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Case study of cost efficiency in selected business entities in Poland in light of current economic conditions

DARIA MOSKWA-BĘCZKOWSKA

Kielce University of Technology, Faculty of Management and Computer Modelling, Department of Economics and Finance, Al. Tysiąclecia Państwa Polskiego 7, 25-314 Kielce, Poland
dariam@tu.kielce.pl
orcid.org/0000-0003-2165-6829

Abstract

Motivation: Current economic conditions, including, but not limited to, the rising inflation rate, changes in electricity prices or changes in tax law significantly affect the manner of operation of business entities in Poland. The economic impact of these changes varies greatly depending on the type of business, industry or economic sector represented. These changes are also reflected in the level and structure of the entities' own costs — primarily in the when considering costs by type. The multitude of changes that Polish companies now face also indicates the importance and relevance of the concept of effective cost management in these difficult economic conditions. Therefore, the need to adapt the business to the peculiarities of the new economic reality created the basis for a thorough identification of cost information needs coming in from the cost accounting systems used in companies. This became one of the prerequisites for undertaking research on evaluating the usefulness of cost accounting systems used in business entities for effective management of their costs.

Aim: The purpose of this article is to analyze and assessment the cost effectiveness of selected entities representing production, commercial and service activities in the context of recent changes in economic in Poland.

Results: The main conclusion of the analysis is that the current economic conditions have a significant impact on the level and structure of own costs in business entities. Therefore, these entities need specialized economic tools to improve the efficiency of their cost management. It is because the traditional full-cost accounting system used by most business entities in Poland is proving to be inadequate in this regard.

Keywords: *costs; enterprises; effective management*
JEL: G21; G30

1. Introduction

The current economic conditions, manifested, among other things, in the rising inflation rate, changes in electricity prices or changes in the balance sheet law, significantly affect the way all business entities in Poland operate. Although, according to the Polish Investment and Trade Agency, Poland's economy has been developing at a stable pace for more than 25 years (PAiZ, 2021), it has recently been determined by a number of factors, however, causing a marked slowdown in economic activity. Dynamic recent changes in the economy, triggered also by the COVID-19 virus pandemic, have negatively affected the functioning of many Polish companies. Subsequent lockdowns announced since March 2020 and government-imposed restrictions on the freedom to operate in various industries have caused the financial situation of some entities to deteriorate. The intensely changing business environment poses tremendous challenges to Polish companies, particularly in meeting their information needs. In this situation, therefore, aspects of effective cost management, including, above all, costs by type, are of particular importance. It is worth noting that traditional cost accounting systems focused on mandatory financial reporting under the balance sheet law in Poland completely ignore the ever-increasing information needs of companies in terms of cost management. This is because traditional, reportable cost accounting is insufficient to reveal significant causal relationships between costs and management objects that are or may be relevant to managerial decision-making. The cause-and-effect analysis of business entities' own costs, on the other hand, provides a basis for rationalizing costs, and thus for effective cost management. Therefore, there is a need to search for and implement such cost accounting systems in these entities, the assumptions and principles of which will meet the growing demands of their users, especially in light of the difficult economic conditions.

In the context of the above considerations, the aim of this article is to analyze and assessment the cost effectiveness of selected entities representing production, commercial and service activities in the context of recent changes in economic in Poland.

The realization of such a formulated objective required a comparative analysis of the level and structure of own costs in selected business entities in Poland representing manufacturing, trade and service activities. Special attention was paid to the identification of operating expenses, including costs by type. Since this analysis is to be carried out in the context of recent changes observed in the economic environment of enterprises, it covers the period 2019–2022.

This article consists of three main parts in addition to an introduction and summary. The first presents a synthetic review of the literature on the key issues addressed in the text, including the essence of cost, cost accounting, char-

acteristics of the concept of efficiency and also economic efficiency. It also presents the key principles of the resource & process costing concept. In contrast, the second part presents the methodology of the research conducted. The results obtained and the conclusion are considered in the final part of the article.

2. Literature review

From the point of view of achieving the aim of the article, this part will present theoretical considerations on the key concepts analyzed in this article, which are also the basis and starting point for further considerations. Subsequently, the concept and essence of efficiency, the definition of cost and the interpretation of resource-process costing will be presented.

