BENCHMARKING ANALYSIS OF FOOD CATERING SUBJECTS

B. Tesanovic[1], S. Jovic[2]
[1]Professor at Vojna Akademija MO, brate@verat.net
[2]Assitant, Vojna Akademija MO, sudimnja@gmail.com

***Abstract**: Using benchmarking method firms from the field of catering food were analyzed - military restaurants, "Dedinje" vojna ustanova doo, "Odrzavanje i usluge" doo - Novi Sad, "Odrzavanje i usluge" doo - Novi Sad and Nis Student Center. By the analysis of the elements included in the price of the daily ration of food was found that the student center Nis is a market leader in catering business. Comparison with the market leader, militarily restaurants may look way to reduce existing costs, which may help them to become new market leaders in catering food.*

***Keywords**: benchmarking, the market leader, militarily restaurants*

1. INTRODUCTION

In order to determine the effectiveness and efficiency of production and distribution of food in the organization of the Serbian Army (hereinafter VS) method of benchmarking analysis of microeconomic producers was applied. Using quantitative and qualitative indicators can be made a comparison of its own firm with a market leader in the business of catering services, determination of the reasons of the difference in performance.

Businesses that are observed are: 1) **military restaurants** (VR), 2) **"Dedinje" Vojna ustanova** (VU) 3) "Odrzavanje i usluge" doo - Novi Sad, 4) " Odrzavanje i usluge " doo - Novi Sad, and 5) Student Center Nis (SCN). Of these subjects, considering the number of employees, turnover, number of meals that are prepared daily, facilities for food preparation - three subjects (1), 2) and 5)) fall into the category of medium and large, and two (3), and 4)) in the category of small enterprises. All subjects, except the first, are profit-oriented. The number of employees is the same with 3) and 4) and smaller regarding 10, and with other over 30 persons. These data influence the costs per unit of prepared meals increasing them in case of 3) and 4), and lowering regarding other subjects. Selection of five selected subjects of analysis is sufficient for the implementation of benchmarking research process, and thus avoided the risk of misapplication of benchmarking, which relate to excessive number of analyzed subjects, rambling volume of data, and the prolongation of the study, difficult distinguishing between relevant and irrelevant results.[1]

[1] According to Djuricic Z., Ksenija Jovanovic and Djuricic R., the benchmarking process comprises defining the problem and collecting data, analyzing the collected data, the decision on the best solution, and application of solution. Benchmarking as the instrument of modern management, International Conference, Krusevac, 17 to 18. March, 2010, p. 141

2. RESEARCH RESULTS

Considering the relevant elements of the calculation, the price of the cost of service production and distribution of food in the considered subjects of the economy[2] is shown. In calculating the cost of one meal (d/o) for the Army transportation costs and salaries of employees are not included, as well as energy consumption,[3] which makes the wage lower. In calculating the cost of meals in the civilian, in accordance with the Law on Value Added Tax, at the current price it should add the tax, which increases the cost. [4]

The study subjects, considering the elements included in the calculation of prices, the percentage of costs are ranged as follows

Table 1: Calculation of the cost of the daily ration of food

No.	Elements of cost		Odrzavanje i usluge	Odrzavanje i usluge	SC Nis	VU „Dedinje“	BP
1.	Foodstuffs	RSD	504	540	251,5	735,5	300,1
		EUR	5,04	5,40	2,52	7,36	3,00
		%	60,00	61,78	60,60	78,53	61,62
2.	Water	RSD	4	9,3	22	0,75	69,7
		EUR	0,04	0,09	0,22	0,01	0,70
		%	0,48	1,06	5,3	0,08	14,31
3.	Electricity	RSD	7	84	28,2	41,15	39,2
		EUR	0,07	0,84	0,28	0,41	0,39
		%	0,83	9,61	6,80	4,39	8,05
4.	Heating	RSD	8,5	22	15,2	29,4	36,4
		EUR	0,09	0,22	0,15	0,29	0,36
		%	1,01	2,52	3,66	3,14	7,47
5.	Depreciation	RSD	43,5	42,2	38,4	2,2	18,6
		EUR	0,44	0,42	0,38	0,02	0,19
		%	5,19	4,82	9,25	0,25	3,83
6.	Transportation costs	RSD	90	62	26,7	21,63	23
		EUR	0,90	0,62	0,27	0,22	0,23
		%	10,71	7,09	6,43	2,31	4,72
7.	TRS	RSD	117	39,5	13	105,97	0
		EUR	1,17	0,40	0,13	1,06	0,00
		%	13,93	4,52	3,13	11,31	0,00

[2] The calculation represents methodology of determining the cost and selling price. The structure consists the cost of consumable materials, the cost of others' services (energy use), labor costs, depreciation, administrative and general costs of directing traffic (other dependable expenses). For the calculation of the cost of the daily ration of food, calculation method of full cost was applied. Zivota Rodosavljevic, (2001): Vojna Ekonomika, KUM, Belgrade, pp. 293 – 303.

