

Original Scientific Paper
UDC: 657.1/658.14
Paper received: 30/ 03/ 2016
Paper accepted: 18/ 04/ 2016

COMPARATION OF PRODUCTION AND SERVICE COSTS IN CROATIA AND COST REDUCTION MEASURES

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ABSTRACT

Creating a product or service is carried out by the joint efforts of materials, labour and property and equipment. These elements are consumed in the business process, and therefore recognized in accounting system and financial statement as cost items. In order to achieve optimal balance between cost and revenues and consequently the best financial results it is necessary to manage cost. The knowledge of costs structure should constitute the starting point for any cost management activities. The aim of this paper is to identify and analyze the cost structure of production and service industry examples in Croatia. The study was conducted on a sample of 8,913 active companies operating in the sector of food and drinks production and intellectual services in Croatia. The results point to differences in the cost structure that have served as a base for proposed cost reduction measures for each of the analyzed industries.

Keywords: *costs reduction; production industry; service industry*

1. INTRODUCTION

Companies currently operate in very unsure and risky environments but strive to cover all costs to remain profitable, regardless of their branch of work. Although, it needs to be pointed out that in modern business environments

cost cutting should be achieved without drops in quality or functionality of products or services. That means that cost cutting should be done by eliminating or cutting down cost which is irrelevant to the core business. (Škrtić, 2005:104). Rationalization of costs is the only way to stay afloat in a global market flooded with strong competitors. Reports from the field clearly show that the number of companies that earn enough to recklessly spend is marginal in comparison to the number of companies that need to take care of their expenses (Belak, 2005:61).

In order for the process of cost rationalization to yield any positive result, it is necessary to know the cost structure of an enterprise, and the approach to cost rationalization itself should be consistent and work with the specificity of the business activity. Based on all the above, this paper has the following objectives: to identify and analyze the cost structure on the example of manufacturing and service activities and to propose measures to reduce costs for each of the activities.

2. THEORETICAL BACKGROUND

Processes within a company that creates products or services are carried out with the mutual interaction of materials, labor and work resources. Each of these elements are consumed in the business process. Cost represents the value of resources sacrificed or spent in order to achieve specific goals such as creation of goods or services (Drury, 2008: 27). In order to achieve the optimum ratio between value and cost, it is necessary to maintain a quality cost management strategy. Cost management strategy does not only mean cost cutting. The term also encompasses a special way of managing an enterprise and doing business that is focused on cost rationalization. According to Ramljak (2013), cost rationalization is the activity of a business entity that seeks to structure and adequately manage the volume of costs that fits a particular enterprise. Rationalization represents the process of balancing costs of all resources in the business process and rejection of everything irrational. This means that it is necessary to provide transparency and insight wherever there is cost of any kind, determining why the costs occurred and finding any way for them to be lower. It is only then that you can introduce relevant rationalization measures (Peršić, 2005: 13).

Cost rationalization, cost behavior and cost structure were research topics of many relevant authors.

Zhu (2000) analyzed the expenses of the production industry in Singapore that occurred within changes in the local economy. The production sector of Singapore transformed from labor intensive manufacturing to an indus-

try which is dominated by capital and technology. This transformation led to changes in cost structure which are especially obvious in labor costs increase. Changes within cost structures in the Japanese production industry were the topic of a research done by Tetsuhiro (2009). That research showed that companies that reduced sales revenue due to global competition changed their cost structure. Companies that would usually never think about cutting down on labor changed their cost structure and managed to cut down on labor costs. Traditional Japanese managing policies entail a great amount of social responsibility but they still reduced the number of employees and made a cut in salaries. That is a big change since the Japanese always considered labor costs as a fixed whereas now they treat it as variable expense. Cost structure within the context of fixed and variable expenses was the topic of research of Oberholzer and Ziemerink (2004). The goal of their research was to determine cost structures in big companies and they determined that there is a significant negative link between fixed costs and the level of technological development. They also determined that labor intensive companies have a large proportion of fixed costs and that most of those costs are labor costs compared to technologically advanced companies.

Novak and Popesko (2014) see cost structure within the context of direct and indirect costs and in their research they paid attention to the structure and cost behavior based on a random sample of companies that belong to the manufacturing sector in the Czech Republic. They figured that efficient cost cutting can be done by increasing the share of indirect costs in total costs due to use of cheaper raw materials, increase of distribution and communication costs that could benefit from market research costs, increased mechanization, automation and so on.