2.1. Efficiency and its types

Efficiency is not an unambiguous concept and is interpreted differently in social sciences, economics and also management sciences (Drucker, 1985; Helms, 2006; Skrzypek, 2002).

In the literature, efficiency is most often defined as the result of actions taken described by the ratio of the effects obtained to the expenditures incurred (Farafonova, 2011, pp. 176–177). Economic efficiency (Rokita, 2017, pp. 160–161) is, in turn, such activity of an entity that is devoid of waste and is oriented towards achieving the best result within the framework of available resources and technologies (Lockwood, 2008). In this view, economic efficiency is defined as the ability to use one's resources in such a way as to achieve a given objective in the most efficient and least wasteful manner (Onistrat, 2008, p. 129). It can be considered from both a micro- and macroeconomic perspective. The microeconomic view of economic efficiency is concerned with a single economic unit and its activities. On the other hand, in macroeconomic terms, it concerns the functioning of the entire economy, combining the effects and inputs incurred in all sectors into a single whole, while making the level and dynamics of growth dependent on the overall efficiency of the entire economic system, specific to a given country. Economic efficiency can also be referred to a specific activity, i.e. the activity of economic entities and individuals and organizations, including those that are part of the public sector (Herath, 2008, p. 20).

Economic efficiency is considered in the literature to be the most synthetic measure of action, and as its components one can distinguish efficiency, i.e. doing the right thing in the right way, and effectiveness, related to the goal, in the context of whether the goal adopted for implementation is appropriate (Ruimei & Zhe, 2010, p. 52). A similar position is presented by Drucker (1985), who defines efficiency as doing things the right way, and effectiveness as doing the right things. In this sense, efficiency would refer to the way things are done, while effectiveness would refer to formulating the right goals.

On theoretical grounds, economic efficiency is the best possible use of an economic unit's resources. In contrast, from a practical standpoint, efficiency is a multi-criteria judgment about the inputs and outputs associated with a given endeavor. In summary, economic efficiency is primarily concerned with the phenomena and processes of management, occurring in the entire economy (macroeconomic approach), its individual parts, separated on the basis of the functions performed and objectives achieved (mesoeconomic approach) or individual economic entities (microeconomic approach).

The literature on the subject also distinguishes so-called cost efficiency (Seyedboveir et al., 2017; Zimkova, 2015). The term, which should be understood as an analysis of the level and structure of the business entity's own costs and benefits for its owners, consists in the selection of the cheapest possible variant of action, while maintaining the highest possible quality. The essence of cost-effectiveness, therefore, is to compare the results achieved with the cost of achieving them and to strive to achieve a given result at the lowest possible cost. This is especially important when the business entity has limited resources, including, in particular, financial resources. In economic theory, cost efficiency is also presented as the product of technical efficiency and allocative efficiency. Whereas technical efficiency is understood as a production process in accordance with the so-called production function, i.e. without wasting production factors. Allocative efficiency, on the other hand, means that factors of production are purchased by the enterprise at the most favorable prices in the market, so that it incurs the lowest possible total expenses. For the purpose of this article, it is assumed that cost efficiency is a comparison of the level and structure of the costs of the entity under study with the effects they achieve, thereby providing a basis for rational and therefore effective management of the costs incurred (Moskwa-Bęczkowska, 2019).

2.2. The concept of cost and cost accounting

According to the literature on the subject, cost is an economic category that undoubtedly affects the efficiency of an economic entity. It represents the value, expressed in money, of human labor and property resources of an enterprise consumed during a given period to produce products, provide services and perform certain functions (Popesko & Novak, 2011). In economic theory, costs are ascribed a primary character in relation to the effects obtained. Therefore, knowledge of their level and structure plays a key role in information and decision-making processes in all business entities, regardless of the purpose these entities pursue (Novak & Popesko, 2014, p. 91).

Costs are also the subject of cost accounting, which can be defined as an integral part of accounting dealing with measuring them, collecting them in the appropriate sections, accounting for them divided into appropriate objects, and presenting them in reporting(cf. e.g. Ciechan-Kujawa, 2005, p. 76). The main task of cost accounting in business entities is to provide information

characterizing costs in such cross-sections that are useful for the management of the entity's activities, in particular, for the rational and effective management of the implementation of specific tasks, as well as for the control and economic analysis of achievements (Bucior, 2006, p. 196).