[3] The exact use of energy - electricity and water can be determined by VR, since they do not have control of measuring instruments, so their consumption is determined from empirical methods, and estimates of average estimations.

[4] Official Gazette RS no.84/04, 86/04, 61/05 and 61/07

8.	Profit	RSD	66	75	20	0	0
		EUR	0,66	0,75	0,20	0,00	0,00
		%	7,86	8,58	4,82	0,00	0,00
9.	TOTAL	RSD	840	874	415	936,6	487
		EUR	8,40	8,74	4,15	9,37	4,87
		%	100,02	99,99	100,00	100,02	100,01

Source: General Logistics Department of Defense and commercial services in SC Nis, 2010

2.1. Cost of PP

Cost of PP range from 60% to 78.5%. The lowest cost had "Odrzavanje i usluge " doo - Novi Sad, and the highest - VU "Dedinje." The first falls into the category of small businesses, and it can be assumed that it has shown the percentage of lower order to take part in market competition. VU "Dedinje" PP procurement implement without the use of the PP and the purchase price significantly higher than other competitors. The amount of the cost of PP, which showed the VR and SC Nis, may be considered closest to the real market, since both subjects carry out PP purchasing by applying the *Law on Public Procurement*. Thanks to that, businesses realize the positive effects of economies of scale.
80% of respondent share the costs of PP purchasing is approximately 60% of the total cost structure. In 20% of analyzed subjects, the share of these costs amounted to almost 80% of the cost structure of the d/o food.

2.2. Energy consumption

Energy consumption of water, electricity and heating - ranging from 2.3% to 29.8% of the d/o food cost. The lowest amount of energy costs in the calculation of rates d/o has shown "Odrzavanje i usluge" doo, and the highest - VR. The main reason for the low share of energy consumption in the total cost of the calculation is the use of liquefied petroleum gas as primary energy sources, but in a few d/o that prepare, as a result of the high proportion of the impossibility of precise readings of their consumption, and its presumptive determination.
Since the SC has Nis measuring instruments for monitoring consumption, we can say that the share of their expenditure is closest to objective calculation cost. We must consider that energy prices differ from one place to another[5], and the type of energy used in providing services.[6]
With 40% of respondents, which may be classified as large companies, the way of determining the share of energy in the calculation of the structure is problematic since it is arbitrarily determined.

[5] Price of 1m3 water for businesses users on 02.08.2011 was - Novi Sad – 190RSD, Belgrade - 100 RSD, Kraljevo - 79 RSD, Krusevac - 86RSD, Nis - 70RSD. The price of electricity is unique on the territory of the Republic of Serbia, but it varies depending on the volume consumed and the amount of kwh.

[6] As the sources of thermal energy, analyzed business subjects were using the electricity, liquefied petroleum gas in certain situations fuel, which contributed to the difference in the amount of total cash expenditure.

2.3.Amortization

Depreciation ranging from 0.2% in VU "Dedinje" to 9.2% of the d/o food cost in SC Nis. A high percentage of depreciation in SC Nis conditioned by acquiring modern manufacturing techniques, with a shorter useful life and a higher percentage of annual write-off for faster renewing and monitoring of new technologies in the field of catering. In contrast with the VU "Dedinje", renewing period is much longer with a higher percentage of electricity consumption and frequent failures. Amortization of other analyzed subjects ranged from 3% to 5% of the total cost. In 60% of depreciation is accounted for 5% of the d/o cost. In 20% it has shown in a much higher percentage, as a result of technological obsolescence, and in 20% of respondents incorrectly set at low level.

