THE RELATIONSHIP BETWEEN COSTS AND PERFORMANCE IN THE ROMANIAN FREIGHT TRANSPORT BY ROAD SECTOR

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The performance and costs of economic entities are widely debated topics in economic literature and practice. Controlling costs is the key to achieving the company's financial performance. The transport sector is vital for the economic development of any country. The issue of costs and the assessment of performance in this sector presents a series of specific characteristics that will be discussed in this paper. The paper contains an analysis of the main indicators reflecting the activity of enterprises operating in the freight transport by road sector in Romania and other former socialist countries, actually European Union members.

***Key words**:* Transport sector; Costs; Performance; Decarbonisation; Sustainability.

JEL Classification Codes: O18, L92, M40.

1. INTRODUCTION

The transport activity takes place over vast geographical spaces, involving numerous vehicles that connect economic actors positioned at great distances from each other. The transport sector is essential for the development of trade relations and the stimulation of the production of goods, and therefore has an essential role for economic development. The main advantage of road transport is accessibility, with almost any destination being accessible thanks to the network of roads and highways.

The transport of goods represents an economic activity carried out both in the production sector and in that of the movement of goods. The activity in road transport does not result in the formation of a new product, but a performance, a service. By means of transport, the goods maintain their physical and chemical properties and preserve or increase their value. Being a service, transport cannot be stored, but is consumed immediately at the time of production, rather, it is the demand for transport that is retained.

The company's performance is assessed according to a multitude of criteria that have changed over time with the transformations in the economy. There is a close link between costs and performance, with cost control being essential to achieving the desired level of performance. Lower shipping costs allow a larger quantity to be transported and additional profit to be made. Knowing the costs is essential for making decisions that have implications on the achievement of performance objectives. The main factors that influence the level of costs of a transport company are the cost of fuel, the cost of labor, the level of economic activity that determines the demand for transport services, the geopolitical situation in a certain geographical region and the legislation specific to the field.

Modern transport has its beginnings in the 19th century, with the development of engines that forever changed the speed of means of transport and the volume of goods that could be

transported. The transport sector has recently been facing numerous challenges. The need to combat environmental pollution is one of them, and there is the question of the decarbonisation of the transport sector because ”in the European Union the transport sector accounts for 20% of anthropogenic greenhouse gas emissions” (Haasz et al, 2018). Transportation systems play an important role in ensuring a high level of mobility in Europe and the continued growth of urbanization and trade (Domagała and Kadłubek, 2023).

Conducting an analysis of the road freight transport sector in four Mediterranean countries, authors Moschovou and Giannopoulos (2021) conclude that ”Road freight transport contributes a significant share to the economy, but it also has a complex relationship with it”. Road-based transportation ”has associated negative externalities such as traffic accidents, higher product costs, greenhouse gas emissions, air and noise pollution” (Nkesah, 2023). Romania aims to reduce the infrastructure gaps and deficits compared to the other member states of the European Union. The critical infrastructure sub-sectors of the "Transport" sector are: road transport, rail transport, air transport, inland waterway transport, short sea transport and ports (CNCPIC, 2024).

2. PERORMANCE MANAGEMENT TOOLS IN ROAD FREIGHT TRANSPORT

Cost-benefit analysis is a tool useful for balancing the benefits and costs associated with an investment project, allowing decision-makers to determine whether a project is worth pursuing. Managers of road freight transport companies make decisions regarding the purchase of new vehicles and must balance the costs of acquisition and maintenance with the benefits brought, such as reduced fuel consumption, a better company image, and reduced repair costs. Another category of decisions concerns investments in logistics software, and the manager must compare the benefits brought by their implementation, such as increased efficiency, with the cost of acquisition and implementation. Cost-benefit analysis is used for decisions regarding rational allocation of resources and can be an important tool for management.

The Balanced Scorecard (BSC) is a management tool wich aims translating strategy into action and provides managers with a series of relevant financial and non-financial information regarding the activities carried out by the company. BSC was proposed by Kaplan and Norton (1992) as a reaction to the limits of traditional financial performance measures. The team designing BSC for the company must bear in mind that not only objective indicators should be used, but also subjective indicators such as customer or employee satisfaction. The use of subjective indicators requires increased attention to find a balance between the benefits offered by their use and their specific imprecision. The BSC model had a remarkable success, being widely used today, both in the business environment and in public institutions. Dadsena et al (2023) integrates BSC with *Imprecise data envelopment analysis* (IDEA) for performance measurement of road freight transportation. Olszańska and Prokopiuk (2021) analysed the implementation of the strategic scorecard in a transport company operating in Poland in order to ensure its success in the long term.

