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Original scientific paper

SOCIAL DIMENSION OF SUSTAINABLE COMPETITIVENESS OF SERBIA AND SELECTED EUROPEAN COUNTRIES

UDC 502.131.1:339.137.2(497.11+4)

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Abstract. *The central idea of sustainable competitiveness is the quest for a model of development that would balance economic prosperity, social sustainability and environmental management. This paper analyzes the social aspect of sustainable competitiveness with the aim of determining the relative position of the Republic of Serbia in relation to selected most competitive and least competitive European countries (according to the value of Social sustainability–adjusted GCI). The basic assumption is that improving sustainable competitiveness of countries must not be done in such a way that economic, social and environmental dimensions of competitiveness are treated as conflicting categories. Based on the data of World Economic Forum, quantitative, qualitative and graphical analysis of the social dimension of sustainable competitiveness of Serbia in relation to the six most competitive and six least competitive countries in Europe (including Serbia) are presented. Using simple correlation and regression analysis, the interdependence of the Global Competitiveness Index and the Social Sustainability Pillar of observed countries is examined.*

Key words: *sustainable development, sustainable competitiveness, social dimension of sustainable competitiveness*

INTRODUCTION

In the current context of globalization, competitiveness constitutes a major economic objective frequently invoked by economic policy-makers worldwide (Pérez-Moreno et al., 2015). In economic theory, there are different views and definitions of competitiveness. A number of researchers insist on the distinction between competitiveness of enterprises and the

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competitiveness of countries. Basically, what distinguishes the country's competitiveness from the competitiveness of enterprises is the process of creating economic value in society. The economic value is created only by enterprises whereas the country can establish an environment that supports or hinders the activities of enterprises (Stoneman, 1995). In this context, some economists reject the very logic of the use of the term competitiveness of the country (Krugman, 1994). However, most economists agree in their assessment that the 21st century will be a period of global economic competition, thanks mainly to the growing importance of knowledge, education and innovation in the development of economy and society (Dragicevic, 2012). In addition, clean technologies and eco-innovations are key factors to maintain and/or improve economic competitiveness and secure environmental sustainability of different sectors and the economy as a whole (Coenen & Díaz López, 2010).

In modern business conditions, special attention is paid to international competitiveness, regardless of whether the individual products, companies, industries or the national economies are considered. International competitiveness is a condition in which a country can, under free and fair market conditions, produce goods and services that meet the demands of the world market, while maintaining or increasing the real income of its citizens (Hatzichronoglou, 1996).

The study subject of competition oriented economic reality is the focus on successful enterprises, industries, countries or group of countries. In contrast, any theoretical understanding of this phenomenon is inevitably linked to reductions and simplifications. Only a small number of differences among the participants, leading to differences in the studied countries, industries or companies, can be taken into account, while the far greater number of them must be disregarded. The most frequently used differences in explaining the causes of competitiveness lie in the various offers of factors of production such as labor and capital, unevenly available technologies, different possibilities for utilization of economies of scale, etc.

Conceptual term sustainable competitiveness involves treatment of the phenomenon of competitiveness in the light of the demand of the paradigm of sustainability, which is a research approach that links the requirements of economic development, environmental protection and the improvement of social life (Filipovic & Despotovic, 2014; Cvetanovic et al., 2014). So, in order for sustainability to be achieved, it is important that these three components are given equal attention. However, until the end of the previous century, debates about sustainable competitiveness were dominated by environmental and economic dimensions. Although the social sustainability was treated as one of three basic dimensions of development, it has not been recognized as an individual field of theoretical analysis, empirical verification and practical application until the last ten years (Mirkov, 2012).

Contribution to the operational use of the concept of sustainability, especially with regard to the simultaneous treatment of its economic, social and environmental dimensions is an approach to measure the competitiveness of countries by World Economic Forum that started in 2011.

The subject of this paper is the analysis of the social aspect of sustainable competitiveness. Giving attention to the phenomenon of the social dimension of competitiveness, it should be noted that this is a new area of research (Stiglitz et al., 2009; Despotovic et al., 2015), and that there is not a large number of empirical analyses of this phenomenon in the literature. The problem that is being investigated in this paper may be reduced to the question: what is the

relative position of the Republic of Serbia according to the criteria of the social dimension of sustainable competitiveness in relation to the most competitive and least competitive European countries according to data of the World Economic Forum? With the aim of achieving an acceptable answer to this question, we compared indicators of the social dimension of sustainable competitiveness of Serbia with corresponding indicators of six European countries that have the highest rank (Denmark, Netherlands, Finland, Germany, Norway and Switzerland) and five countries that have fallen to last positions (Croatia, Romania, Greece, Moldova and Macedonia) according to the criterion of Social sustainability– adjusted GCI in Europe in 2014. The relationship between the Global Competitiveness Index (GCI) and the Social sustainability pillar of selected countries in 2014, was analyzed using simple linear correlation analysis.

1. SUSTAINABLE COMPETITIVENESS: THE METHODOLOGY OF THE WORLD ECONOMIC FORUM

The Global Competitiveness Report 2011-2012 (Schwab & Sala-i Martin, 2011), in addition to GCI also presents a *Sustainability-Adjusted Global Competitiveness Index* - SGCI. This index is introduced in its preliminary version with emphasis on the analysis of social and environmental elements that maintain high levels of long-term economic competitiveness. The index includes mainly all the elements presented in the GCI, which are important for understanding the competitiveness of countries in the short and long term (governance, education and health, infrastructure, the functioning of markets and innovation), but also a number of additional indicators (demography, social cohesion, environmental management). In this way, GCI is a short-term and medium-term view of the future, while the *Sustainability– adjusted GCI* presents a long-term view (for 20 years) on the phenomenon of competitiveness of countries. Such an approach makes it possible to highlight the link between competitiveness and sustainability (Fig. 1).

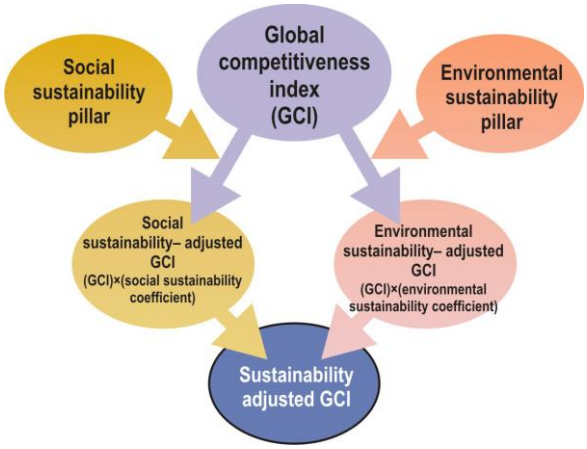

Fig. 1 The analytical framework of the sustainability–adjusted GCI
(Modified according to Blanke, 2013, p. 52)

The ultimate sustainability (according to the analytical framework) is the result of two indices of sustainability: *Social sustainability–adjusted GCI* and *Environmental sustainability–adjusted GCI.* For the pillar of social sustainability the three following conceptual elements are defined: access to essential needs, economic exclusion and social cohesion. For the pillar of environmental sustainability the following three conceptual elements are defined: environmental policy, the use of renewable resources and the degradation of the environment.