This topic was also researched in Croatia. The Belak and Vukušić (2001) research was conducted on 53 companies from areas of manufacturing, services, trade and finances. The sample included 54% of large companies, 40% of small businesses and 6% of medium-sized businesses. The research was done as a questionnaire survey and, among other things, showed the way of monitoring and managing costs in the sampled companies. It determined that a very high percentage (24%) of the sampled companies did not have a cost rationalization strategy and if they did, they rarely enforced cost-cutting measures in their entirety, while 4% of the sampled companies did not even control the process. Perčević (2006) researched the structure of production costs on a sample of 35 companies whose core business is manufacturing products and identified the most commonly used cost accounting methods. The results of the research show what is the most significant share in the structure of production costs in manufacturing companies in Croatia. The costs of direct material accounted

for 50% - 80% of total costs in all Croatian sampled subjects. The research also found that the Croatian manufacturing sector mostly uses traditional accounting methods that are characteristic for manufacturing sectors with a relatively low level of automation of production processes. Mihić (2009) research dealt with cost management in small and medium-sized manufacturing companies in Croatia. That research concluded that most small and medium-sized companies do not implement strategic cost management but instead opt for the traditional cost management model. Belak and Bulić (2011) have developed a model for cost management in times of crisis and in their research they managed to propose a cost reduction strategy in the following order: costs that have the least impact on revenue, costs that are easiest to cut and costs that have the biggest share in total spending. Ramljak and Rogošić (2012) investigated the implementation of strategic cost management methods for large Croatian companies in the context of cost reduction and control. The research has shown that 66% of the sampled companies used at least one of the strategic cost management methods. Dražić Lutilsky et al. (2014) researched which cost management models are used by companies in Croatia to support and maintain competitiveness. The research was done in 2012. and it sampled 70 Croatian companies and the result of this empirical research confirmed that Croatian companies do not apply adequate cost management models which then hinders their efficiency and competitiveness.

Based on a review of current research and available data, there was no research that considered cost structure analysis and cost cutting measures by comparing the costs of companies between different industries which has been established as the subject of this paper and its main scientific contribution. An additional contribution to science is the scope of empirical research, given that all active sampled companies were in business in 2014.

3. DEFINING SAMPLES AND RESEARCH METHODOLOGY

This research sampled and compared companies that are doing business within the sector of production and companies that stem from the services sector. Companies that were chosen to represent the production industry were food and drinks producers. Companies that were chosen from the intellectual services industry did bookkeeping, marketing, engineering, consulting or law.

The sample was selected from the Bureau Van DijkAmadeus database based on the following criteria:

1. The company was active in 2014.
2. The company published their financial statements for 2014.
3. The company is based in Croatia

4. According to the National Classification of Activities NKD-2007 (Narodne novine, 58/2007), the main activity of the company belongs in field C – processing industry, section 10 – food products production and field M – professional, scientific and technical activities, sections 69 – legal and accounting activities, 70 – management activities (management consulting), 71 – architectural activities and engineering, 72 – scientific research and development, 73 – marketing and market research and 74 – other scientific, professional and technical activities.

In this way, a representative sample of a total of 8,913 companies was formed. Subsequent deep analysis of the sampled data found that 430 enterprises made most of their revenue by doing business activities that were not registered as their main business, which is why they were excluded from the sample. Therefore, a final sample of 8,483 companies was obtained. A smaller amount of sampled companies, 891 of them, were in the manufacturing industry while the rest were a part of the service sector. After downloading all of the finances, all data was transferred to Microsoft Excel. Using function and formula, cost structure was determined for sampled companies. For the purposes of statistical testing, SPSS software package was used. Given the theoretical postulates related to cost management and the wide range of companies in Croatia as well as various activities they deal with, different approaches to cost cutting can be expected. The goal of this paper is to identify and analyze the cost structure on examples of manufacturing and service industries in Croatia to better determine and compare cost structures for any differences. Based on the final goal of the research, the following hypothesis was defined for the purposes of statistical testing:

H: There is a significant statistic difference in cost structure between companies that do business in different industries.

Since manufacturing companies use more material and work resources while creating products and since there are more automated business processes within their companies than in service companies that rely mostly on human capital, it is expected that companies from the manufacturing sector will have a higher share of material costs in the structure of total costs.

It is also expected that they will have a lower share of labor costs in the structure of total costs than those of service-related businesses.

After the subject and the objectives of the research have been determined and with the research hypotheses set, the following variables were defined: the share of material costs in total costs, the share of labor costs in total costs, the share of amortization costs in total costs, the share of financial costs in total costs, the share of extraordinary costs in total costs and the business activity of a business enterprise. These costs are relativized for maximum possible

comparability among the companies. This way, each company received a share of the individual cost within the total cost. The variable business activity of a business entity is determined on the basis of the NKD code according to which the Central Bureau of Statistics classifies businesses according to the activities performed in accordance with the regulations and appears in two modalities: production enterprises (NKD 10) and service companies (NKD 69 through 74)

4. RESEARCH RESULTS

Cost structure analysis is based on cost records analytics divided into sub-species and according to the reaction to the branch of industry the companies are involved with. The goal of this cost structure analysis is to determine the order of priorities of cost cutting measures. Cost structure according to the main categories depending on the branch of industry the analyzed companies are involved with is shown in Table 1.