Managers tend to focus on the aspects that are taken into account when evaluating their performance and may be tempted to pay less attention to non-financial indicators if they are not taken into account in their own evaluation. Integrating the BSC into the enterprise's management system mitigates or even eliminates the negative consequences of this trend. The dominant approach of the Balanced Scorecard is top-down, from management objectives to basic organizational levels, while the classic dashboard approach involves more interaction and negotiation between different organizational levels.

3. MATERIAL AND METHODS

The data used for this work were extracted from two database: Eurostat and Tempo Online published by the National Institute of Statistics in Romania.

From the Eurostat database were extracted the values for the number of enterprises, the number of employees, the value added and the net turnover at the level of the European Union and for five member countries: Romania, Bulgaria, the Czech Republic, Poland and Hungary, both for *Industry, construction and market services* and for the *Freight transport by road* sector. Based on these data, were calculated the values for *Value added to Net turnover Ratio* and *Annual labor productivity calculated based on Net turnover*.

4. COSTS AND PERFORMANCE IN FREIGHT TRANSPORT BY ROAD SECTOR

In the field of transport, there is a common European policy, established since 1957, through the Treaty of Rome (European Economic Community, 1957). Under EU law, employers in the transport sector must comply with certain rules on working time, timekeeping, health and safety of staff, all these rules being cost generators.

The establishment of transport rates is carried out taking into account the parameters of the transported goods because, depending on them, the cost of transport can be higher or lower. Thus, in addition to standard goods, there are goods that are distinguished by parameters such as weight, length, perishability, degree of danger and value. The rates charged by transport companies are influenced by factors such as the distance to be transported, the type of truck used to carry out the transport, the main characteristics of the transported goods (weight, volume, dimensions and others), the complexity of the loading and unloading operations, the terms and urgency of the delivery of the goods, the availability of additional services, cost of document registration and customs operations.

The cost of transport influences the cost of products differently, having higher weights for heavy weight and low value products such as sand and ballast products (up to 55% of the cost) and lower for high-tech products such as electronic components, computers for which the cost of transport has weights of 1-3% of the total cost (Ilieș and Crișan, 2010). The increase in fuel prices in the context of the energy crisis in recent years has led to an increase in transport tariffs.

Globalization and the increasing complexity of the economy have generated an increase in the length of the supply chain and this aspect has increased the importance of the costs associated with freight transport. Izadi et al (2019) proposed a model structure of Road Transportation Costs wich distiguishes three types of costs: operational costs, value of time and external costs. Fixed costs are those whose level remains unchanged for a vehicle in working condition, regardless of the distance traveled, such as expenses for the fixed part of drivers' earnings, vehicle insurance, depreciation, administrative expenses. Variable costs are those whose level changes depending on the use of the vehicle, such as costs with fuel, lubricant, tires and maintenance.

According to a study conducted by Interbiz Resco SRL for UNTRR (2023), "the cost structure in road freight transport can be divided into several main categories: 1. Variable costs 2. Fixed costs 3. Additional costs 4. Opportunity costs". Additional costs refer to area taxes, costs of temporary storage of goods during transport and additional insurance that must be taken out for goods of a special nature or high value (Interbiz Resco, 2023, p. 77). The largest share in the total costs of a road freight transport company is fuel costs and driver remuneration, which include salaries, allowances and accommodation. Over the last two decades, in Romania, labor costs have experienced a constant increase amid rising living standards and labor shortages. The lack of professional drivers is a problem that is not specific to Romania, the same problem being in the European Union and globally (UNTRR, 2024).

5. RESULTS AND DISCUSSIONS

Data on the number of European enterprises, the number of employees, and net turnover at the Union level were taken from the Eurostat database, and detailed for Romania and four other members, former socialist states: Bulgaria, Czechia, Hungary and Poland (Table 1).

Table 1. Economical indicators for the *Industry, construction and market services (except public administration and defence; compulsory social security; activities of membership organisations)*, 2022

Geopolitical entity	Enterprises (number)	Persons employed (number)	Value added (million euro)	Net turnover (million euro)
European Union	32,251,876	160,424,218	10,061,372.52	38,280,653.96
Bulgaria	394,135	2,165,657	49,712.81	261,098.95
Czechia	1,292,436	4,230,462	152,481.74	827,950.49
Hungary	976,964	3,364,251	96,578.84	475,642.45
Poland	2,675,865	11,511,312	381,572.10	1,756,987.54
Romania	974,969	4,698,672	133,447.65	509,950.99

Source: author's processing based on data published by Eurostat

It can be seen that Poland and the Czechia have a higher number of registered enterprises than Romania in industry, construction and market services, generating significantly higher added value and net turnover. The Czech Republic, although having half the population of Romania, has a number of employees close to that of Romania, which demonstrates a higher level of economic development.

Table 2 presents the same economic indicators as in Table 1, for the same geopolitical entities, but onley for the road freight transport sector.

