Technical - Economic Analysis and Evaluation of Transport Organization

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***Abstract**: The contribution focuses on the examination of the transport company, whose main focus lies in the livestock production and transport acts as a transport for own needs and for the transport of products to the customers in the context of international and domestic road freight transport. During the investigation of the Organization are utilized the tools of economic analysis, analysis of the performances and the use of the fleet. Then they are compared from year to year for each of the indicators selected cars or the entire enterprise.*

***Keywords:** transport, rolling stock, economic analysis*

INTRODUCTION

Transport infrastructure and transport services are an integral part of the life of every human being. In the framework of the international division of labour, assist in improving the competitiveness of transport, increase prosperity, labour mobility and stimulate economic growth.

The objective of the transport policy of the State is to create transparent conditions, to minimize the risks on the transport market and to ensure a permanently growing needs of transport, whether of goods or persons with the required quality and time and at the same time reducing the negative effects of transport on the environment. The Slovak Republic is for the European transport significant country mainly due to the influence of the geographical location of the country. Therefore, we can observe an increasing trend over the last 10 years that transportation almost doubled, and this tendency is also foreseen in the future. Taking into account also the growing number of cars on our roads, it is necessary to expand the capacity of the road network and its modernisation in particular in connection with the increased load of motorways, express roads (I), (II) and (III) class. As a good solution appears to be building a motorway and expressway segments, which will result in the removal of capacity and a better link between the regions. This measure will increase the standard of living in the more remote regions, the growth of new jobs and improved transport and transit on our territory. (Hujo, et al. 2014a)

Build an advanced road infrastructure at the same time brings increased competition, whether in the field of transport, or other services. Therefore, it is from the perspective of the Organization must be flexible to respond to market changes and apply new technologies. At the same time, it is necessary for these changes to conduct effective and economical analysis of the economic situation of the company and had been to the analysis of the performances of the fleet of the transport undertaking, which deals with this post. (Hujo, et al., 2013)

MATERIALS AND METHODS

The company, which is the issue we are dealing with in the post has a long tradition as a production organization in the agricultural sector, which focuses mainly on the breeding and production of live animals. Whereas it is necessary to export goods produced to the end customers in a larger volume of freight transported by road to your own organisation proceeded by means of transport. With regard to the topic of work we will focus on just a part of the organization of the transport. Freight transport in an enterprise can be divided into two main parts:

- transport of live animals,
- transport volumes.

Transport of live animals forms a primary part of the transport shall be carried out on a

long distance driving, the majority outside the territory of the Slovak Republic. Transport volumes and the number of performances of the cars driving in terms of forms a minor part. Rides are as opposed to the transport of live animals to the shorter distance only in the vicinity of the Centre and, therefore, exclusively in the territory of the Slovak Republic. The number of journeys is substantially greater than in the abovementioned section of the carriage.

Economic analysis represents an exploration of economic processes, assessment, evaluation and economic processes depending on other processes and the surrounding area.It also examines economic status, operation and efficiency management undertaking or to a specific section.

In the context follow-up of the results of the analysis, the company management or other management structure can make decisions and to draw conclusions on the future direction in the organization.

With enough informations and indicators, may serve analysis as diagnostic tool, showing process efficiency, their level of which may accrue decisions on the axle, or forecast trends and appraisal of the situation in the future. (Konečný, et al., 2010)

In analysing transport from the enterprise view performance of vehicles are used these absolutely indicators:

- Driving performance - is the distance you considerable time means of transport over a period of time. Divides the driving performance drives with and without a load, the aim is to ensure the greatest possible number of kilometers of cargo and minimize kilometers unladen vehicle, (Janoško, et al., 2014b)

Relative indicators in terms of outputs include:

- Coefficient of utilization log β - represents the means of transport from the running vehicle performance with the load to the total running vehicle performance over a period of time. It may be in the range 0 - 1.

$$\beta = \frac{l_z}{l}, \quad (1)$$

Where: l_z - driving performance of the vehicle,
l - driving performance vehicle in total.