The operating costs of business entities in Poland are grouped into two major classification sections:

– by type, which indicates the type of cost incurred;
– by function (entity), i.e., by place of origin (or type of activity) — which is a source of information where and in connection with which type of activity the cost was incurred.

The efficiency of a business entity is also greatly influenced by the proper way of calculating[1] unit costs. The main purpose of cost calculation is to obtain data on the basis of which it is possible to assess the economic efficiency — actual and (or) planned — of producing (performing) a service (task) (Wagner, 2012). In view of the above, an accurate cost calculation method is the basis for effective cost management in business entities.

As mentioned, changing economic and financial conditions, both at the national and global level, have caused business entities to attach greater importance, in the context of improving their operating efficiency, to the management methods used, including cost management.

In order to increase this efficiency, some of these entities are choosing to replace traditional cost accounting systems with modern systems, such as activity-based costing and resource-process costing.

Due to the fact that activity-based costing is already a well known concept of recording, accounting and unit costing in the literature, it will not be discussed further in this article (Harrison & Rouse, 2016; Rouse et al., 2011). Noteworthy, however, is Resource and Process Consumption Accounting (RPCA), the key principles of which are presented in the next section of this discussion.

2.3. Resource and Process Consumption Accounting (RPCA)

Resource and Process Consumption Accounting is a comprehensive and systematic management costing that combines the assumptions of such concepts as German grenzplankostenrechnung and American activity-based costing. Its essence is to transform, according to strictly defined rules, financial and non-financial data into management information about the cost of resources, processes, and the cost and profitability of products, services and customers (Zieliński, 2020, pp. 48–49). The acquired information is presented in a multidimensional manner with resolution of cost information in terms of both actual and planned costs, necessary to support short-, medium- and long-term decisions at all levels of business management. RPCA is characterized by multi-stage cost account-

[1] The term cost calculation should be understood as a set of calculation activities aimed at determining the costs attributable to the object of calculation (such as a product, service, project or order).

ing among 12 types of cost grouping objects (Zieliński, 2018, pp. 486–488). This approach to extracting objects and defining relationships between them provides complete resultant information at all levels of management. The main tenets of this costing allow various cost items to be considered freely as relevant or irrelevant costs for a particular decision. It is also important that the account comprehensively covers all costs incurred by the company, i.e.:

- core business costs, where the goal is to calculate the cost of products and services;
- cost of sales where the goal is to calculate the cost of service and profitability of customers;
- research and development costs of the production/services area and sales,
- management costs;
- costs of auxiliary and support activities.

This approach to the measurement and analysis of own costs in business entities can prove extremely useful for managing this economic category, especially as the current economic environment forces the need to develop insightful and reliable cost information. In addition, the multistage structure of costing in the RPCA allows for the detailed identification of — among other things — the costs of resources consumed, the manufacture of products, the acquisition of goods, the provision of services or customer service.

3. Methods

This article carries out a comparative analysis of the level and structure of operating costs in three business entities representing manufacturing, trading and service activities. The analysis included — primarily — costs by type presented in the financial statements of these entities for 2019–2022, i.e. mainly in the income statement in the comparative version. The study used the case study method for business entities representing specific types of activity, i.e. branding of petrol stations, car washes, steel structures and modern fencing systems, sale of bookbinding machines and accessories, and provision of public transport services. They are entities with an entry in the business register of the National Court Register. These were commercial law companies, including limited liability companies and joint-stock companies. Data of the surveyed entities was obtained from the online database of the Central Economic Information Center. The main criteria for the selection of research objects were the number of entry in the National Court Register, the main number of the Polish Classification of Business Activities and the size of employment. Next, financial statements were selected from the Financial Document Repository published by the Ministry of Justice on the basis of selected KRS numbers belonging to each type of business, i.e. commercial, service and manufacturing. An important determinant of the selection of financial statements was that the document should not be prepared in simplified form. Because according to the provisions of the Accounting Law, companies in the micro group (with

up to 10 employees) and the small group (with up to 50 employees) prepare their financial statements in this form. So, at the stage of selecting data for analysis, these companies were left out. They are also not companies listed on the Stock Exchange.

