The impact of the Covid pandemic on transport companies and the possibilities of improving their management in the conditions of Slovak republic

Olga Ponisciakova^{1,*}, and Eva Kicova²

¹ University of Zilina, Faculty of Operation and Economics of Transport and Communications, Univerzitna 1, 010 26 Zilina, Slovakia

² University of Zilina, Faculty of Operation and Economics of Transport and Communications, Univerzitna 1, 010 26 Zilina, Slovakia

Abstract

Research background: Against the background of a more thorough knowledge of the impact of the Covid pandemic, it is necessary to consider the possibilities of mitigating the effects of it. We propose the use of such progressive management tools in the field of transport, which could increase the readiness of management for more stable and effective management in the future.

Purpose of the article: The main purpose is based on the analysis of the impact of the Covid pandemic to suggest ways to improve the management of transport companies operating in Slovakia. To achieve this, we will focus on identifying the key impacts of the pandemic in this sector and propose management tools that could mitigate the impact of a potential crisis in the future.

Methods: We will use theoretical and empirical scientific methods in processing the subject. We will work with theoretical methods, such as analysis, synthesis, induction, deduction. In the second step, the article will use empirical scientific techniques that work with specific data and precise methods to achieve concrete results. In addition to explanatory methods, interpretive methods will also be used.

Findings & Value added: Information on the effects of the pandemic on Slovak transport companies will be important, which will serve as a basis for the design part. The added value will be the recommendation of progressive management tools in the conditions of specific transport companies with an emphasis on strategic management and elimination of the impacts of potential crisis situations in the future.

Keywords: *management; transport companies; Covid pandemic; managerial tools; managerial accounting; costs*

JEL Classification: *M; M3; M39*

* Corresponding author: olga.ponisciakova@fpedas.uniza.sk

1 Introduction

The year 2020 brought an unknown disease for our country and the whole world, which changed our lives, personal and working conditions. It is obvious, as Turon et al. (2021) claims that the global spread of COVID-19 has led to problems in many sectors of the economy, including significant effects on the urban transport industry (Mitchell et al., 2021). We inadvertently face extraordinary events and every day brings new situations, problems, but also challenges. A year ago, a pandemic and the spread of coronavirus entered our lives and professional lives without notice. Even bus transport and its implementers - drivers, who, however, are, like other professions, in permanent service to the public and provide service for critical infrastructure, did not avoid this fact. Public transport must continue to serve passengers. It has therefore been important to ensure that businesses provide transport through adequate measures, which have become an essential part of our lives, and adhering to them helps to make public transport safe. These include the use of drapes, respirators, disinfection of buses using special disinfection devices that are commonly used in sanitation in hospitals, as well as other protective equipment for self-protection and protection of their loved ones. These are processes, corresponding to the regulations of the government and the public health office so that passengers and employees are safe. On the other hand, it should be noted that some of the effects of the crisis could not be controlled. As stated, (Schulte-Fischedick et al., 2021), the coronavirus pandemic has seriously affected our daily lives, with direct consequences for passenger transport. This in turn has a strong impact on energy demand in the transport sector and related CO₂ emissions and they continue to say, that Overall, emissions from surface passenger transport have decreased by 11.2%, corresponding to 40.3 MtCO₂ (2) in Europe. This decrease was mainly due to restrictions on passenger transport in five European countries (France, Germany, Italy, Spain and the United Kingdom). In addition to the above, another impact of the pandemic should be mentioned. At the same time, schools, shops, businesses or work from home were closed during the ongoing Covid-19 pandemic, which caused a significant drop in passenger traffic. By reducing passenger revenues, it has a natural impact on the loss of a significant part of transport companies' revenues. It is therefore important that the management of these companies in the long-term think about the possibilities of introducing measures in this - economic area, and thus prevent bankruptcy or even the termination of the transport service. In the article, based on the analysis of the impact of the Covid pandemic, we focus on the proposal of possibilities to improve the management of transport companies operating in Slovakia. To achieve this, we will focus on identifying the key impacts of the pandemic in this sector and propose management tools that could mitigate the impact of a potential crisis in the future. However, it must be stated that research into management improvement is a continuous, never-ending process, as described by Caglio and Ditillo (2021). They claim that However, there is still work to be done in terms of exploring hitherto neglected areas and seizing opportunities for interdisciplinary research and contamination with theory, which can lead to innovation and growing diversity in this area.