- Coefficient of using useful weight γ - represents the useful curb weight in one turnover. It is a dimensionless indicator, the value is between 0 - 1, where appropriate also over 1 when the vehicle is loaded, which is seen as a breach of legislation.

$$\gamma = \frac{q}{K}, \quad (2)$$

Where: q - weight load transported,
K - useful weight of the vehicle. (Chrastina, et al., 2014)

Time analysis - use of means of transport is a necessary tool in the evaluation of efficiency a transport undertaking. Between relative indicators time use of means of transport are:

- It has a time of use fleet α - gauge is the use of vehicles with regard to the time of operation. It shall be calculated:

$$\alpha = \frac{VD_{pr}}{VD_{ev}} \quad (3)$$

Where: VD_{pr} - on-board days in operation,
VD_{ev} - on-board day on the records. (Hujo, et al., 2014b)

RESULTS AND DISCUSSION

The first step in the evaluation a transport undertaking has been collecting and examining data entry. They have been granted to the undertakings concerned in printed or electronic form and some of the data was necessary to find in the system dispatcher, which

records the current status of fuel and movement of the vehicle on the probe in the tank and GPS coordinates. Then we have processed these data in MS Office, where the create table and formulas for calculating necessary parameters.

Among the basic values were:

- Driving performance,
- Costs per unit.

Of which is then calculated their total q.p. All of these data can be seen in table 1.

Table 1 The input values needed to calculate the individual composite indexes

Month	Driving performance km		Unit Cost EUR/km		$q_0.p_0$ EUR	$q_1.p_0$ EUR	$q_0.p_1$ EUR	$q_1.p_1$ EUR
	2013	2014	2013	2014				
	q_0	q_1	p_0	p_1				
January	34534	34432	0.41	0.44	14189,9	14148,0	15107,4	15062,8
February	28178	42134	0.47	0.40	13281,9	19860,1	11216,4	16771,7
March	39582	42861	0.42	0.45	16764,6	18153,3	17899,3	19382,1
April	46818	13139	0.50	0.56	23271,6	18206,0	26008,2	20347,0
May	37135	39590	0.43	0.40	16096,0	17159,3	14709,3	15681,0
June	23889	27356	0.59	0.50	14091,5	16136,6	11852,9	13573,1
July	30951	29374	0.58	0.42	18032,7	17113,9	13148,2	12478,3
August	19182	26762	0.45	0,52	8648,0	12065,4	10039,8	14007,1
September	23989	35040	0.68	0.42	16222,7	23695,9	10077,4	14719,7
October	29258	26127	0.65	0.46	19124,0	17077,5	13368,9	11938,2
November	35627	23901	0.48	0.39	17096,4	11469,4	13750,9	9225,1
December	24822	18729	0.73	0.77	18079,5	13641,6	19152,4	14451,1