A small group of companies was included in the study, but due to the same mandatory method of recording, accounting and cost calculation under the balance sheet law in Poland in all entities, this group is sufficient for the analysis for the purposes of this article. The obtained results are also a stage of preliminary research for a broader analysis including a comparative analysis of the costs of a selected industry branch.

The cost identification in question was set in the context of key changes in Poland's economy observed recently. The analysis provided the basis for the process of inference and interpretation of the results obtained, which are presented in the next section of this article.

4. Results

As of 2020, Poland is facing a very difficult economic environment. Indeed, the COVID-19 virus pandemic has shaken the economic system in Poland and around the world. Companies have begun to face business constraints, a shift to remote work or problems maintaining order continuity. As a result, many were forced to cease operations, while others thrived on developing new distribution channels.

Poland has begun to see the phenomenon of recession, as evidenced by a 2.2% decline in the level of GDP in 2020 compared to 2019. Despite the observed slowdown in economic growth, the effects of the recession were not as severe on Polish companies as might have been expected. This is because a large role was played by the government financial programs offered by the state as part of the anti-crisis shields 1.0 and 2.0, thanks to which the vast majority of companies maintained employment in their entities despite declines in production levels. According to the State Development Fund (SDF), some PLN 73.2 billion has been disbursed as part of the financial assistance offered. Nearly 353,000 enterprises received assistance. According to SDF estimates, the shields have thus saved some 600,000 jobs. Their effectiveness can also be evidenced by the fact that of the more than 350,000 entities, only 19 are in restructuring and 167 in liquidation. In contrast, only 0.05% of the companies had to terminate their operations.

The pandemic period was a time of undeniable slowdown in economic activity. However, after a significant slowdown in the number of COVID-19 cases and a gradual "unfreezing" of the market sector, the Polish economy has started to pick up again. The year 2021 in Poland was characterized by a rapid increase in the prices of goods and services, i.e. inflation. On the one hand, growing post-pandemic consumption, on the other hand, shortages of goods due to problems with maintaining continuity of orders and supplies have caused

supply shortages in domestic markets. The situation was further exacerbated by Russia's invasion of Ukraine, which led to the imposition of sanctions on Russia thus limiting the country's ability to export goods. One of the most visible effects of the trade restrictions with Russia is the turmoil in the energy commodity market and the associated increase in electricity and gas prices.

All of the above-mentioned conditions also have a significant impact on the level and structure of individual business entities' own costs. Thus, for example: in 2021, the value of total costs incurred by enterprises amounted to PLN 5,718.3 billion, and was 16.7% higher than in 2020. The vast majority of these costs were incurred by enterprises of legal entities (85.6%), while the remaining 14.4% of costs were generated by sole proprietors. From the point of view of the type of business, industrial and commercial enterprises incurred the highest percentage of total costs (38.3% and 36.4%, respectively). Total costs per entity in 2021, on the other hand, increased by 37.6% compared to 2020 and stood at PLN 2,427.1 thousand. Chart 1 shows total costs per 1 enterprise in Poland from 2010 to 2021.

A detailed analysis of the statistical data showed that the highest level of total costs per entity was observed in industrial enterprises (PLN 9,596.4 thousand), and per employee for commercial units (PLN 928.4 thousand). However, the lowest total costs both per employee and per entity were incurred by entities related to other service activities (respectively: PLN 75.2 thousand and PLN 135.3 thousand).

The increase in the total cost of operating of business entities in Poland, observed in Chart 1, therefore justifies the need for a thorough analysis of their level and structure. Unfortunately, the current structure of costs by type imposed by the Accounting Act ensures that they can only be analyzed to the extent that the income statement allows. From the point of view of the usefulness of the extracted cost information, this is of little use for effective cost management. Therefore, it makes sense for companies to more boldly decide to implement other — more accurate — cost accounting systems, such as the resource & process consumption accounting presented earlier. The increase in costs is also evident for individual businesses. An analysis of operating costs in commercial, manufacturing and service enterprises showed a successive increase in total costs during the period under review in these entities. The costs of trading companies, on the other hand, showed a decreasing trend during the period under review. Table 1 shows the total cost values for the operating activities of these companies.