Table 1: Cost structure by types of cost within different industries

	PRODUCTION INDUSTRY	SERVICE INDUSTRY
% financial costs	2%	2%
% extraordinary costs	1%	0%
% material costs	65%	43%
% labor costs	25%	46%
% amortization costs	7%	9%

Source: Authors' calculation (2016)

From the data available in Table 1 it is clearly visible that there is a significant difference between cost structures of production and service industries. Further analysis of production companies cost structure defined a characteristic cost structure within the production sector in Croatia. Production sector cost structure is dominated by material costs with a share of 65%, while labor costs sit at 25%. Cost structure analysis showed that the share of other expenses is mostly less than 10%, where 7% go to amortization costs, 2% to financial costs while extraordinary costs sit at 1%.

Cost structure within the service sector is dominated by labor costs with a share of 46% while material costs sit at 43%. Further analysis showed that amortization costs sit at 9%, financial costs at 2%, while extraordinary costs went down to 0%. A comparison of cost structures show that in the service industry a majority of the expenses are due to human resources, while in the production industry a majority of the expenses are due to material costs. The statistics show that companies that deal in production spend much more on

material in order to make their products, while companies from the service industry tend to spend more on engaging human capital.

Comparing the amortization costs with companies from the production industry and companies from the service industry it is clear that amortization costs have a higher share in total costs of the service industry than in the production industry. The service industry is more technically equipped in the sense that the industry is based in IT and other fine technical equipment. The specific characteristic of amortization costs is the fact that it's per-determined by prescribed rates. Compared to other types of cost, this item also differs from other costs because within the work cycle process it is impossible to talk about rationalisation, usual savings and cost cutting. Instead the process of transformation goes as scheduled by predetermined and proclaimed procedures and norms. (Kovačević, Vojnović, 2000: 336).

4.1. HYPOTHESIS TESTING AND DISCUSSION

With the data gained from results, the second part of the research consisted of a t-test with a goal to test the statistic significance of the difference of arithmetic middles to precisely determine cost structure variables in companies from the production and service industries.

The results of these tests are shown in Table 2:

Table 2: Results of the t-test

	t	df	Sig. (2-tailed)	Mean Difference	Standard error difference
% financial costs	1,218	1374,072	0,224	0,002057	0,001689
% extraordinary costs	1,617	1018,687	0,106	0,002131	0,001318
% material costs	33,532	1183,784	≈ 0,000	0,214297	0,006391
% labor costs	-36,73	1357,904	≈ 0,000	-0,20263	0,005517
% amortization costs	-4,658	1145,524	≈ 0,000	-0,01586	0,003404

Source: Authors' calculation (2016)

These results show that the t-test is statistically significant in the values of the variables of the share of material costs in total costs, the share of labor costs in total costs and the share of amortization costs in total costs in relation to the type of industry. Examining the statistically significant differences in the values of the variables of the financial costs share in total costs in relation to the type of industry, the results show that there are no statistically significant differences for those variables.

4.2. COST REDUCTION MEASURES SUGGESTION

According to the previously explained research results a priority sequence was constructed for optimal cost cutting for Croatian companies, both in the service and production industries. As seen in Table 3 and Table 4, while proposing cost cutting measures in manufacturing the priorities are material costs since they have the greatest share within the total cost. Given that labor costs have the biggest share within the cost structure of the researched sample of companies that deal with service activities it is only logical that cost cutting should be focused in labor costs.

Table 3: Cost reduction measures u proizvodnim poduzećima u Hrvatskoj

PRIORITY	TYPE OF COST	COST REDUCTION MEASURE
1.	material costs	<ul style="list-style-type: none"> • Cutting down on supplies cost (choosing more affordable suppliers) • Cutting down on shipping costs • Reducing extra waste and damaged goods • Optimizing the flow of materials, detecting bottlenecks • Cost control during the stage of product development (replacing expensive raw materials with cheaper ones if possible) • Changing the method of cost accounting
2.	labor costs	<ul style="list-style-type: none"> • Decreasing salaries while maintaining the same number of working hours • Cutting down on the number of working hours within a week • Cost cutting on Christmas and Easter bonuses • Cutting down on prolonging contracts for workers • Reducing the number of workers • Stimulative bonuses
3.	amortization costs	<ul style="list-style-type: none"> • Renting machinery and leasing property • Changing methods of amortization • Increasing the estimated lifetime of use • Calculating amortization at a lower rate in the case of equipment depreciation, physical wear and tear or reduced capacity • Letting go of useless property
4.	financial costs	<ul style="list-style-type: none"> • Shortening the delayed payment period for mandatory payments • Having better relationships with banks • Revising of short-term and long-term financing
5.	extraordinary costs	<ul style="list-style-type: none"> • Rationalization in managing company property