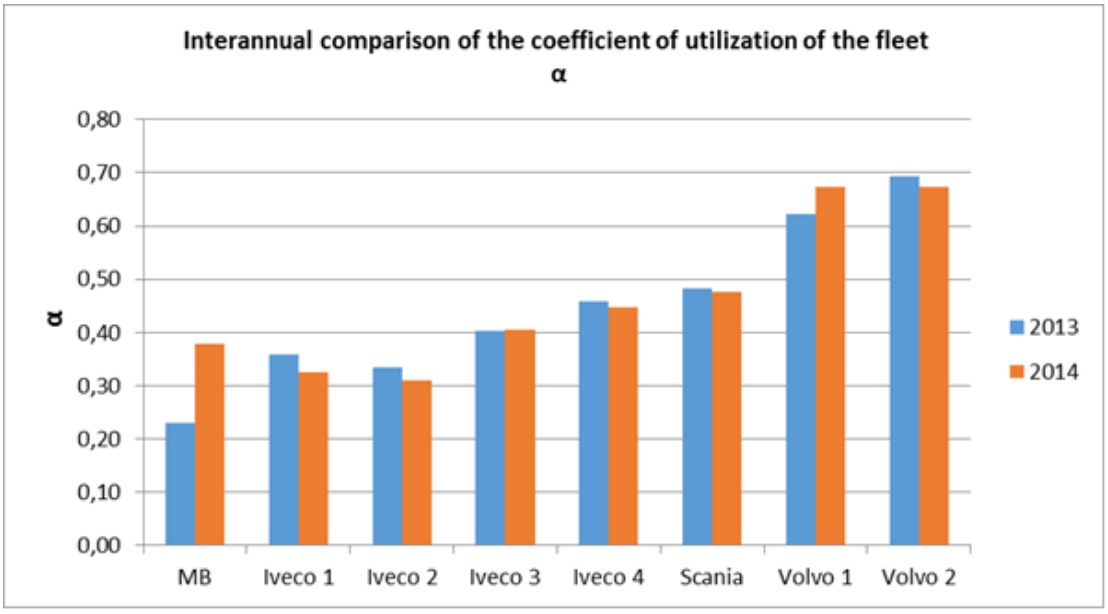

Fig. 1 Interannual comparison of the coefficient of utilization of the fleet

In the assessment of using fleet in terms of the ratio on on-board assemblies days in operation at the on-board day in the registration we arrived at the conclusion that year-on-year coefficient use of rolling stock α increased by 2,2%. The main difference was for a vehicle Mercedes-Benz, where it has increased by 65%, which is generated by the sale of vehicle in June and therefore only early half- hourly capacity.. Increased also by Volvo 1, by 8%, in Iveco 3 by 1%. We have recorded a decrease in the remaining vehicles in the range of 1% to 9%.

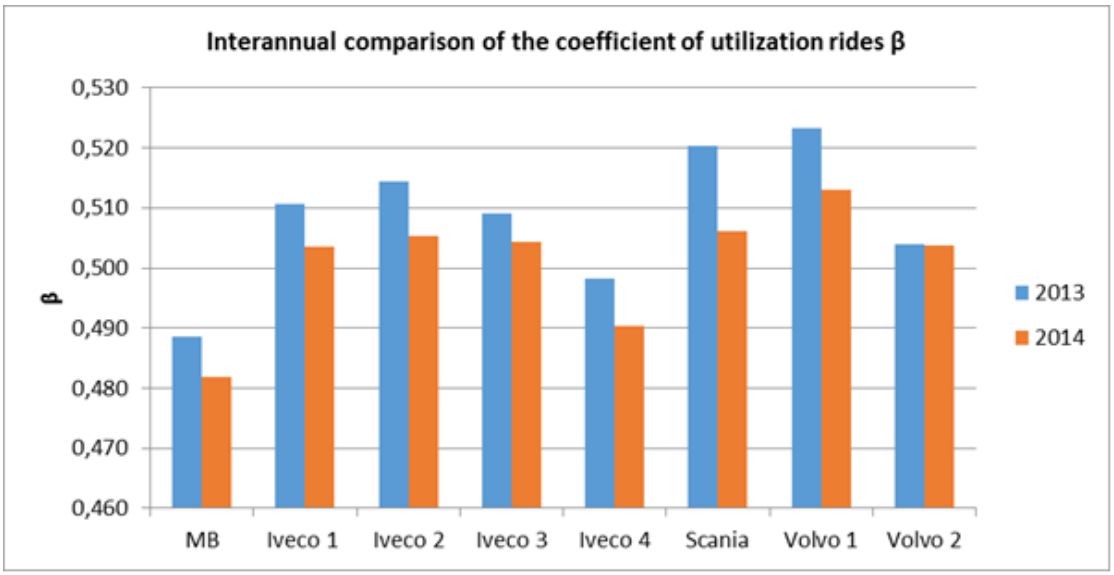

Fig. 2 Interannual comparison of the coefficient of utilization rides

Further the parameter was interannual comparison efficiency rating log ß, what is the share of the distance travelled with the load at the total distance travelled. It aims to achieve the coefficient of the closest 1, and thus take the most kilometers of cargo. In its own animal transport this is problematic for safety reasons, since the organization is concerned bringing disease into the holding and the possible major damage. Therefore are transported to customers only animals produced in the enterprise concerned and the trip back is unladen. Therefore the moving in coefficient β = 0.5 we consider to be adequate. Year-on-year came to a reduction coefficient β of 1.57%, and the greatest difference was in Scania vehicles and Volvo 1, 2.7% and 1.9%. (Janoško, el al.2014c)