Presentation of the analytical framework in Fig. 1 indicates that competitiveness alone does not necessarily lead to a sustainable level of prosperity. The realization of economic progress is essential for improving living standards. However, within this process the ability of countries to generate prosperity for its citizens in a sustainable manner is assessed. In other words, competitiveness is a necessary, but not a sufficient condition for social prosperity. Hence, there is a need for measures of competitiveness that are tailored to the requirements of social and environmental sustainability.

The methodology for measuring sustainable competitiveness index is based on the premise of a linear impact of socially sustainable and environmentally sustainable dimension of competitiveness. The result is a *Sustainability– adjusted GCI* as the average of *Social sustainability–adjusted GCI* and *Environmental sustainability–adjusted GCI*. Social and environmental dimensions of sustainability are treated as independent adjustments for the performance of each country in the global competitiveness index.

Since there is no clear theoretical guidance for assigning weights to individual elements, indicators were given equal weight within each pillar. Each pillar was transformed into an "adjustment coefficient" with a range of 0.8 to 1.2, which is then used to match the results of the global competitiveness index up or down within this range. This is manifested in a harmonized result that is maximum 20% lower or 20% higher than the basic value of the global competitiveness index.

Due to the fact that some of the aspects of sustainability are assessed within the pillars of social and environmental sustainability, the results reflect the overall performance of all aspects instead of a particular element. In a sense, this means that the poor performance in some aspects can be compensated by good results in other areas.

Instead of the 144 economies covered by GCI, in the analysis of sustainable competitiveness of the World Economic Forum for 2012 a sub-sample of 79 countries was presented, and in 2013 it was expanded to 121 countries. The availability of data is a major challenge and limitation in this procedure, because for many of the used concepts, there are no measures or data are available only for a limited number of countries.

2. SUBJECT, RESEARCH METHODOLOGY AND HYPOTHESES

This research is focused on the position of indicators of social sustainability of Serbia in relation to the six most competitive and six least competitive countries in Europe in 2014, as well as their impact on the competitiveness of the surveyed countries.

The survey was conducted in the following four steps:

- search and analysis of the reference framework is carried out and the data collected,
- the data is then filtered, aggregated, and structured according to the needs of further analysis,
- the position of Serbia and the observed group of countries is shown tabularly and graphically according to:

  - three groups of parameters of social sustainability,
  - global ranking of index of sustainable competitiveness (SGCI) as well as its social component,
  - SGCI values and its social component
- at the end statistical methods of linear correlations analysis of the based competitiveness (GCI) and social components SGCI (*Social sustainability pillar*) are applied for all of surveyed countries.

On the basis of analytical framework of sustainable competitiveness, the following hypothesis are stated:

- H1: There is a significant difference in the achieved level of Indicators of social sustainability between the six most competitive countries and the six least competitive countries in Europe (including Serbia),
- H2: There is no significant difference in the achieved level of Indicators of social sustainability between Serbia and the six least competitive countries in Europe,

The hypothesis H1 is logical as the group of the most competitive countries comprise democratically organized societies with the oldest tradition of freedom and harmony. However, at first glance, this axiom is not necessarily true for all observed indicators (Fig. 2), so that, this claim requires a more detailed analysis of the available data.

The hypothesis H2 seems also logical because Serbia geographically, economically but also in terms of the achieved level of democratic values of modern civil communities can join the group of the least competitive countries in Europe. However, as with previous hypothesis, the accuracy of this statement for all observed indicators of the social component of sustainable competitiveness index cannot be accepted without detailed analysis.

3. A COMPARATIVE ANALYSIS INDICATORS OF SOCIAL SUSTAINABILITY

This research is focused on the position of indicators of social sustainability of Serbia in relation to the six most competitive and six least competitive countries in Europe in 2014, as well as their impact on the competitiveness of the surveyed countries.

Using data on sustainable competitiveness in the Global Competitiveness Report 2014-15 (Bilbao-Osorio et al., 2012), in this part of the paper a comparative survey of indicators of the social sustainability of the Republic of Serbia and selected most competitive (Switzerland, Norway, Netherlands, Germany, Denmark, Finland) and least competitive countries in Europe (Greece, Macedonia, Moldova, Romania, Croatia) is presented.

For social sustainability, the Forum identifies three conceptual elements (Fig. 2).

Fig. 2 Indicators of social sustainability
(source: Blanke (2013))

The first category depicts the population access to the basic necessities of life (Table 1). It includes three indicators: access to sanitation facilities, access to drinking water of improved quality and access to health care services. This category is a measure of inclusion, as well as a measure to satisfy basic physical needs. The population that has poor access to water, food, shelter, health care and sanitation facilities cannot fully develop their creative potential.

Graphical Visualization of analyzed variables is given in Figures 3-5, where the observed characteristics by selected groups of countries are defined as the average of the results that countries in the studied groups achieved in the particular domain of social sustainability.

Table 1 Access to basic necessities
(source: Bilbao-Osorio et al. (2012))

	Country	Access to sanitation facilities [1] %	Access to drinking water of improved quality [2] %	Access to health care services [3] Score (1-7)
1	Denmark	100.00	100.00	6.39
2	Finland	100.00	100.00	6.42
3	Germany	100.00	100.00	6.32
4	Netherlands	100.00	100.00	6.59
5	Norway	100.00	100.00	6.73
6	Switzerland	100.00	100.00	6.81
	Average	100.00	100.00	6.54
1	Croatia	98.00	99.00	5.25
2	Greece	99.00	100.00	4.69
3	Macedonia, FYR	91.00	99.00	5.01
4	Moldova	87.00	97.00	4.29
5	Romania	72.00	88.00	3.95
6	Serbia	97.00	99.00	3.99
	Average	90.67	97.00	4.53

[1] Percentage of total population using improved sanitation facilities [2] Percentage of the population with access to improved drinking water quality [3] How accessible is healthcare in your country?
[1 = limited - only the privileged have access; 7 = universal - all citizens have access to healthcare]

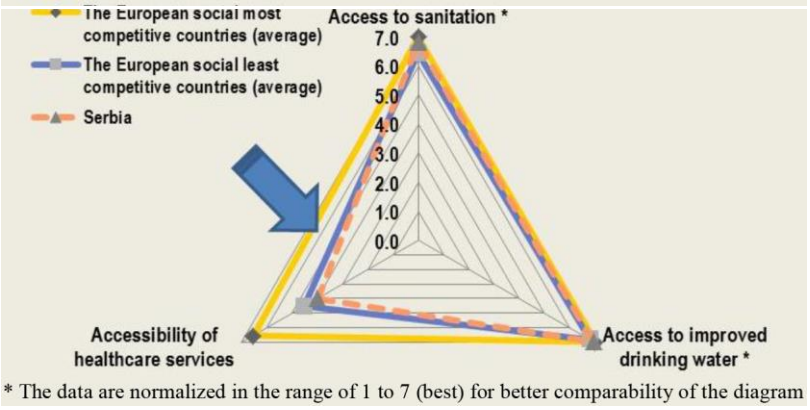

Fig. 3 Comparison by elements of access to basic necessities

Comparative survey in Fig. 3 indicates the parameters about access to basic necessities within the expected relations. The least competitive countries as a group, slightly lagging behind in all observed performances in the field of access to basic necessities, with the biggest problem identified in access to health care (sustainable competitive countries in Europe have a better result of this parameter for nearly 40%). Furthermore, it is evident that Serbia regarding the first two parameters is slightly ahead in relation to the average value within the group of least sustainable competitive European countries, while the parameter of access to health care is much worse than the average for this group. This indicates that in respect to the first two parameters, all European countries reached almost maximum availability, while for the much more sophisticated parameter of access to health care, there are still considerable differences among European countries.