2.4. The costs of food distribution

The costs of food distribution showed two analyzes subjects - "Odrzavanje i usluge" doo - Novi Sad and " Odrzavanje i usluge" doo - Novi Sad.
These entities signed up for the realization of catering services in the municipality of Novi Sad for 40 people located in seven different locations. With first mentioned subject, these costs accounted for 10% of the total cost, and with second 7%. Analysis of the remaining three subjects did not show these costs as part of the cost. Depending on the distance from the place of preparation to the place of distribution and the number of locations where food is necessary, these costs may seem about 10% of the total cost as estimated by author.
The problem of transport costs is represented on a smaller scale at VU because they do not have to comply with *Public Procurement Law (PPL*), the implementation of the procurement of products that are the subject of further sale or processing for sale.[7] This VU provides with an opportunity in the selection of suppliers who will purchase food products (PP) to take into consideration purchasing from nearby sources. Selecting a larger number of suppliers, geographically closer to the place of final delivery of products, transport costs are lower. This lowers the share of transport costs in the calculation of d/o, i.e. they become negligible at the same measure unit.
Costs of delivering are shown in 40% of respondents, who were also from the category of small enterprises, which were the only reported on an ad for food production and distribution in a number of distant objects.

2.5. Cost of labor

Labor costs ranged from 3.1% in SC Nis to almost 14% of the d/o food cost code in "Odrzavanje i usluge" doo - Novi Sad. Approximately the same share of these costs (4.1%) in the structure of cost achieves "Odrzavanje i usluge" doo - Novi Sad, while the VU "Dedinje" doo and "Odrzavanje i usluge" - make up about 11% of calculation. These VR costs were not displayed as a part of the d/o cost, as they would further burden the existing calculations. Labor costs are showing 80% of respondents, while the remaining 20% did not. Of the respondents that showed these costs, half of them were include them in the proportional amount of about 12%, and half in the amount of about 4% of the total d/o food cost.

2.6. Other dependable expenses

Two analyzed subjects - VR and VU “Dedinje”, presented other dependable costs. These costs

[7] Law on Public Procurements, art. 7

included the consumption of consumables. The same form 4.7% in the first and 2.3% of the price in the analysis of the second. Further analysis of the economic entities did not show these costs.

2.7. Profit rate

Profit rate ranges from 4.8% in the SCN to 8.6% for "Odrzavanje i usluge" doo - Novi Sad. In the scope of its d/o calculation price, VR and VU "Dedinje" did not display this element. The amount presented by SCN can be described in the achievement of economies of scale. Small business entities such as the remaining two subjects in their calculations accounted larger share of profits because they are incompetent on the market, and given the lack of interest of other market competitors, they can count on a higher amount of profit without fear of losing their jobs. 60% of total respondents display the share of profit in its calculation.

3. COMPARISON WITH THE MARKET LEADER IN FOOD CATERING SERVICES

Of all tested subjects, none showed all the elements necessary to produce the full d/o food cost. If we ignore the amount of other variable costs, 40% of the overall structure of the cost. The above percentage refers to the subjects who belong to category of small enterprises, which have low market share.

Almost all respondents identify companies for comparisons between, but only 20% of respondents generate new ideas. Private companies, 40% of respondents in this study, in order to survive in the market, trying to take jobs for which large business entities aren't interested.

Based on the above data, and discussing the number of d/o food being prepared, we can determine that the SC Nis gave the most realistic calculation of food price, with the presentation of almost all elements of the calculation, except for the food distribution costs, which could increase the cost structure shown up to 10%. If the defense system recognizes the need to keep VR, it is necessary, like in a restaurant in foreign armed forces, to introduce their profit orientation and facilitate their participation in the market. This would also contribute to reducing the opportunity and sunk costs, which VR has due to fact that production capacity is not fully used. Given the difference in the size of the analyzed volume of production, we can say that competence can be seen comparing VR and SC Nis.[8]

It is evident that SC Nis is the market leader in the field of service production and distribution of food[9], the same we can use to compare their own organization with the same order of finding

[8] "The size of the production volume adversely affects the comparability of the two companies due to the impact of fixed costs on the cost of capital. Fixed costs, namely, decline per unit of cost in proportion to the increase in production volume, which affects the total cost, which also decreases per unit of product, while increasing in production volume. Variable costs, however, remain unchanged (per unit), because they grow in proportion to the volume of production. Due to the legality, the cost, depending upon the volume of production will be different, which means that two companies, although they have the same structure of production, have different financial results."
Pejanovic R. (2009): Ekonomska analiza kao metod istrazivanja u agroekonomskoj nauci i struci, Agroekonomika Magazin, Faculty of Agriculture, Novi Sad, p.14.

[9] The introduction of food safety systems, SC Nis has achieved the following benefits - improving quality, increasing the number of persons for whom food is prepared due to the increased interest by customers after the introduction of this system, the establishment of a stable supplier system, the manufacturing process has been completed; individualized responsibility of each person.

the best business practices to help ensure long-term competitive advantage. Comparison with the market leader such as SC Nis is necessary to increase business efficiency by establishing a more efficient organizational structure.