Useful vehicle weight coefficient shows how to effectively use the shipping capacity of the vehicle, whether from the perspective of the mass, or store. The result of the compare coefficient of the use of useful weight was that this year have decreased by 4.7%. Vehicle Mercedes-Benz fell year on year this coefficient and the vehicle was used less in 2014. We can also observe the use of Iveco vehicles below 2 and 4, which are used only for smaller shipments, and sometimes they are just an additional vehicle for transport items that are no longer fit into the primary vehicle. (Janoško, et al. 2014a)

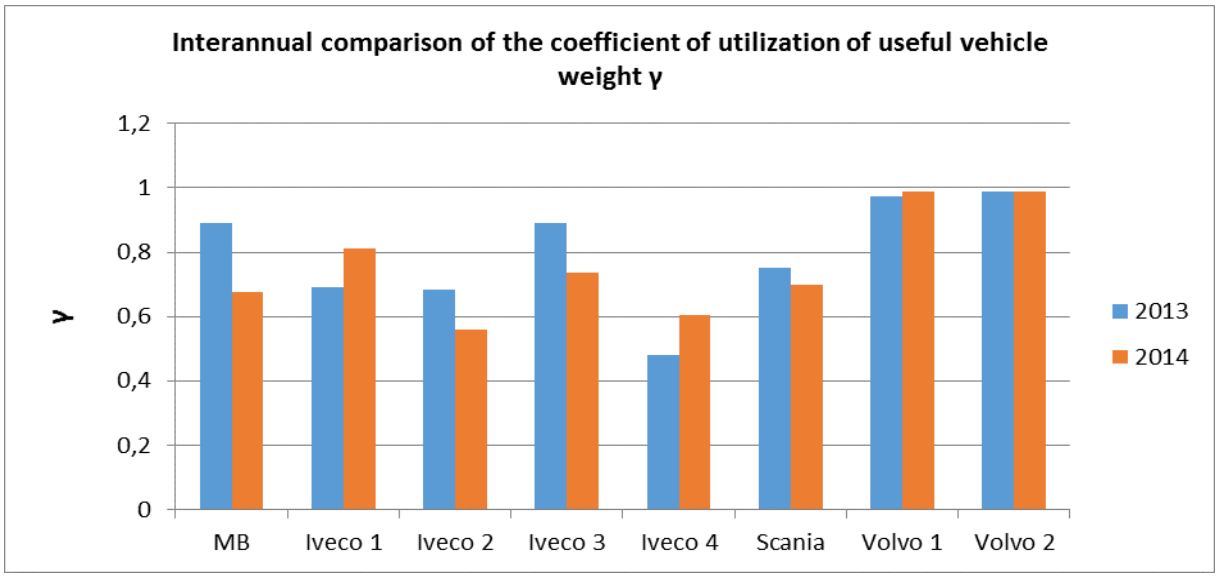

Fig. 3 Interannual comparison of the coefficient of utilization of useful vehicle weight

CONCLUSION

Economical use of the resources of the undertaking operating in the field of transport, or any other, is a very important task. It is therefore necessary to examine their use and on the basis of the results of the carried out remedy. In this way it is possible to save a company significant resources, which can then be used for the renewal of the fleet, the introduction of new technology, which ultimately can save resources and further improve the ecological aspect of transport. For this reason we have developed the economic analysis of the transport section of the undertaking concerned, we evaluated the individual compound indices, the result of which was the change in the total cost when you change the driving performance, unit cost, or both at the same time. These changes are expressed through share in % and in financial terms. Then have been assessed selected data through relative indicators and a year-on-year comparison coefficient of use of rolling stock, efficiency rating journeys and efficiency rating useful weight of the vehicle. From the analysis shows that the biggest reserves are in the time vehicle use, whereas vehicles spend in operation for less days and more days will spend in wait time.

In some cases there is insufficient transport capacity vehicle IvecoEurocargo and is transported rest of goods another vehicle. This case is clearly inefficient and should be subjected to detailed examination, whether it would not be appropriate to carry goods one vehicle, which should be sufficient capacity.

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