

LOGISTICS COSTS IDENTIFICATION IN SME IN POLAND

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Abstract: Identification and analysis of logistics costs in enterprises causes significant problems for small and medium-sized enterprises, especially due to adopted method of economic actions recording. In this paper the authors present the implemented methodology and the results of research on the size and structure of logistics costs in small and medium enterprises in relation to the firm generated revenue. Results of analyzes have been compared to results of research in other countries. Then authors point on the methods of logistics costs accounting in the surveyed companies.

Key words: logistics costs, cost accounting, cost evidence.

1. Introduction

Logistics, as one of the areas of company operation is to optimize the system of goods and information flows, not only inside the company but also within entire supply chain [1]. All processes related to material and information flows, which include planning, implementation and monitoring, are the interest of logistics. All realized tasks within the logistics system and its various subsystems generate costs. Correct approach of logistics system costs allows for a comprehensive view of logistics costs level and structure in the supply chain and the single element of the chain.

Unfortunately definition of logistics costs concept and structure is a very complex problem. The literature sources often provide logistics costs concept in different ways [8,10,11]. Some of them focus on the sources and types of their generation, trying in this way to define the logistics cost and other ones based on the various structure costs incurred in the logistic system. According to J. Twaróg, logistics costs are the primary method for quantitative measurement of innovation and effective implementation of logistics processes in the company. For this purpose, logistics costs must be calculated in such a way that the basic needs are met evaluation of logistics processes. In addition, logistics costs, as other costs incurred in undertaking activities, determine the financial condition of the firm [14].

K. Ficoń, similarly to J. Twaróg believes that logistics costs allow to estimate the efficiency of modern methods of logistics management, he also states that the distinction of logistics costs among other costs is extremely difficult due to [5]:

- too high level of processes consistency carried out in the company causing the administrative and organizational obstacles in clear distinction of costs connected to logistics activity of enterprises, only
- complex logistics cost structure and the costs interrelationships, that does not allow for costs calculation in accordance with the individual divisions.

According to P. Blaik, the difficulty of identifying the logistics cost is caused by lack of regular and complex analysis in this area in Poland. As the reason of that situation he blames on the level of advancement of information systems used in companies those are

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based on outdated methods of accounting and provide operators with the low quality of the information necessary in the pursuit of high efficiency of the logistics system [1].

Those difficulties in identifying the logistics costs are also described by authors in other countries as F. Straube and H-C. Pfohl [12], R. Z. Farahani et al [4], or Q. Dianwei [2].

Almost all of the authors are considering the logistics costs believes that the separation of logistics costs is difficult because of their linkages to other accounted cost and without their precise identification, it is not possible to evaluate the logistics system effectiveness. Moreover, traditional accounting methods used in enterprises constitute a major barrier to determine the logistics costs. The accounting methods provide the necessary information, which includes the financial activities of the entire company, but do not solve the problems of modern logistics [6]. The purpose of the logistics system is to provide the highest level of coordination of logistics processes and optimal use of the resources, that affects the development of the logistics costs, those should be controlled [14].

Analyzing the logistics cost, the managers have the opportunity to learn the strengths and weaknesses of logistics processes functioning in the company. This is particularly important for small and medium enterprises where the cost analysis, and in particular the logistics costs analysis is overlooked aspect of management and thus it is an area of significant opportunity to improve and strengthen the competitive position of companies.

2. The logistics costs survey in SMEs

Research questionnaire in the analysis of the value and structure of logistics costs in small and medium enterprises included the general data of the company and the size of their business logistics activity as: name, location, income volume, number of employees, including employees on logistics positions, type of business activity, weight of products provided to customers or the number of supplied pallets in case of palletized products and number of orders. Then the research included question on [13]:

- Transportation costs divided on supply transport (components, raw materials) from suppliers and products transport to customers, whereas a further breakdown on the costs of transport in the country and costs of transport from/to the suppliers/buyers abroad.
- Material inventory carrying costs defined as: the cost of capital invested in the material stocks and material costs of aging.
- Storage costs of raw materials, semi-finished, borne by the company including the cost of workers in warehouses, depreciation of storage buildings, energy, handling equipment, computer hardware and software, the packaging materials.
- Finished goods inventory carrying costs, including the cost of capital invested in stocks of finished goods, the costs of aging inventories of finished goods.
- Storage of finished products shall be borne by the company including the cost of workers in warehouses, depreciation of storage buildings, energy, handling equipment, computer hardware and software, the packaging materials.
- Administration costs involved in logistics processes, the personnel involved in the supply and distribution, inventory control, transportation, and material flow, computer hardware and software.

