of enterprise in the regulated sector and define two approaches for such enterprise, which are also applicable to ensuring the transport services [21]:

- Approach of enterprise applying return on investments – stimulating business approach to the use of large volumes of capital in order to achieve the maximum permitted reasonable profit. The company has no incentive to use more efficient combination of inputs, for example the combination supporting employment in comparison to purposeless investment in equipment.
- Approach of enterprise applying increasing the volume of output – in this case, if the authority does not have the opportunity or personnel capacity to verify the effectiveness of the transport services ensuring, the operator is trying to implement also the inefficient performance.

Zhanbirov and Kenzhegulova (2012) also Sharma and Swami (2012) addict themselves to mathematical modelling of costs applicable to transport services ensuring. [23, 31]

4.1. Approach applying return on investments

This approach based on the assumption that in the service contract concluded between the carrier and the authority is established the level of fare too. The carrier cannot change this level. The contract is usually concluded as a management contract or contract with specification of gross cost, in which the transport service authority takes over the part of cost risk (such as investing costs). Authority takes over the yield risk in each case. The essence of this relationship is establishing contributions of transport service buyer in order to pay to the carrier all the economically justified costs and a reasonable profit together with the obtained yields. Most of what is in the scientific literature presented models of regulation of these industries are concentrated just on the highly sophisticated analytical formulation of rules for clear and qualify reasoned determination of an acceptable level of reasonable profit Fendeková and Fendek [9]. This problem is further discussed by Poliak [21].

The basic risk of client position is a contractual approach based on the payment of economic eligible costs, which is designed to set the contractually fixed price to provide transport services, which is based on regulated fares allows to the carrier which operates in the territory in order to obtain licenses to provide transport services in a monopoly position. This price has to ensure to the carrier all costs associated with the ensuring of transport services. Profit regulation has also to determine the level of realised investments. This attractive ambition of transport services authority to stimulate carriers to increase investment in the development of transport services may ultimately be counterproductive because it motivates monopoly carrier to speculative and socially inefficient deforming of proportions between capital and non-capital costs. In this case the transport service authority has the opportunity to apply regulation of the expenditure return on the investment in the contract, what have to optimise the ensuring transport service at a regulated output.

We can prove the above claim on the following model, where we assume that transport services authority defines return of expenditure on investment – rg_i as a parameter control. Suppose that the carrier operates transport services with a volume of production q in the territory set by transport license for the price p of performance defined in the contract. Further assume that the firm uses two factors of production to provide services – the labour with the level of consumption at the price of labour L and capital K with the level of consumption at the price u .

Profit of carrier is generally defined as the difference between yields and costs in the form:

$$\pi(q) = r(q) - c(q) \quad (1)$$

If we express the volume of production p based on the production function in the form:

$$q = f(K, L) \quad (2)$$

And production cost on the basis of price-demand function in the form:

$$p = p(q) \quad (3)$$

So the profit function can be expressed in the form:

$$\pi(K, L) = p(f(K, L))f(K, L) - wL - uK \quad (4)$$

Carrier that provides services in a deregulated market (e.g. occasional bus transport) can set its managed parameters of the decision in any way. Carrier selects the optimal volume of output q^* , the optimal acceptable price p^* (under which the fare will be set) and corresponding consumption of production factors labour L^* and capital K^* to achieve maximum profit. Optimal output and optimal price is calculated by the solution of following mathematical problem:

$$\pi(K, L) = p(f(K, L))f(K, L) - wL - uK \rightarrow \max \\ K, L \geq 0 \quad (5)$$

In this case the carrier doing business without a service contract awarded and without the transport license (e.g. occasional bus transport) has no formal obstacles for setting parameters guaranteeing the maximum profit. In contrast, the carrier doing business under the operating license and under service contracts must respect the limits defined by the transport services authority (e.g. maximum fare rate, rate of return on investment, etc.). System of price regulation based on the rate of return consists in the fact that the company permissible level of revenue share reduced about its non-capital costs and the volume of used capital K is regulated by defined managed variable rg_i . This means that the carrier can optimized respectively arbitrarily set levels of consumption of labour L and capital K at market prices of production factors w, u with the only condition that he will respect the rate of return defined by regulator (output range q is usually set in the operating license, production price p in contract of services). Accordingly, it is possible to establish equation:

$$rg_i \geq \frac{r(K, L) - wL}{K} \quad (6)$$

After modifying of previous equation we get:

$$rg_i - u \geq \frac{r(K, L) - wL}{K} - u \\ (rg_i - u)K \geq \pi(K, L) \quad (7)$$

Based on the last relation can be stated that the carrier operating in the regulated sector can set his parameters only so that his profit may not exceed the value of equity priced by the difference between the regulator defined rate of return rg_i and price of capital u . But in Slovakia and neighbouring countries the reasonable profit in transport services ensuring is determined only on the basis of the percentage level to the costs, what motivates the carrier to increase costs, for example also in the investment field.

4.2. Approach applying increasing the volume of output

The carrier has documentation for the optimization of territory transport services in ensuring transport services. It is required to continuously optimize the ensuring of transport services when the number of passengers is reducing. If the carrier does not bear the yield risk he is willing to operate the communications without any demand in terms of his business interests because the entity bears the risk that the service will not be used by passengers. For example, if the factory in which the carrier provide a passenger transport is cancelled and the authority does not change the license, for the carrier it is convenient to continue to provide transport on this link, because authority must compensate the decline of income (in this case to the zero level). This means that the carrier reaches a certain amount of profit per kilometre regardless of the number of transported passengers. The carrier is trying to maximize the range of realized performance. According to current contracts authority must uncover inefficient communications. If the principle of return regulation of output shall apply in contracts, the carrier would still realize a certain range of inefficient performance. He could maximize the consumption of production factors, but he must ensure that his profit corresponding to unit of output does not exceed by regulator established certain limit rg_q which can be analytically expressed as follows:

$$rg_q \geq \frac{\pi(q)}{q}, \text{ resp. } rg_q \geq \frac{\pi(f(K,L))}{F(K,L)} \quad (8)$$

5. CONCLUSION

For new contracts concluded in Slovakia but also in neighbouring countries is necessary to point out the fact that a reasonable profit for performance realised in the public interest must depend on the risk assumed by the carrier.

The settlement of economically justified costs is not enough in the cases where the transport services buyer takes over the yield risks or yield risk and part of the cost risk. As has been proven, in this case the carriers tend to increase not only inefficient investment costs, but there is a risk that the carrier will try as far as possible to maximize the range of realized performance. It means the ensuring of ineffective communication too. Palúch deals with mathematical approaches of claim to reduce car fleet and thus the investment costs [20].

This paper offered the contractual agreement for return on investments of expenses as a tool of limitation of such an approach. In synergy with transport license it is an effective tool if the entity assumes any risks associated with the transport services ensuring.

Notes

1. Automobilitization was in the Slovak republic in 2012 at 337.17 cars per 1,000 inhabitants, the EU average is 473 cars per 1,000 inhabitants. (Faith, 2013)
2. Public authority with the meaning of territorial unit. Slovak Republic is divided into 8 territorial units: Bratislava, Trnava, Trenčín, Nitra, Banská Bystrica, Žilina, Prešov and Košice
3. E.g. Contract for urban bus transport in Bardejov - reasonable profit is equal to 5% during the contract (contract expires on 31th December 2018)

4. Ordinance no. 296/2010 on procedures for the preparation of the financial model and determination of the maximum amount of compensation

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