The second category is associated with the concept of perceived economic security (Table 2). It evaluates the vulnerability of the population to economic exclusion. There are three indicators by means of which the vulnerability of the population is evaluated: vulnerable employment as a percentage of total employment, the extent of informal economy and security in the form of social safety net. Vulnerable employment indicator measures the percentage of people who are self-employed in small enterprises or in small family firms, which cannot provide the level of income sufficient to meet the standards of living, and may prove to be an unstable measure, especially in times of economic hardship. The extent of the informal economy provides a picture of how well the workforce is integrated into the official structures. The workforce that is less integrated makes workers to be more vulnerable to concerns about job loss, aging, maternity, disability or illness. Third, security in the form of social safety net is

Table 2 Economic exclusion
(source: Bilbao-Osorio et al. (2012))

	Country	Social safety net protection [1] Score (1-7)	Extent of informal economy [2] Score (1-7)	Vulnerable employment [3] %
1	Denmark	6.05	5.71	5.60
2	Finland	6.13	6.30	9.60
3	Germany	5.67	5.45	6.80
4	Netherlands	5.84	6.10	11.50
5	Norway	6.14	6.20	5.20
6	Switzerland	6.03	6.18	9.10
	Average	5.97	5.99	7.97
1	Croatia	3.15	4.61	16.50
2	Greece	3.41	4.18	29.70
3	Macedonia, FYR	3.90	5.06	22.10
4	Moldova	2.76	3.69	28.60
5	Romania	3.84	3.86	31.50
6	Serbia	2.83	4.35	26.40
	Average	3.32	4.29	25.80

[1] In your country, does a formal social safety net provide protection from economic insecurity due to job loss or disability? [1 = not at all; 7 = fully]
[2] How much economic activity in your country would you estimate to be undeclared or unregistered? [1 = most economic activity is undeclared or unregistered; 7 = most economic activity is declared or registered]
[3] Proportion of own-account and contributing family workers in total employment

an additional measure of protection in times of financial and economic instability; it allows households to maintain their quality of life and overcome the crisis without falling into the poverty traps. Safety protection also leads to a sense of financial security that allows individuals to undertake investment and entrepreneurial risk, acting on stimulating economic activity.

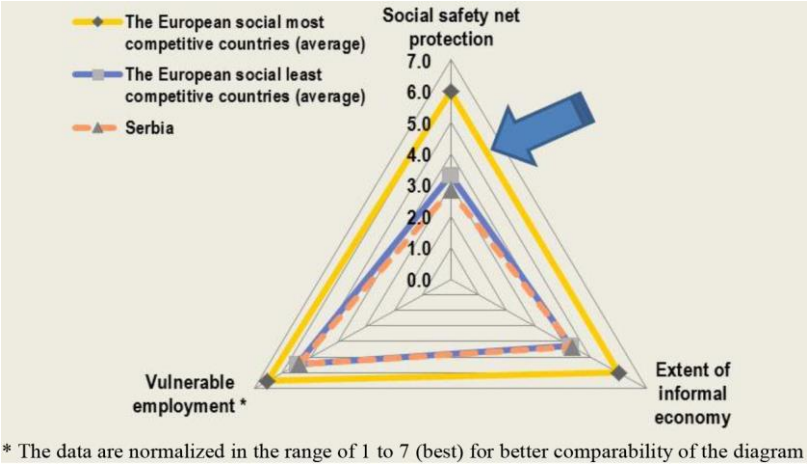

Fig. 4 Comparison in the area of economic exclusion

Considering parameters describing vulnerability to economic exclusion, the group of the most sustainably competitive countries in Europe has significantly and expected better score than the group of least sustainable competitive European countries (Fig. 4). The difference in values of social safety net protection, and extent of informal economy is about 40% in favor of sustainably most competitive countries in Europe. In the third parameter of vulnerable employment, the difference in favor of sustainably most competitive European countries is more disconcerting and on average reaches a ratio of 1 to 3.5 (individually exceed the ratio of 1 to 6). It is noticeable that Croatia, considering the parameter *vulnerable employment*, moved closer to more successful half of the European countries, in contrast to Moldova, which is for all three parameters almost at the end of the group of least sustainably competitive European countries.

The third and last category estimates social cohesion (Table 3 and Fig. 5). The assessment includes three indicators: the *Gini coefficient*, social mobility and youth unemployment. The Gini coefficient is included in the index of social cohesion due to the fact that relative poverty may prevent families with low incomes to have access to the same opportunities as families with high incomes. For indicator of social mobility in the context of sustainable competitiveness, it is crucial that the next generations can improve their condition regardless of the socioeconomic status of their parents. From a purely economic perspective, the absence of such social mobility can be harmful to human capital development, as qualified individuals in a society that does not support them in progress, could decide to emigrate; if they stay, the economy in which they live will not improve their skills. In addition, the low expectations of the future regarding expressive unemployment and inequality, can also converge to encouraging political instability. Thirdly, in the wider conceptual level, social mobility is a direct measure of the freedom of manifesting human development. Finally, high youth unemployment can reduce social cohesion and cause significant economic and social costs, depreciating overall earnings

during the working life of unemployed workers, acting negatively on their health and putting at risk the health and educational success of children of unemployed parents. From an economic point of view, high youth unemployment reflects the failure of society to mobilize existing resources and build productive potential, which in turn acts on the reduction of demand, eroding business confidence and the prospects for investment and job creation.

Table 3 Social cohesion
(source: Bilbao-Osorio et al. (2012))

	Country	Gini index [1] %	Social mobility [2] Score (1-7)	Youth unemployment [3] %
1	Denmark	28.10	6.06	14.14
2	Finland	25.90	6.39	18.96
3	Germany	28.30	5.54	8.13
4	Netherlands	25.40	5.90	9.48
5	Norway	22.60	6.26	8.46
6	Switzerland	28.70	6.35	8.44
	Average	26.50	6.08	11.27
1	Croatia	30.50	3.67	43.05
2	Greece	34.30	3.89	55.26
3	Macedonia, FYR	43.56	4.14	53.91
4	Moldova	33.03	3.39	13.09
5	Romania	33.20	3.43	22.68
6	Serbia	29.62	3.04	51.05
	Average	34.04	3.59	39.84

[1] Measure of income inequality [0 = perfect equality; 100 = perfect inequality]
[2] To what extent do individuals in your country have the opportunity to improve their economic situation through their personal efforts regardless of the socioeconomic status of their parents? [1 = little opportunity exists to improve one's economic situation; 7 = significant opportunity exists to improve one's economic situation]
[3] Youth unemployment measured as the ratio of total unemployed youth to total labor force aged 15-24