2 Methodology and results

2.1 Characteristics of selected economic parameters of transport companies with an aspect to the pandemic

The global outbreak of COVID-19 has required drastic measures and policies from governments and local authorities to stop the spread of the virus. Most measures involve changes in citizens' behaviour in order to keep their social contact to a minimum. Thus, these actions affect patterns of individual activity and transport systems in various ways. (Arellana

et al., 2020) In this context, as stated (Horcher and Tirachini, 2021), securing public transport requires considerable organizational effort, careful planning, financial contributions from the public and coordination between millions of passengers and employees of large systems. Efficient resource allocation is essential in its day-to-day operations. Public transport has therefore been one of the most popular subjects in the transport economy since the beginning of this discipline. The passenger transport sector is one of the important sectors of every economy. An example is the Slovak Republic, within which the road transport sector carried more than 238 million passengers in 2019, which also represents more than 5.3 million passenger-kilometres. However, the analysis of the parameters of the number of passengers in the last three years shows that the sector entered the crisis as early as 2019. Companies with more than 20 employees provide the most transported persons in public road transport, with the largest share being regular services. The number of lines in regular and occasional passenger transport in Slovakia is more than 4,900. Irregular transport also transports a considerable number of passengers every year. In 2019, there were more than 11 million passengers (these are mainly school trips, tourist trips, etc.). More information is given in Table 1. (Slovak Business Agency, 2021)

Table 1. Passenger transport by road by public transport by type of fare.

Pointer	2017	2018	2019
Passenger transport (in thousands)	245 731	242 733	238 886
Performances (million km per person)	5 060	5 394	5 381
	Enterprises with 20 or more employees		
Passenger transport (in thousands)	241 714	238 501	235 534
In that			
Regular	230 087	227 758	224 076
Irregular	11 627	10 743	11 458
In that			
Domestic transport	239 064	235 292	231 447
International transport	2 650	3 209	4 087
In that			
Short distances (up 100 km)	225 107	221 264	219 952
Long distances (over 100 km)	16 607	17 237	15 582
Performances (million km per person)	4 549	4 939	4 913
Number of lines in regular and occasional passenger transport	1 878	1 879	1 862

Source: Statistical Yearbook of Transport

Based on the study (Slovak Business Agency, 2021), it can be stated that all sectors of passenger transport were significantly affected by the COVID-19 pandemic and its misleading measures. These caused a massive drop in mobility, even in public transport, which reached up to 60% compared to the average.

Figure 1. Mobility in the Slovak Republic from the beginning of 2020 to the beginning of 2021.

Source: SBA

A similar situation occurred in the case of the number of transported passengers, which reached the same level of fall in April 2020, i. j. 60%. Although the sector started to recover during the following summer months, when the measures were relaxed, with the resumption of the second wave, the number of transported persons decreased. It should also be mentioned that the irregular transport sector suffered more from the slumps, as school trips and excursions were banned practically throughout 2020 and the first half of 2021.

Figure 2. Number of transported persons in individual months from 2016 to 2020.

Source: SBA, based on data from the Statistical Office of the Slovak Republic

The drop in sales meant a decline in employment in the second quarter of 2020 by almost 3,000 people (by 2.5%). Due to targeted government measures, there was no increase in the disappearance of companies in road transport, but the establishment of companies in the mentioned sector slowed down considerably. Other economic indicators have also fallen, such as the profit achieved, which cannot be quantified only for passenger transport, but still

indicates a significant slowdown in 2020. This slowdown is certainly significant for passenger transport companies and the sector is mainly driven by courier and freight services.