- The last part of the survey consists: costs of lost profits and analysis of logistics cost accounting methods in the following form: simple cost record, including direct and indirect costs, costing at specific products or services with indirect costs or calculation of activity based cost (ABC).

Research Questionnaires were delivered to 196 companies basically localized in the south of Poland, most of the companies came from Silesia. Direct participation of the authors in the collection of the data confirmed the great difficulty in identifying the logistics cost and their components in the enterprises, due to the way of costs accounting that makes analysis of logistics costs almost impossible in accordance with the above present problems. However, it should be noted that some of the companies lead logistics cost analysis for their own needs without taking it in the official records. This is an interesting source of knowledge in the carried out study, however, many often those kind of logistics cost accounting for companies is not devoid of methodological errors. Finally, the study included 90 companies, the vast majority of small and medium enterprises (19 companies in the research sample, due to the volume of employment and income can be classified as micro-enterprises), which provided the statement of cost which may be the basis for further analysis. As part of the entities to obtain data required considerable time and effort to identify and correct allocation of costs to cost groups that included the questionnaire. The group of companies which are the subject of research, the average amount of revenue for the year 2011 amounted to 11.5 million polish zloty, and employs 66 people, with an average of five people in the analyzed companies employed in logistics positions or involved in logistics functions.

The analyzed companies also identify company's business activities with retail (53 companies), followed by: manufacturing (37), distribution (25) and other activities (14). Of course, it should be noted that some of the companies indicated more than one type of operations.

Considering the scale of operations of the enterprises in logistics area, it is worth to notice that the company declared that they provide their customers a little more than 15 thousand tons of products per year in average, and in the case of the supplies of palletized cargo, it was an average of 3,200 pallets annually. These supplies were a response to the 5264 orders placed by customers in researched enterprises, on average.

Analyzing the structure of logistics costs in the surveyed enterprises, it should be underlined that transport costs are the most important elements of logistics costs with participation of 36.1% of the total, and then the storage cost 24.3% of total logistics costs, 20.3% participation of inventory carrying costs and administrative costs 19.3%. (Figure 1). However, few companies qualify for the study sample, due to the nature of the business, not realize some above presented logistics functions or some firm were not be able to extract the values for presented group of logistics costs for example some firm were not be able to identify the administrative costs of logistics processes, because their staff deal with logistics functions and other functions of the company as well so the answer to the question in the questionnaire would require information on costs on the level of activities and that was beyond the capabilities of respondents. However, due to the very small group of these companies, it has not caused significant errors in the final result of the study.

Extending the research nature, the share of logistics costs in relation to revenues was analyzed, which was on the average level of 17.08%, and according to the provided data, this share ranged from 2.3% (which seems to be inestimable value) to a value of 39.5%. While average participation of logistics costs components in the revenues were calculated

as follows: transport costs 6.16% of revenues, then storage costs 4.15%, inventory carrying costs 3.47% and 3.30% administration costs (Figure 2). Of course, as the total volume of logistics costs in relation to income, so the individual components have different contribution in the surveyed enterprises, depending on the type of business activity, industry, or the effectiveness of the logistics processes implementation.

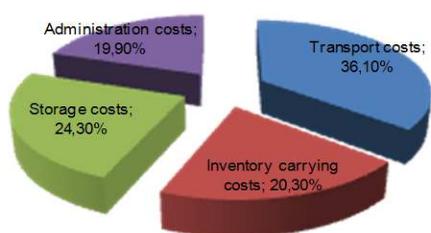


Figure 1. Components of logistics costs in the surveyed enterprises in 2011

Source: own study based on the survey

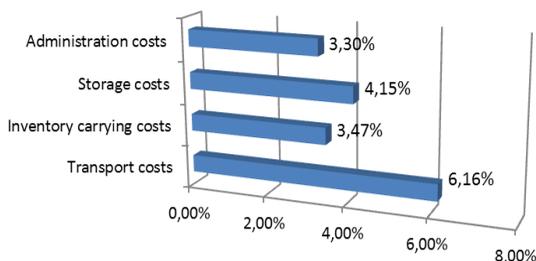


Figure 2. Participation of logistics costs components in the income of the surveyed companies in 2011

Source: own study based on the survey

It is worth to point that in transport costs, costs division for supply transport costs and finished goods transport costs shows similar participation in the surveyed companies. Accordingly, they expended 50.19% on the supply transport costs and 49.81% for the finished products transport. As in above presented analyses, so in this case, there was a significant variation in enterprises due to the specific relationships with suppliers and customers those ultimately influencing the decisions of who bears the costs of supply transport and finished products transport.