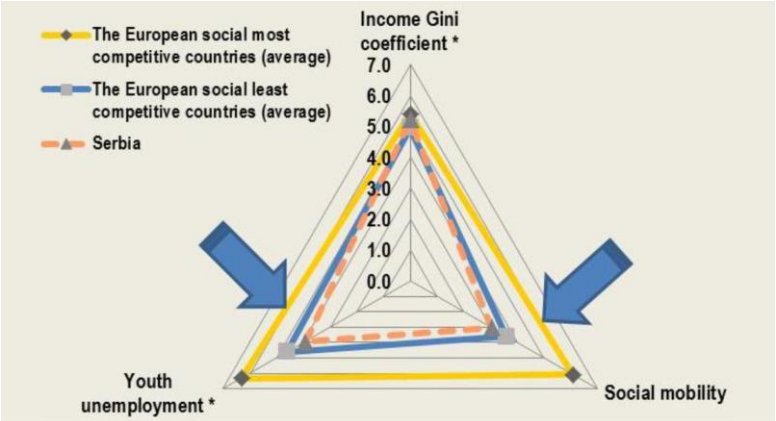

Fig. 5 Comparison in the field of social cohesion

Social cohesion (Fig. 5) is the third group of parameters by which the social dimension of competitiveness of countries is examined. Available data illustrate the existence of a significant gap between the selected group of sustainable competitive and sustainable uncompetitive European countries. The most expressive difference is observed in the parameter of youth unemployment and in some countries it exceeds the ratio of 1:5 in favor of sustainable competitive countries. Particularly worrying is the fact that considering this parameter, in addition to generally poor results in group of sustainable uncompetitive European countries, Serbia has by far the worst position compared to all observed countries. A very similar situation is also observed for parameter of social mobility, where the difference in favor of sustainable competitive countries exceeds 40% and Serbia ranks the penultimate place immediately after Romania. The only parameter where Serbia shows a stronger affiliation to the group of sustainable competitive European countries is the Gini coefficient. According to this coefficient, Serbia is by far the first in the group of sustainable uncompetitive European countries, and is even better than Germany and Switzerland from the group of the most sustainably competitive European countries. As far as the group average, there is a significant difference in favor of group of sustainable competitive countries, but it is not as drastic as in the two previous parameters of social cohesion.

The aforementioned information, as well as graphical representations, unambiguously confirm the correctness of the hypothesis H1, because they show an evident gap between Serbia and the group of least competitive European countries in relation to European leaders for all indicators of social component SGCI.

The hypothesis H2 is also proven in the sense that the values of almost all observed indicators for Serbia are in the average range (±15%) for group of least competitive countries in Europe. Indicators that fall out of the average range of ±15% are youth unemployment rate, which is in Serbia 22% weaker than the average for observed group of the least competitive countries.

4. COMPARATIVE REVIEW OF GCI, SUSTAINABILITY-ADJUSTED GCI AND THE SOCIAL SUSTAINABILITY– ADJUSTED GCI

With the aim of coming up with an answer to the question of whether incorporating social sustainability requirements lowers the basic competitiveness (which is represented by GCI), in this section the positions and values of following indices for Serbia and two selected groups of European countries are compared: *Global Competitiveness Index*, a *Sustainability– adjusted GCI* (GCI adjusted to overall environmental and social dimension of competitiveness) and *Social sustainability– adjusted GCI* (GCI suited only to the social dimension) (Table 4).

The data contained in Table 4 clearly show that the most competitive economies are also highly ranked according to requirements of total and social sustainability.

The distribution of the *Social sustainability– adjusted GCI* and *Sustainability– adjusted GCI* (environmentally and socially) for group of sustainable competitive European countries is shown in Fig. 6.

Table 4 Rank and value of observed indices
(source: Bilbao-Osorio et al. (2012))

	Country	Global Competitiveness Index (GCI)		Sustainability-adjusted GCI		Social sustainability–adjusted GCI	
		Score (1-7)	Rank (out of 144)	Score (1-7)	Rank (out of 79)	Score (1-7)	Rank (out of 79)
1	Denmark	5.33	12	5.91	10	6.14	7
2	Finland	5.45	8	6.18	3	6.38	4
3	Germany	5.53	4	6.18	4	6.36	5
4	Netherlands	5.50	5	6.13	5	6.39	3
5	Norway	5.41	11	6.28	2	6.43	2
6	Switzerland	5.76	1	6.80	1	6.75	1
	Average	5.50		6.25		6.41	
1	Croatia	4.07	77	4.14	55	4.06	59
2	Greece	4.02	81	3.97	62	3.85	68
3	Macedonia, FYR	4.28	60	3.90	64	4.13	54
4	Moldova	4.00	84	3.98	61	3.98	63
5	Romania	4.32	53	4.17	53	4.13	53
6	Serbia	3.89	94	3.77	73	3.68	76
	Average	4.10		3.99		3.97	

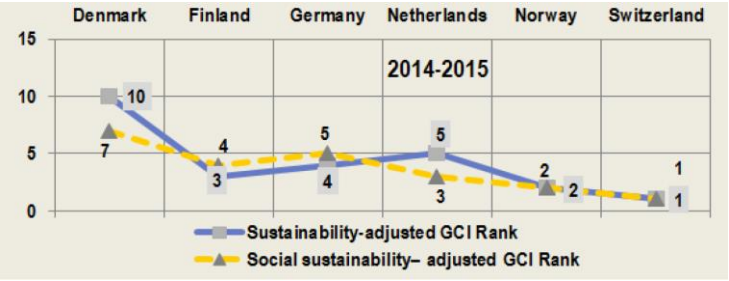

Fig. 6 The ranks of the observed indices for European socially most competitive countries

Countries such as Switzerland and Norway are leaders in ranking regarding both indicators. Switzerland is ranked as first according to the *Sustainability– adjusted GCI*, has good performance in all aspects of sustainable competitiveness, and shows that there is no necessary relationship between the compensation of being socially sustainable and competitive enough.

A slight misalignment of these aggregates is noticeable in some countries (Denmark and Netherlands have a significantly better social sustainability than the total, while Finland and Germany have a weaker social sustainability than the overall sustainability).

Fig. 7 illustrates the distribution of *Social sustainability– adjusted GCI* and *Sustainability– adjusted GCI* for the least competitive European countries. In some countries in this group, the imbalance of these values is more expressive than in the group of sustainably competitive countries (Macedonia and Greece, for example), while for some almost the same position for overall and socially sustainable competitiveness is noticeable (Moldova and Romania). It is interesting that there is a shift in all countries in this group (except for the Macedonia) in favor of the social component in relation to the composite value i.e. the Sustainability–adjusted GCI.

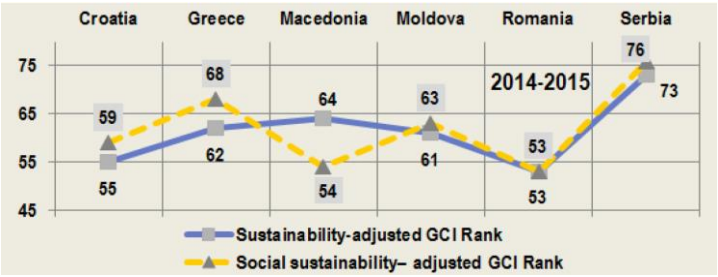

Fig. 7 The ranks of the observed indices for Serbia and European socially least competitive countries

Bearing in mind the fact that the social dimension of sustainability is becoming an increasingly important component of the competitiveness of countries, it seems useful to show its impact on the global competitiveness index.