As can be seen from the data presented in Table 1, the year-on-year analysis showed that in 2020, compared to 2019, all entities showed a decrease in the level of costs incurred. So, it should be said that in this aspect, the COVID-19 virus pandemic and the restrictions on operations caused by it have affected the costs of these entities regardless of the type of operations. On the other hand, the costs of manufacturing and service enterprises in 2021–2022 showed an upward trend. The lack of 2019 data in the manufacturing enterprise is due

to the fact that the enterprise changed its organizational and legal form in 2020, from a sole proprietorship to a limited liability company.

However, based on the overall level of costs, it is difficult to determine what caused the increase in this economic category. A little more information can be gleaned from an analysis of the structure of cost by type. Hence, Tables 2–4 show the percentage contribution of each item of costs by type to total costs from operations.

The data presented in Tables 2–4 show that regardless of the type of business represented, salaries and wages, including derivatives, and consumption of materials and energy account for the largest share of total costs. The smallest, on the other hand, are taxes and fees and other costs by type. Therefore, it can be concluded that the observed increase in the prices of materials and raw materials primarily in domestic markets is reflected in an increase in the cost of this item of the income statement. The current turmoil in the electricity and gas market — particularly for economic entities — is also generating an increase in the price of consumption of these commodities. Another item is labor costs, the amount of which, in turn, depends on current regulations. These costs are on an upward trend as a result of changes in — among other things — the amounts of the minimum wage or mandatory employee payments to the Social Insurance Institution and the ways in which they are accounted for. From the point of view of the purpose of this article, it is important to note that knowledge of costs extracted from data derived from financial statements by type, despite a certain degree of detail, is still in aggregate form. This means, therefore, that from the point of view of effective cost management and thus making various types of decisions, this information is of little use. Although the specifics of the operations of each of the companies presented are different, each of them indicates the need to detail the cost information received from the accounting system. This is also confirmed by the results of a survey that the author of this article conducted in 2021 on the evaluation of the usefulness of the cost accounting system of business entities for managing their costs under the conditions of the COVID-19 virus pandemic (Moskwa-Bęczkowska, 2021). The survey found that more than half of the companies analyzed indicated that the cost accounting system they use is partially useful, or not useful at all, for business management.

Therefore, it is reasonable to implement alternative cost accounting systems, such as resource & process consumption accounting. One of the advantages of this concept is the possibility of implementing only a part of the entire cost accounting model, for example, relating to improving the efficiency of the management of resources consumed in the entity. This is because identifying the generic structure of the resources consumed is the most important step in implementing the RPCA. From the point of view of the amount of work required to develop and implement the RPCA in a company, this is a great asset for management. However, due to the limited volume of the article, it is not possible to present

a comprehensive methodology for implementing this account in an entity, so this will be considered separately.

5. Conclusion

The considerations presented in this article on effective cost management show that the current economic conditions in Poland affect the level and structure of own costs incurred by business entities. These costs are gradually increasing. In this situation, knowledge of the level and structure of the own costs incurred is of great importance, which is also a key determinant of effective management of the economic category analyzed. The results presented in the article are consistent with the results of (Kołodziejczuk, 2014). The need for a thorough cost analysis is also indicated by, among other things(Bełch, 2015; Nadolna, 2016).

It is also worth noting here that the formulated conclusions are not of a general nature. Therefore, they cannot be applied to all entities engaged in production, trade or service activities. This type of research is planned to be conducted on a wider group of subjects, however, it requires more time. Future planned research also intends to use specific methods and tools to measure performance, including primarily non-parametric versus qualitative methods.

Nevertheless, the problem of effective cost management is widely discussed in the literature on the subject, which confirms that it is an ever-present and important topic.