The profitability of the whole sector was decreased dramatically in 2020, especially compared to the second quarter of 2020 with the second quarter of the previous year 2019. In the previous period, the spring months were the ones when companies in road transport recorded the biggest profit, related to population mobility - school trips, travelling for work, etc. In the second quarter of 2020, although the "Transport and Storage" sector reported a profit, it was very modest. Firms with 50-250 employees (medium-sized enterprises) recorded a significant loss, which, however, these enterprises also reported in the previous period. In the view of this, it is not possible to state unequivocally that the reason for these losses is precisely the restriction of mobility. On the contrary, we see the largest drop in profits in the second quarter of 2020 for large companies with more than 250 employees. However, they recovered significantly in the third quarter.

Figure 3. Profit generated in the Transport and storage sector in 2019 and 2020.

Source: SBA, based on the data from the Statistical Office of Slovak Republic

When considering the development of economic parameters in transport companies, it is necessary to look for ways to improve the development not only with regard to external influences, but also to improve management as such. In the next section, we will address this issue and suggest the use of progressive tools to support management and decision-making in a specific area, such as transport.

3 Discussion

3.1 Possibilities of more efficient management of transport companies

The field of transport attracts individuals from different backgrounds who seek to contribute to policy, planning, operation and strategy. Economists are one of the more visible subgroups of players who bring a specific focus to the problem of transport. (Hensher, 2010) The possibilities to improve and perfect the management of transport companies are based not only on their natural development, on the development of information technologies and the education of management actors. At the same time, they are a reflection of unwanted,

unexpected situations, crises, to which the Covid pandemic does belong. The study of service quality and its implications for transport contracts has several approaches in research and practical applications, where the main emphasis is to consider quality from the user's point of view, thus obtaining a customer satisfaction index as a measure of overall quality and no further implications for service providers. (Garcia-Pastor et al., 2016) On the other hand, transport service providers have certain possibilities to make the realization of their business more efficient. It is a possibility to use various progressive management tools, the knowledge and use of which in the conditions of the Slovak Republic has recently seen a certain increase. Surveys aimed at finding out the awareness of transport managers about the use of selected management tools show expression of interest, implement or apply mainly controlling, managerial accounting, to a lesser extent process accounting, Balanced Scorecard and quality management (Total Quality Management - TQM). In connection with the application of managerial accounting in transport companies based on the need for more efficient management of value-creating quantities, its specifics and added value in the context of management can be closer. It can be stated that however, the extent to which accounting information reveals previous actions by other managers may depend on their aggregation. (Marinich, 2020) However, Grosanu, A. et al. (2011), should recall that there are some differences between income and expenses / therefore, in managerial accounting, the result is generated exclusively on the market. The revenues and expenses are recognized at the time of sale, while in financial accounting there is certain consumption of resources that are recognized as expenses rather than at the time of sale of the products to which they relate. There are two alternatives to the use of managerial accounting, namely managerial accounting based on total costs and managerial accounting based on incomplete (variable) costs, which determines, in particular, the cost structure in the calculation used by managerial accounting. Both are traditionally part of the economic information system of the company, which consists of various subsystems. The individual subsystems cooperate, are information-linked and use their own principles, procedures or approaches for mutual benefit. The cooperation of subsystems is necessary if it is absent, the situation described by Bhimani et. al (2017) is as follows: When the accounting orientation and institutional potential are in line with the dictates of the higher implementing body, accountability will remain high, regardless of the absence of enforcement. Some are different; in others, it is possible to find certain parallels. For most, however, as they claim Valmorbida et al. (2018) among the difficulties observed and which stand out are the activities in the phase when the evaluation system is thought and structured. It is a more detailed and detailed structuring of costs, which allows increasing the importance of their management. (Siekelova et al., 2017). The calculation formula compiled in this way is specified with regard to specific business and managerial accounting requirements. Managerial accounting as an integrated management tool supports managers' decision-making, provided that there is a suitable corporate information system. Therefore, the increased interest in managerial accounting is placed on the so-called non-absorption methods of calculation. Therefore, the second alternative of managerial accounting is called managerial accounting based on incomplete (variable) costs. The essence is that these calculations take into account only a certain group of costs and not all cost items. It is based on the philosophy that not every transport product in a transport company incurs fixed costs and not every sale of these products - services - generates a profit. Fixed costs and profit are linked to a certain period of time and not to individual services. At present, therefore, the focus is on such calculation methods, which deal with the costs arising in direct connection with the creation of individual products in the transport company. These costs are referred to as incurred. Another feature of non-absorbent methods is the definition of the profit of the whole company and they are not differentiated according to individual products (services). When calculating the profit, they use the gross margin indicator, which is the difference between total revenues (revenues) and variable costs. The service contributes

to the payment of fixed costs and the creation of profit by the amount. It is a more stable quantity than profit because regardless of the size of production, it does not change relatively.