Based on the Fig. 8, it can be generally concluded that in terms of competitiveness, including the social dimensions of sustainability, for leader countries the competitiveness that is reflected in the *Social sustainability– adjusted GCI* increases, while for the least competitive countries already modest competitiveness reduces further (an exception is Moldova).

It is noticeable that Serbia ranks the last according to the *Social sustainability– adjusted GCI* even in its immediate environment (Fig. 8).

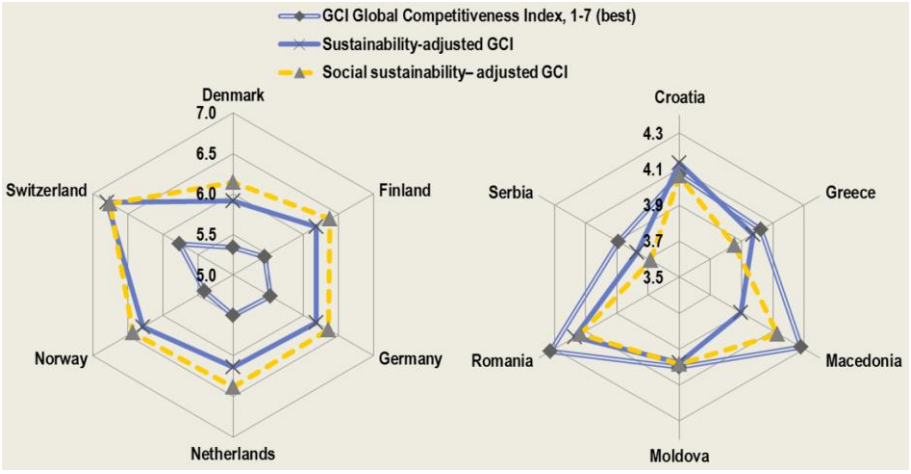

Fig. 8 The ranks of the observed indices for both groups of countries

5. INTERDEPENDENCE OF GCI AND SOCIAL SUSTAINABILITY PILLAR

Typically, higher levels of competitiveness lead to higher levels of economic growth, and therefore to prosperous societies, increasing the well-being of the population that can consume more accessible goods and services. However, in some cases - when the generated wealth does not reach some parts of the population, higher levels of competitiveness need

not necessarily lead to higher levels of social sustainability. The societies in which parts of the population cannot contribute to economic activity, or where income disparities are very high, are societies that probably do not benefit from the full potential of their resources and are more prone to social instabilities.

In order to examine the character and significance of the relationship between the GCI and social sustainability pillar, the scatter diagram and the best linear fit of the aforementioned variables for the 12 surveyed countries are presented in Figure 9.

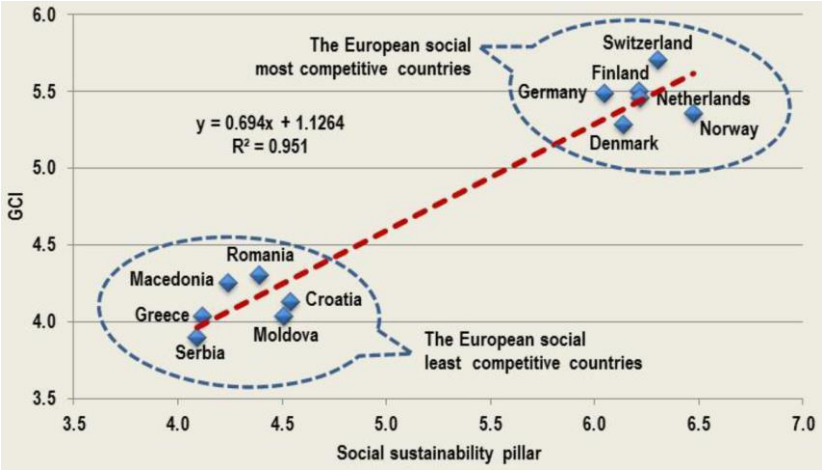

Fig. 9 Interdependence of the observed variables selected countries in 2015

Position of the selected leader and learner groups as a peripheral zone of entire population of European countries, shows an evident gap between them regarding both traditional economic competitiveness and socially sustainable competitiveness. In addition, not going into discussion about regression character of the mutual influence of the observed aggregate variables, it is evident that they have a strong correlation potential that should be explored, preferably in the context of the entire population of the European economy and in the longer time series. However, since the WEF in its GCI framework has not been monitoring the indicators of social and environmentally sustainable competitiveness until 2012-13, there is a significant constraint due to relatively small amount of available data, which narrows the usage of time lag analysis. What remains is the possibility of using additional sources for specific indicators of social sustainability pillar that are more or less available.

CONCLUSION

Research on the social dimension of the sustainable competitiveness of Serbia and selected countries has shown that the least competitive European countries as a group are significantly lagging behind the most competitive countries in most indicators in the field of social sustainability.

The most important differences are reflected in the measure of access to health care in the field of the first category of social indicators. The parameters of access to sanitation

facilities and access to drinking water of improved quality are almost equalized with a very small shift in favor of sustainable competitive countries, while for the parameter of access to health care, the difference between groups is almost 45% in favor of group of sustainable competitive countries. This tells us that regarding the first two parameters, all the European countries have reached almost maximum availability, while for the much more sophisticated parameter relating to the availability of health care, there are still considerable differences between European countries. Serbia, regarding the first two parameters, is slightly ahead in comparison to the average values for group of the least sustainable competitive countries in Europe, while in the case of the parameter of access to health care, it has much worse score than the average of this group.

In addition, there are also significant differences in the parameter of vulnerable employment in the field of second category of indicators of social sustainability. Within the group of parameters depicting social vulnerability to economic exclusion, European leader countries are significantly and expectedly better ranked in relation to the least sustainable competitive European countries. For parameters of social safety net protection and extent of informal economy, the difference between the observed groups of countries is around 50% and 40% respectively, in favor of competitive economies. In the case of the third parameter of vulnerable employment, the difference in favor of sustainable competitive countries is more than alarming reaching a ratio of 1 to 3.2. Serbia, according the all three parameters of social vulnerability, is ranked at the lower half of the group of the least sustainably competitive European countries.

There are also great differences in values of parameter of youth unemployment in the third group of parameters of social cohesion. Social cohesion is the third group of parameters and it also shows a significant gap between the most sustainable competitive and least sustainable competitive European countries. The most noticeable difference is shown in the parameter of youth unemployment where difference in some countries exceeds a ratio of 1 to 3.5. Serbia is placed at by far the worst position compared to all countries. A very similar situation was also noticeable for the parameter of social mobility where differences in favor of leader countries exceed 40% and Serbia ranks the last. The only parameter where Serbia shows a stronger affiliation to European leaders, and not to the least competitive countries is the Gini coefficient. According to this parameter, Serbia is ranked better than all countries in this group, even very close to Germany, Switzerland and Netherland from the group of sustainable leading European countries.