VR capacity utilization ranges from 10 to 40%, allowing for cost reductions in the future if the increased number of d/o is being prepared. If we compare data with the same indicators of SC Nis, we can see that it is present in about 50%. Since the VR prepares about 10,000 d/o food and that they are not profit oriented, we cannot talk about revenues. Average amount of expenditures incurred by the calculation shown is 487 dinars per meal. The same indicators for SC Nis amount 415 dinars per meal i.e. daily revenue is 1.24 million dinars or daily expense is 395 dinars/meal i.e. daily 1.18 million, creating per d/o more than 20 dinars i.e. 60,000 dinars per day.[10]

If we compare the individual elements, which form an integral part of the d/o food cost structure between these two competitors, we can say:

• Expenditure of funds for the PP procurement in one meal is lower by 48.6 dinars in SC Nis so the costs of SC Nis compared to VR at daily level of 145 800 dinars lower. Time costs of labor per measurement unit are higher in VR in relation to SC Nis.

• Expenditure of funds for payment of the energy consumed for one meal is lower for 79.9 dinars in SC Nis, and the costs of SC Nis compared to VR are lower for 239.700 dinars at daily level.

• The amount of funds that are written down on depreciation for one meal is higher by 19.8 dinars in SC Nis so the expenses of SC Nis in relation to VR on a daily basis are increased by 59.4 thousand dinars.

• Expenditure of funds intended for payment of other related cost per meal is higher by 3.7 dinars in SC Nis and the expenses of SC Nis in relation to VR on a daily basis are increased by 11.100 dinars.

• Expenditure of funds intended for payment of the cost of labor, which is calculated in the calculation of SC Nis per serving of food is 13.0 dinars so the expenditures in SC Nis in relation to VR on a daily basis are increased by 39.000 dinars. These costs are not accounted for in calculating rates of d/ o food prepared in the VR.

Based on this data it can be found that VR has on a daily basis has 276.000 dinars (2,760 Euros) higher cost relative to SC Nis, despite the fact that the VR calculation doesn't include labor costs.

4. RESUME

The analysis of these expenses show the possibility of reducing the same VR, if we take the appropriate changes in organizational structure, increased engagement of installed technical capacity, faster updating techniques, VR certification in accordance with the requirements of the Law on Food Safety, installing alternative energy sources (electricity, liquid petroleum gas, photo cells, etc.), profit and market orientation. Normative framework that regulates the VR, it is not upgraded in accordance with the need of market orientation, and should be upgraded. According to the author, as long as the system does not solve market orientation of VR it will operate with losses, too many employees in relation to real needs, so the extent of depreciation will not be realistically assessed.

Infrastructure of VR is presented to objects whose surfaces beyond the needs of the daily number of meals being prepared. The technique is obsolete, often corrupt, and its maintenance

[10] Data for the preparation of 3000 d/o food were compared

cost further increases the production of food. Advanced training in the form of additional training of the skills and knowledge of professional and specialist staff of VR should be raised to a higher level, and with the same number of employees can be produced and distributed a great number of d/o food.

One possibility, which may lead to lowering the total cost of VR, is a transfer of production and distribution of food for the needs of the Army to responsible legal entities such as the SC Nis, who possess the required international and domestic standards for food safety, renting production facilities are equipped with means, with compensation in the form of preparation of a number of d/o food. This would reduce the amount of investment required for the introduction of HACCP, reduce the energy costs and increased food security of the Army.

It is necessary to exploit the comparative advantages that VR has - a great capacity of working resources, competence of employees, professional and specialist staff, attractive location, lower costs due to implementation of procurements, etc. These effects of economies certainly lead to lower procurement costs, production and sales.

BIBLIOGRAPHY

1. Đuričić Z., Jovanović Ksenija i Đuričić R. (2010): Bendžmarking kao instument savremenog menadžmenta, Međunarodna naučna konferencija, Kruševac,
2. Figar Nadica (2003): Troškovi preduzeća, SVEN Nis,
3. Života Rodosavljević, (2001): Vojna ekonomika, KUM, Beograd,
4. Pejanović R. (2009): Ekonomska analiza kao metod istraživanja u agroekonomskoj nauci i struci, časopis Agroekonimika, Poljoprivredni fakultet, Novi Sad,
5. Rodić J., Vukelić Gordana i Andrić M. (2007.): Teorija, politika i analiza bilansa, Poljoprivredni fakultet, Zemun.
6. Zakon o javnim nabavkama,
7. Službeni glasnik RS br.84/04, 86/04, 61/05 i 61/07