In light of the current economic conditions, it is difficult to run a cost-effective business. Rising inflation rates, disruptions in supply chains or the energy crisis determine the increase in costs incurred by companies. As can be seen from the analysis of the generic cost structure of the surveyed companies, this situation applies to all types of their operations. The main conclusion of this analysis, which is also a prelude to a broader study of the effectiveness of cost accounting systems, is that the current economic conditions have a significant impact on the level and structure of own costs in business entities. It is therefore important to know the level and, above all, the structure of the costs incurred as accurately as possible. This is because it turns out that the full cost accounting in force in business entities is not able to meet the growing, in the present time, demands of enterprises for cost knowledge. It is therefore reasonable to implement modern concepts and tools for effective cost management, such as resource & process consumption accounting.

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Appendix

Table 1.
Total value of operating expenses in trading, manufacturing and service enterprises (in PLN)

Type of activity	2019	2020	2021	2022
trade	351,347,273.2	325,547,176.3	323,126,250.00	320,705,323.66
manufacturing	–	1,815397.48	3,268,718.95	4,722,040.42
services	7,953473.57	7,923984.01	8,644339.62	9,364,695.23

Source: Own preparation.

Table 2.
Structure of costs by type in a trading company (in %)

B. Costs of operating activities	2019	2020	2021	2022
depreciation	1.57	1.28	1.03	0.77
material and energy consumption	2.13	1.75	2.10	2.45
external services	7.56	7.03	7.26	7.49
taxes and fees, including:	0.25	0.42	0.26	0.09
salaries	10.92	10.98	10.65	10.32
social security and other benefits, including:	2.22	2.24	2.21	2.17
other costs by type	1.01	0.65	0.68	0.71
value of goods and materials sold	74.33	75.64	75.82	76.00
total	100	100	100	100

Source: Own preparation.

Table 3.
Structure of costs by type in a production company (in %)

B. Costs of operating activities	2019	2020	2021	2022
depreciation	–	1.10	1.36	1.59
material and energy consumption	–	60.00	58.51	50.76
external services	–	18.00	16.95	18.21
taxes and fees, including:	–	0.13	0.14	0.17
salaries	–	15.00	17.92	23.91
social security and other benefits, including:	–	3.00	3.27	4.15
other costs by type	–	2.77	1.85	1.21
value of goods and materials sold	–	1.10	1.36	1.59
total	–	100	100	100

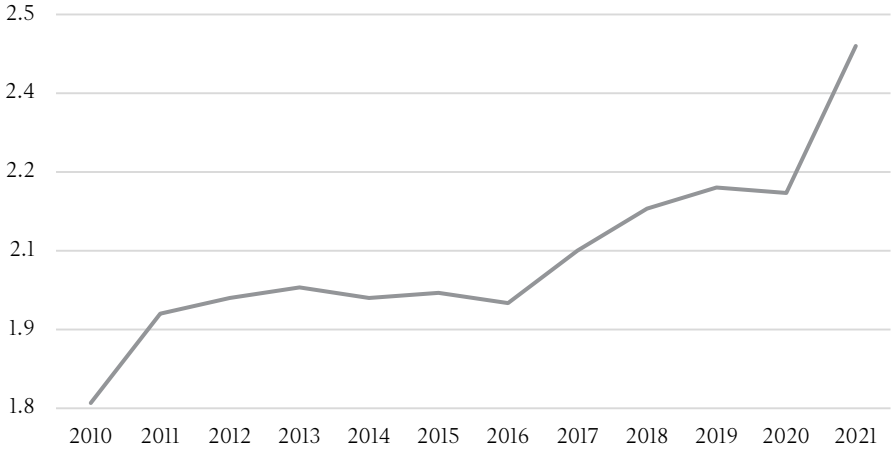
Source: Own preparation.

Table 4.
Structure of costs by type in a service company (in %)

B. Costs of operating activities	2019	2020	2021	2022
depreciation	1.98	1.96	2.09	2.21
material and energy consumption	22.18	22.14	23.74	25.09
external services	7.21	7.09	6.73	6.43
taxes and fees, including:	2.53	2.51	2.20	1.93
salaries	50.68	50.86	50.61	50.40
social security and other benefits, including:	12.50	12.48	12.15	11.87
other costs by type	1.95	1.99	1.57	1.22
value of goods and materials sold	0.96	0.97	0.91	0.86
total	100	100	100	100

Source: Own preparation.

Chart 1.
Total costs per 1 enterprise in Poland in the years 2010–2021 (million PLN)



Source: Own preparation based on Statistics Poland (2022).