Based on the analysis of the positions and values of the global competitiveness index and the Social sustainability– adjusted GCI for Serbia and selected European countries, the existence of a negative correlation between these variables is not noticed. In other words, there is no necessary relationship between the compensation of being sustainable and being competitive as defined by the World Economic Forum. On the contrary, many countries which are on the top of the rank list of competitiveness, are also the best in many aspects of social sustainability. In this context, it could be said that there is an analogy with sustainability exploration and sustainability exploitation (Maletic et al., 2014), and conclusion in the same study is that for long-term success, the simultaneous pursuit is both desirable and necessary.

The incorporation of the social dimension in the global competitiveness index deepens the lag of least competitive countries in relation to the most competitive European countries. It is noticeable that Serbia was the last even among comparable economies, and especially pertaining the social component of sustainability.

The observed countries had noticeable differences in the values of the Sustainability–adjusted GCI compared with Global Competitiveness Index. This fact suggests that the size of the global competitiveness index is not incompatible with the requirements of sustainability. We believe that this result can be useful in creating a practical realization of social policy and the wider policy of sustainable development, as well as the policy of improving the competitiveness of European countries in the years of the twenty-first century.

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SOCIJALNA DIMENZIJA ODRŽIVE KONKURENTNOSTI SRBIJE I SELEKTOVANIH ZEMALJA EVROPE

Centralna ideja održive konkurentnosti predstavlja traganje za modelom razvoja koji bi uravnotežio ekonomski prosperitet, socijalnu održivost i upravljanje životnom sredinom. Rad je posvećen analizi socijalnog aspekta održive konkurentnosti sa ciljem da se sagleda relativna pozicija Republike Srbije u odnosu na selekovane najkonkurentnije i najmanje konkurentne zemlje Evrope u 2014. godini. Pošlo se od potrebe da se na neophodnost unapređenja održive konkurentnosti zemalja ne sme prilaziti na način koji ekonomsku, socijalnu i ekološku dimenziju konkurentnosti tretira kao oblasti u konfliktu. Na osnovu podataka Svetskog ekonomskog foruma prezentovana je kvantitativna, kvalitativna i grafička analiza socijalne dimenzije održive konkurentnosti Srbije u odnosu na šest najkonkurentnijih i šest najmanje konkurentnih zemlja Evrope u 2014. godini na osnovu vrednosti Indeksa socijalno održive konkurentnosti (Social sustainability–adjusted GCI). Korišćenjem proste korelacione analize istražena je međuzavisnost globalnog indeksa konkurentnosti i stuba socijalne odrzivosti (Social sustainability pillar) na primeru selektovanih zemalja Evrope u 2014. godini.

Ključne reči: održivi razvoj, održiva konkurentnost, socijalna dimenzija održive konkurentnosti.

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Review paper

ACTIVITY-BASED COSTING IN HEALTH CARE ORGANIZATIONS

UDC 657.474
614.2

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Abstract. *The concept of Activity-Based Costing (ABC) provides informational support to the performance of key management activities in different organizations. Focused on activities and processes within the organization, this concept, using appropriate cost drivers, provides more accurate information on activity costs and costs objects. The paper analyzes the specificities of applying the traditional and improved model of activity-based costing in health organizations.*

Key words: *health care organizations, costing, activities, cost drivers*

INTRODUCTION

As organizations that exist and work in order to provide the general well-being of society as a whole, certain groups of people and individuals, nonprofit organizations do not have in their focus achieving their own profit or high wages of their individual employees. The primary purpose of establishment and functioning of the nonprofit organizations is contented in providing the goods and services that a society asks for but profit organizations cannot or do not provide. This fact makes the nonprofits significant factor of functioning for many national economies. Nonprofit organizations are, in principle, relatively easy to "identify" if it starts from the fact that these organizations, in order to cover their costs, perform a wide range of operations and activities on a nonprofit base, that are aimed at providing certain services to the wider community. These are public (collective) goods, such as health care, education, social protection, transport infrastructure, culture and arts, which are of common interest and are needed for the particular community to function

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normally. Due to specific effects achieved through the provision of health care and protection, nonprofit organizations in health care sector deserve a special attention. Consequently, the business goals of these organizations are not profit-oriented, but have non-economic nature and their human character is dominant – to provide services that will meet the needs of preserving the health of people in a given community. Therefore, social responsibility in carrying out the objectives is largely expressed in health and other nonprofit organizations.

The dominance of non-economic objectives, that are not easy to follow, as well as to monitor the effects of their realization, make the process of identification, control and improvement the measures of effective functioning of these organizations fairly complex. Thus, the objective function of a health care organization depends on the board of directors, type of services, respective financing, level of competition, and the current financial condition of the organization (Hughes & Luksetich, 2010, p. 121) Various objectives have been formulated in models, including social welfare, quality and quantity maximization, budget, inputs, equity, and even profit. The objective should be consistent with the competitive and legal environment and flexible enough to deal with changing business conditions.

Considering that health care organizations should primarily achieve results deriving from their mission which are not measurable exclusively by financial expression, in these organizations nonfinancial performance indicators are becoming increasingly important and relevant. However, the attribute "nonprofit" does not mean that these organizations cannot make profit (which is, otherwise, determined as a surplus). When realizing their basic objectives, the health care organizations can also undertake activities that could make them certain earnings or profit. The earnings are usually used to increase the quality of health services, or to achieve a higher level of satisfaction with health care as well as to achieve a higher level of setting noneconomic objectives.

However, the absence of traditional profit and adequate quantitative way for monitoring the success of health care organizations is a serious problem, especially in the area of management control. The problem is only partially solved by showing surplus or deficit in the financial statements of these organizations.

In principle, monitoring the success of health care organizations should be based on establishing the appropriate relations between their output and input in order to assess efficiency and effectiveness of health services to a wide range of users. In this sense, the economics of health care organizations means their ability to control the assigned spending of funds received as well as providing a certain amount of inputs quality at the lowest possible cost. This means that the information on the cost of health care services is of particular importance for the managers in health care organizations in making business decisions, regardless of the limits in deciding caused by nature of their activities.

Just starting from the given characteristics of the functioning and monitoring health care organization performance, the activity-based costing, as a modern method of costing, provides the information necessary to determine the precise cost of health care services, more than for business improvement, as well as for identification of the cost drivers. Recently, activity-based costing is used in health care organizations as an important instruments for more efficient use of strategic resources in order to meet the expected requirements and needs of their customers.

1. PROBLEMS AND SPECIFICITIES OF MEASURING SUCCESS OF HEALTH CARE ORGANIZATIONS

It is a fact that measuring and monitoring business success of nonprofit organizations is different and not so simple as in profit organizations. It is rather complicated, because it is based on their multiobjective orientation, in which it is quite difficult to identify all individual objectives and allocate some of them as dominant. The complexity also arises from the numerous methodological problems in expressing certain categories, due to noneconomic character of the effects of these organizations functioning.