However as the surveyed companies estimate in a supply transport, 47.7% of the total costs are covered by the supplier, and the rest is paid by the surveyed companies. However, in finished products transport, 54.8% of transport costs are borne by the customers and the rest were paid by respondents. It should also be noted that companies with business relations with foreign partners indicate transport costs from foreign suppliers the average more than 75% of the total transport costs of supply and in the case of foreign buyers, it is a 68% share in the cost of transportation of finished goods. Such a high share of foreign transport shows significant involvement in international economic relations as well as higher costs of international transport related to distance function.

Respondents also indicated a significant disparity in the structure of inventory carrying costs, where as many as 80% of the inventory carrying costs are related to supply inventories (materials, semi products). The same situation or explained even higher is in case of storage costs. Where raw materials and semi products makes about 84% of the total storage costs. Also in this research area significant deviations from the mean values were observed. It was connected with enterprises engagement generating significant needs in particular logistics functions and adopted specific strategies of customer service or supply strategies that generate various costs of inventory carrying and storage costs. Another important factor is the managers' engagement to manage logistics costs, costs measurement and control, and efficiency of the logistics functions realization.

Among the surveyed companies as many as 33 declared that they estimate costs of lost profits; related to lack of product availability and unmet demand, although most of the companies could not identify clear methodology for this costs calculation, which may

indicate a very general nature of these analyzes, so it was decided not to include the declared values of these costs in this study.

Analyzing the results of research in the accounting methods of logistics cost, it should be noted that as I expected, the majority of companies (58) only simple cost accounting, the calculation used direct and indirect costs declare 28 companies, accounting expenses at the level of specific products and services runs 26 surveyed enterprises. Activity Based Costing conducts five largest companies in the study (Table 1).

Table 1

Logistics costs accounting methods in surveyed enterprises

<i>Logistics cost accounting method</i>	<i>Number of enterprises</i>
Simple costs accounting	58
Accounting of direct and indirect costs	28
Costs accounting at the level of specific products and services	23
Activity Based Costing (ABC)	5

Source: own study based on the survey

Some of the companies indicated more than one way to evidence of logistics costs. Those enterprises conduct different evidence in case of certain products or services in order to better control of key areas or risk areas in the context of its effectiveness.

Comparing logistics costs in surveyed enterprises with the researches results in the USA [7] and Finland [9], it can be noticed that in Poland, companies are characterized by relatively higher logistics costs level in relation to enterprise income 17.08%, while 7.5% in the USA and 10.2% in Finland (Figure 3).

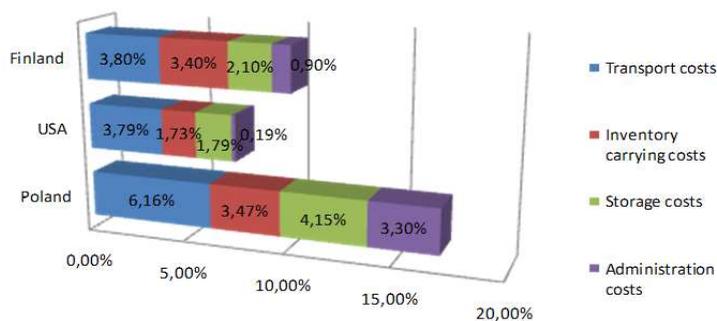


Figure 3. Comparison of the share of logistics costs in the income of enterprises in Poland, the USA and Finland

Source: Own study based on the survey, www.establishinc.com and Karri R., Ojala R. Measurement of National-Level Logistics Costs and Performance. International Transport Forum Discussion Paper, 2012

This situation may be due to differences in the method of logistics cost accounting in enterprises in Poland, USA and Finland. It is important also to aware the significance of logistics costs for managers in compared countries and finally incomparably larger scale of

operations surveyed USA companies those were the subjects of cited research. Significantly lower costs for American companies may be the result of a greater emphasis on USA companies to reduce costs as the evidenced by over thirty years of logistics cost benchmarking studies conducted by Establish INC showed [7].

3. Conclusion

Logistics costs is a category extremely significant costs in terms of profitability of economic activities, as indicated by their relatively high participation in relation to the income – an average of 17.08%. Logistics costs not only significantly reduce profits, but because narrow exploration of the problem, it is also an important reservoir of enterprise competitiveness improvement. However, before managers take actions to improve the size and structure of logistics costs, in many cases they should deal with inappropriate, inaccurate, or even the lack of logistics costs accounting. Cognitive and analytical action in the area of logistics costs seems to be a first fundamental step in taking corrective actions in this area.

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