Source: Author of the paper (2016)

Table 4: Cost reduction measures within the Croatian service industry

PRIORITY	TYPE OF COST	COST REDUCTION MEASURE
1.	labor costs	<ul style="list-style-type: none"> • Improving work efficiency by eliminating redundant steps in the process • Simplifying work processes, linking similar tasks • Improving work efficiency thru staff education and training • Introducing stimulative bonuses or performance payments • Increasing use of technology (computers, software) • Reducing the fluctuation of employees (invisible low quality costs) • Applying non-cash prize programs for employees
2.	material costs	<ul style="list-style-type: none"> • Using technologies to simplify work processes • Rationalization of suppliers (higher discounts, long-term contracts) • Selling off unnecessary equipment and leasing property that isn't being used but demands maintenance costs • Cutting down on unplanned expenses by enforcing internal rules
3.	amortization costs	<ul style="list-style-type: none"> • Acquisition of technologically advanced long-term property and equipment by operational leasing
4.	financial costs	<ul style="list-style-type: none"> • Improvement in managing finances • Look for alternative means of financing
5.	extraordinary costs	<ul style="list-style-type: none"> • Rationalization in managing company property

Source: Author of the paper (2016)

5. CONCLUSION

Cost rationalization was so prevalent during the recession so it seems that it will remain a priority for some time in the future. It is for this reason that the aim of this paper is to analyze the types of costs in Croatian production and service industries and suggest cost cutting measures. The research has shown that the hypothesis has been confirmed. The results indicate to differences within the cost structure which is the basis for creating an order of priorities for their reduction.

Since the majority of costs within the manufacturing industry are material costs, cost-cutting measures should definitely be applied there. Table 3 shows cost-cutting measures suggestions while also showing a proposal for amortization calculations and amortization methods. However, their application is governed by accounting standards and companies do not have the freedom to pick any methodology. According to MRS2 and HSF110, the cost of inventory calculation methodology of choice could be the weighted average cost method or the FIFO method. In the context of short-term cost reduction, the FIFO method gives better results because the value of material is calculated with older prices that are usually lower. According to MRS 16, MRS 38, HSF1 5

and HSFI 6 amortization methods that can be used are: the linear method in which costs stay the same for a lifetime of use, the degressive method in which costs are reduced during a lifetime of use and the functional method where the costs are based on the expected use. By applying these methods the cost-cutting is not effective in the long run.

The service industry is dominated by labor costs and that should be the focal point of cost-cutting.

Future research on this topic should be expanded to other industries like trade and tourism since tourism is one of the most important industries in Croatia. Research can be also more accurate if the size of the companies is taken into consideration where cost-cutting measures are applied. The contribution of this paper is cost structure analysis and cost cutting measures development by comparing costs of companies that stem from different industries.

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USPOREDBA TROŠKOVA PROIZVODNIH I USLUŽNIH DJELATNOSTI U HRVATSKOJ I MJERE ZA SMANJENJE

SAŽETAK RADA:

Stvaranje proizvoda ili usluge odvija se uz zajednički angažman materijala, rada i imovine. Svojim angažmanom u poslovnom procesu ovi elementi se troše, a vrijednosni iskaz njihovog utroška za poduzeće predstavlja trošak. Kako bi se postigao optimalan odnos između troškova i ostvarenih rezultata nužno je kvalitetno upravljanje troškovima. Ono što mora predstavljati polazište u svakom upravljanju troškova je poznavanje strukture troškova. Cilj ovog rada je identificirati i analizirati strukturu troškova na primjerima proizvodnih i uslužnih djelatnosti u Hrvatskoj. Istraživanje je provedeno na uzorku od 8.913 aktivnih poduzeća koji posluju u djelatnosti proizvodnje hrane i pića, te djelatnosti intelektualnih usluga u Hrvatskoj. Dobiveni rezultati ukazuju na razlike u strukturi troškova na temelju kojih su predložene mjere za smanjenje troškova za svaku od analiziranih djelatnosti.

Ključne riječi: smanjenje troškova; proizvodna djelatnost; uslužna djelatnost