Health care organizations, as nonprofit ones, have different objectives. Namely, depending on the area of operation, each nonprofit organization defines its objectives. So for most health care organizations it may be relevant to some general strategic goals which they should seek and these are (Kaplan & Norton, 1996, p. 185.):

- Maximizing the volume of health care services provided from available resources (input),
- Maximizing revenues and financial surplus,
- Target use of resources aimed at better meeting the wider social needs,
- Fully (partially) cover the costs and minimizing subsidies,
- Maximize budget – the extent of possible resources (funds) to achive the setting goals,
- Maximizing satisfaction od customers - patients,
- Realizing the public image of a socially responsible organization.

After analyzing the above general objectives of health care organization it may be noted that most of them coincide with the objectives that can be found in profit oriented organization. However, the essential difference is that nonprofit organizations are not funded by the users of their services, but by the government, so their objectives to a large degree are limited by the approved budget. Consequently, obtaining additional resources in these organizations is usualy caused by the current policy and the volume of provided services, so the link between success in achieving the objectives and obtaining additional funds is almost non-existent. In many cases, failure in business entails even greater investment. On the other hand, health care as nonprofits have to provide services regardless of weather they are efficient or effective and to provide services to all users, without exception. All this points to the absence of market competition and „profit iniative“ in nonprofit organizations, so these organizations are not subject to sanctions of financial markets as profit-oriented organizations. But, nonprofit organizations are exposed to latent threat of domination of individual and selfish interests of their managers, especially those at the top, that may not be consistent with corporate interest and goals. Eliminating this danger assumes considering the performance of nonprofit organizations through the monitoring of achieving strategic goals, not through controlling the achieved financial excess or surplus.

In principle, particularities of health care as nonprofit organizations disable the use of measures wherebudget is based on profit or other financial indicators in monitoring their performance. Therefore, most authors agree that in a number of nonprofit organizations such measures are not present (Anthony & Govindarajan, 2007, p. 628, Poister, 2003, pp. 8-10, Kaplan & Norton, 2001, pp.97-99.) The reason is primarily noneconomic character of the objectives of these organizations, but also the existence of a serious control and managerial problem which concerns the lack of a single, relatively satisfactory quantitative and comprehensive indicator of their performance.

Since it is assumed to correlate the generated output with the invested (spent) resources, the efficiency of health care organizations is quite difficult to determine. Namely, the fact is that outputs of these organizations do not usually have a market value or they are generally dificult to measure. So, there arises the greatest number of problems related to measuring the efficiency of these organizations. It should be added that the nonprofits, including the health care organizations, are characterized by a wide range of different objectives, which enables comparing the efficiency of one with the efficiency of the other activities to realize the set objectives. In addition, many nonprofit organizations provide services for which is difficult to calculate average costs. Also, in most nonprofit organizations, there is very little opportunity to determine the optimum level of spending (investment). In such a situation, the managers of these organizations are trying to spend as much as the approved budget allows, although the predicted amount of spending in budget may be higher than the objectively required one. To this end, it is important to conduct more frequent budgetary control, concerning the control of economy of spending in relation to the financial plan (approved budget) of health care organizations.

A particular problem of efficient business activities of health care organizations relates to the financial constraints to which they are exposed. In fact, these organizations have very little control over the funds they receive and the goals to achieve, but also a completely limited ability of their management to provide additional financial resources. Also, health care organizations are often asked to provide a full range of services regardless of the fact that some of them surely know that they are not cost efficient. Finally, functioning and monitoring business performance of these organizations is significantly burdened with political, social, and legal restrictions.

It is also complex to monitor the effectiveness of health care organizations, through which the relationship between output and set objectives is tested in order to assess the degree of their achievement. Since most of the objectives of health care organizations can not be expressed in financial terms, nonfinancial objectives shall be established. Consequently, the effectiveness is measured as the degree of realization of the planned nonfinancial objectives, where new problems arise in monitoring business performance in this area. First of all, almost every health care organization can have several different objectives that are quite difficult to reconcile, and it can happen that the achievement of a particular goal is possible only at the expense of other goals. Also, there is a limitation of health care organizations regarding the use of available funds. Finally, the objectives of health care organizations are not directly comparable and, since they are not expressed through profit, the attitude on their effectiveness can be significantly influenced by the opinion of some managers.

Essentially, monitoring the business performance of health care organizations as the nonprofit ones is complex, specific and associated with numerious methodological but also essential problems. Therefore, success in business activities of these organizations should be established and evaluated in the context of achieving the purpose of their existence and setting strategic goals. Lately, activity-based costing and activity-based management are more used in health care organizations as important instruments for more efficient use of strategic resources for achieving the set objectives and complete satisfaction of the expected demands of their service users.

2. The Main Settings and Development of Activity Based Costing

Reliable and accurate information on the costs of activities that are carried out, the products produced and services provided, are crucial for any organization that wants to maintain and improve the competitive position in the globalized business environment. In that sense, managers in health care organizations continually search for methods of costing which will result in information that will be a good basis for making decisions on limited resources allocation, planning and control. As one of the most commonly used concepts of costing for those purposes, which is used in a number of organizations in the field of health care, is activity-based costing. Designed in the 80s of the last century, as aresponse of accounting theory on criticism on hitherto applied methods of costing, so-called traditional methods, was first appled in manufacturing companies. Later, with realizing the information potential of this concept of costing, its use has expanded to nonprofit organizations.

In the basis of this concept are the activities carried out by the organization, which are necessary for the production of products or services provision and for whose performing it is necessary to consume the adequate resources. In order to implement the concept it is necessary to analyze in detail all activities performed in the organization and choose the ones that will be kept on record on costs. This can be done by analyzing the business activities of organizational units, business processes, business functions, etc. (Brimson, 1991, pp. 85-91) and using different techniques for collecting data on activities, such as conducting interviews, using records of employees, directly studying the units to be analyzed (Brimson, 1991, pp.86-89; Mowen & Hansen, 2011, p. 147).

This is the kind of way that organizations review their business activities to receive an answer to the question whether all the activities carried out add value, in order to eliminate those activities that do not add value and increase the time and expenses, as well as whether the activities that add value are performed efficiently. Accordingly, the primary role of activity-based costing to provide accurate information on the the costs of activities, products, and services, is expanded on the use of its information for making business decisions on product-service assortment, customer relationships, improvement of business activities and others. Activity-based costing enables the organization to monitor, control and manage costs more efficiently.

The conceptual basis of costing are the activities that are carried out within an organization, which can be classified in different ways: repetitive and nonrepetitive activities, activities that have a high degree of influence on the market and activities that have a low impact on the market, primary and secondary activities, activities that add value and activities that do not add value (Brimson, 1991, pp.54-55). The hierarchy of activities performed in the organization can be calculated in different ways, but the most common are differentiation on the activities at the level of product unit that are performed every time when the unit of product is produced, then the activities at the level of series that are performed each time a series of product is launched, the activities at the product level that are performed every time when it is needed to provide support to a variety of products that the organization produces, and the activities at the level of resources related to the maintenance of resources in order to perform the production process (Cooper, 1990). In addition to these activities, Institute of Management Accountants (1993) adds the activities related to customers/market.

Activity-based costing is based on the following assumptions: to produce a product or provide a service it is necessary to perform appropriate activities, to perform the activities

it is necessary to spend resources, the activities are the basis of cost allocation and the cost drivers do not have to be related to the volume of production (Antić & Georgijevski, 2010, p. 501).