Table 2. Economical indicators for the *Freight transport by road* sector (NACE 4941) in 2022

Geopolitical entity	Enterprises (number)	Persons employed (number)	Value added (million euro)	Net turnover (million euro)
European Union	570,000 e*	c**	140,000.00	450,000.00
Bulgaria	13,271	73,116	1,038.52	5,849.06
Czechia	32,014	129,674	3,283.75	12,042.81
Hungary	16,227	83,763	2,186.91	7,613.72
Poland	102,028	510,994	13,012.20	55,992.60
Romania	42,817	168,905	3,313.89	15,127.52

*e – estimated, **c- confidential

Source: author's processing based on data published by Eurostat

Analyzing the values of the indicators recorded in 2022 for the road freight transport sector, it is observed that the highest values are recorded by Poland, a natural aspect if we take into account the area and population of this country compared to the others. Romania is in second place, closely followed by the Czech Republic, then at a great distance by Hungary and Bulgaria.

Table 3 presents the values for *Value added to Net turnover Ratio* and *Annual labor productivity calculated based on Net turnover*. These indicators were calculated based on data presented in table 2. It can be seen that all the countries included in the analysis present values of the *Value added to Net turnover Ratio* indicator below the average recorded at the European Union level, which signifies higher costs compared to the European average, lower profit margins and low efficiency in value creation. Romania registers a value of 21.91%, ranking penultimate among the analyzed states, followed only by Bulgaria.

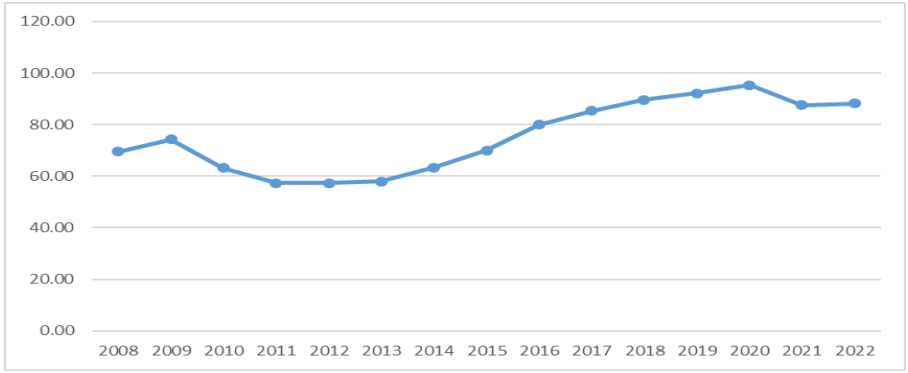
In terms of annual labor productivity calculated based on net turnover, the situation recorded by Romanian companies in the road freight transport sector is similar, with them recording higher productivity than similar ones in Bulgaria, but lower than the values recorded in Poland, Czechia and Hungary.

Table 3. Economical indicators reflecting the performance of the *Freight transport by road* sector (NACE 4941) in 2022

Geopolitical entity	Value added to Net turnover Ratio (%)	Annual labor productivity calculated based on Net turnover (euro/employee)
European Union	31.11	-
Bulgaria	17.76	79,997
Czechia	27.27	92,870
Hungary	28.72	90,896
Poland	23.24	109,576
Romania	21.91	89,562

Source: author's calculations based on data published by Eurostat

It is useful to present the evolution of the share of personnel expenses per 1000 lei of turnover because this indicator reflects the operational efficiency of companies operating in this sector. Graphically, this evolution is presented in Figure 1.



Source: author's processing based on data published by the National Institute of Statistics of Romania

Figure 1. Personnel costs per 1000 lei turnover in the *Freight transport by road* sector (NACE 4941) in 2008-2022

An increase in the value of the personnel expenses indicator per 1000 lei of turnover is observed, which should be interpreted as a result of both the general increase in incomes in Romania during the analyzed period and the lack of qualified labor.

6. CONCLUSIONS

Freight transport by road companies are an important part of Romania's economy, both through the activity they carry out and through their contribution to the formation of the gross domestic product and employment. In order to improve performance, companies in the freight transport by road sector can adopt measures such as adopting new information technologies, increasing employee motivation, investing in new means of transport and using modern managerial tools such ascost-benefit analysis and Balanced Scorecard.

The adoption of new information technologies is necessary to maintain international competitiveness and to improve the decision-making process. Modern IT systems represent an important support for the decision-maker and implicitly for the decision-making process, as even complex decisions can be easily adopted. The use of such modern computing systems facilitates the performance of management accounting works, but the training and involvement of personnel remain essential for the analysis and interpretation of the information obtained.

Staff training and involvement are essential for the success of any business. The demographic crisis and difficult working conditions cause problems in retaining employees and

recruiting new ones. In the field of transport, Romanian companies face a dilemma regarding the financial motivation of employees. Increasing wage costs leads to increased employee motivation and higher turnover, but leads to lower competitiveness and company financial performance.

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