Profit calculation:

Total revenues (sales (Trc))

- variable costs of all products / services (Nv)

Gross margin

- fixed costs (Nf)

profit (Z)

The mentioned method of profit calculation is called the one-step method of variable costs - direct costing. According to Lepadatu, GV, (2013) the method, which assumed the expansion of an ever-increasing scale in the cost accounting method, is the direct-costing method known as marginal costs or cost variables. This method was developed by Jonsthon N. Harris and G. Harrison Charter and was first used in 1934 in the USA. It uses the values of average variable costs Nvk - that group of transport services and their prices ck . It answers the question of the extent to which a group's transport services may reimburse that part of the fixed costs and profits which is common to all services and cannot, therefore, be attributed to the group's service in question. This procedure corresponds to the expression of fixed costs in the block, i.e. in total for the entire company, because they have no causal relationship to individual services. They are tied to time. However, experience shows that a certain part of fixed costs may be related to a certain group of production. In this case, the block of fixed costs is differentiated into several groups; usually a division into two groups is sufficient: special fixed costs and general fixed costs. This procedure is applied within the so-called two-stage method of variable costs and as a result of the differentiation of fixed costs, the gross margin is also divided into gross margins I and II. This method of calculation is market-oriented and provides a reliable basis for price decisions, for the analysis of revenues, costs and profits, as well as for the planning, control and management of the company. (Foltinova, 2011)

When preparing the data for calculation, the breakdown of the gross margin is often neglected in terms of the inclusion of fixed costs in the block and a detailed breakdown of performance costs. The one-step method of variable costs (Table 2) groups fixed costs (consisting of the component of direct wages, depreciation of means of transport, their legal insurance, operating and administrative overheads) into one block. It is most advantageous to define two groups of costs, referred to above as special fixed costs and general fixed costs. The first group of costs can be assigned to performances without use of a specific key and are assigned to e.g. fixed costs of marketing, production or material management. They are directly related to performances and are assigned using a base such as e.g. hours worked by workers. The second group consists of costs that are not directly related to performance; they are costs managed by the company's management itself and are included in e.g. administrative costs, costs of bookkeeping and calculations, financial, etc. They are treated as aggregates and assigning them to carriers requires the use of a specific key.

Table 2. One – step method of variable costs

CALCULATION ITEMS	INDIVIDUAL TYPES OF TRANSPORT									
	suburban transport		city transport		long distance transport		Irregular transport		total	
	€	%	€	%	€	%	€	%	€	%
revenues (total sales)										
- variable costs										
gross margin										
- fixed costs										
profit										

Source: author (2021)

The two-stage method of variable costs can be clearly expressed as follows (Table 3)

Table 3. Two – step method of variable costs

CALCULATION ITEMS	INDIVIDUAL TYPES OF TRANSPORT									
	suburban transport		city transport		long distance transport		Irregular transport		total	
	€	%	€	%	€	%	€	%	€	%
revenues (total sales)										
- variable costs										
gross margin I										
- special fixed costs										
gross margin II										
- general fixed costs										
profit										

Source: author (2021)

4 Conclusion

The cost management method used in managerial accounting is also applicable and beneficial for transport companies, especially on a strategic scale. It makes it possible to gather very detailed information in a detailed infrastructure and therefore applies very precisely to the various types of decision-making tasks in the medium and long term. The traditional concept of cost management does not provide such detailed information, mainly due to the limitation of financial accounting reporting, which is not a sufficient information base for management. It is up to the company's management whether it will be interested in introducing managerial accounting, or at least its selected tools with regard to the existing, already turbulent business environment, characterized by its complexity and intensity of change.

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