Cost allocation in the activity-based costing is done on two levels. First, the resource costs are allocated to the activities performed in the organization by using the appropriate resource drivers. Then, the cost of activities are allocated on the cost objects by using the appropriate activity drivers. Activity-based costing at both levels of allocation uses the bases for the allocation that are related to the volume of production, but also those that are independent of production volume, and whose importance is growing in the changed, globalized business environment.

To be able to respond to the information management requirements of organizations in the business environmnet that is subject to constant changes, the concept of Activity-Based Costing (ABC) is continuously improved and developed from the original one-dimensional model through the two-dimensional model to the improved time driven activity-based costing. Development of activity-based concept is similar to the life cycle of mature and successful technology because it features two milestones relating to the improvement of concept performance over time, the learning that has been cumulated through concept using and the enhancement in systems technology, as well as improvement of behavioral response to the concept that begins from user enthusiasm, through their disappointments, to eventual acceptance of technology`s relevance to business success (Turney, 2008). Accordingly, Turney (2008) distinguishes several stages in development of ABC concept. The period from 1984 to 1987 was characterized by innovation in the costing with the aim of finding new methods of calculation which produce more accurate and reliable information on the product costs than those which were produced by the traditional costing methods and which are necessary for making business decisions. The organizations that implement activity based costing manage to sustain and improve competitive advantage, which is an important step in the development of the first generation of ABC model. The period from 1987 to 1991 was characterized by the expansion of articles in leading magazines and numerous conferences on the subject of the new concept of costing and cost management. At this stage, the importance of information produced by activity-based costing for analyzing and review of the product profitability was recognized, eliminating those activities that do not add value, reducing costs, and increasing profitablity. In the period from 1991 to 1995 there was a reduced interest in the ABC concept due to high costs of its design, implementation and maintenance. However, in the period from 1995 to 2000, the information contained in the ABC method data bases was identified, which was useful for the analysis of customer profitability, markets, distribution channels, while its implementation expanded from manufacturing to service organizations, which, thanks to the implementation of ABC concept, fought successfully with the increased competition in the 90-ies. In the period from 2000 to 2006 the interest in ABC concept has again increased. The benefits of information produced by ABC have been recognized, while the effort and costs of implementing and maintaining the system have been reduced thanks to ERP (Enterprise Resource Planning) models and BI (Business Intelligence) tools. In the period up to 2006 ABC concept has become an integral component of new solutions in the field of business performance management.

3. THE SPECIFICS OF ACTIVITY-BASED COSTING IN HEALTH CARE ORGANIZATIONS

In the changed business environment, managers of nonprofit organizations, and therefore the managers in health care sector, can not make significant business decisions and maintain the competitiveness without reliable information on the costs of activities performed and services provided. In this sense, applying activity-based costing comes to the fore. Similarly to the manufacturing organizations, in health care organizations it is possible to indentify a large number of activities that need to be done in order to provide a service with adequate quality, with a rational use of limited resources at an acceptable cost.

In contrast to activities of manufacturing organizations that are most oftenly of the same or similar type and are performed in a similar manner and in which the outputs can be precisely defined, in health care institutions it is possible to identify many different activities that are performed by using different procedures and which do not yield simply and easily defined output. For example, the output in health care institutions can be defined as a stay and treatment of the patient, whereby it is possible to identify many different types of rooms and treatment (Hansen & Mowen, 1994, p. 226).

Kalhor et al. (2016) in the paper where they deal with the establishing cost of radiology services and compare it with governmental tariffe identify the main groups of activities, activity centers and give the description of activities as shown in Table 1.

Table 1 Activity centers and the nature of related activities

Main group of activity	Name of activity center	Nature of activity
Clinical	Surgery	Delivering clinical services directly to the surgery patients
	Internal	Delivering clinical services to patients
	ICU	Delivering clinical services to patients that need special care
Para clinical	Laboratory	Performing diagnostic tests to inpatient and outpatient
	Imaging	Radiography performed for inpatients and outpatients
	Physiotherapy	Delivering rehabilitation services to inpatients and outpatients
Supporting	Kitchen	Cook and distribute food to patients and staff
	Laundry	Washing dirty clothes of patients
	Reception	Reception of patients that need treatment in the inpatient departments
Educational	Library	Delivering educational books to the students
	Educational classes	Educational classes for students
	Head of educational department office	Delivering educational services to the students
Other	Office of insurance agents	Review patient records for insurance organizations
	Bank	Delivering financial services to the empleyees and patients
	Prayer house	Holding prayer ceremonies

Source: (Kalhor et Al, 2016, p.2020)

Laurila et al. (2000, p. 192) indicate a growing interest in using ABC method in health care and identify the following activities: time scheduling and registration, direct procedure, assistant procedure, film developing, interpretation of procedure and typing, conferences for clinicians, quality assurance and product development and research and teaching. Their intention is to get an informative and detailed picture of the resource utilization in a radiology department in order to support its pricing and management.

Ergun et al. (2013) in their paper demonstrate the real cost data of the pathology examinations by using ABC method and identify the following activity centers: patient registry and sample acceptance, the delivery of material to the laboratory, determination of the material and macroscopic examination, the tissue follow up procedure of the part, the paraffin block procedure of the part, paraffin cutting procedure of the part, staining, sealing and control procedure of the paraffin section, microscopic investigation, report writing, result reporting, archive. This clearly shows the diversity of activities performed and can be identified in various health care organizations to implement activity-based costing and provide the information of costs for different purposes.

Hansen & Mowen (1994, p.226-227) in the case of day care services illustrate the application of ABC in health institutions. According to the steps in implementing the ABC method it is firstly necessary to identify activities whose resources and costs can be recorded. Day Care of the patient involves the following activities: the activity of providing space for a stay of the patient, the activities of providing food for the patient, and the activity of nurturing the patient. In this case the output can be defined as a day stay patient.

The initial assumption is that the annual activity costs of providing space and food are 1,000,000 m.u.,nurturing patient activities 1,000,000 m.u.,the total number of days of patient stays annually amounts to 11,000 days, and the total number of hours of care amounts to 50,000 hours.

The difference in the costs calculated on the basis of the traditional costing method and activity-based costing will be presented in the case of mothers, where there will especially be analyzed mothers who had normal childbirth, those who gave birth by Caesarean section and those who have had childbirth with complications (the example adapted from: Hansen and Mowen, 1994). Table 2 presents the data necessary for calculation.

Table 2 Data on patient type, patient days of stay, and hours of care

Patient type	Days of stay	Hours of care
Normal childbirth	7,300	27,000
Birth by Caesarean section	1,800	12,000
Childbirth with complications	900	11,000
Total	10,000	50,000

The traditional costing method for cost allocation uses one cost driver – patient days of stay, regardless of the patient type and differences in the requirements for the activities. The traditional costing method determines the costs per patient day in the amount of 200 m.u. by dividing the annual costs of space, food and nurturing (2,000,000 m.u.) with the number of patient days of stays (10,000 days).

Activity-based costing takes into account the type of patient in the allocation of costs. To allocate activity costs of providing space and food as cost driver the number of patient days

of stay is used, so these costs per day amount to 100 m.u. (1,000,000 m.u. : 10,000 days), and for allocation of costs of patient care activities the cost driver is the number of hours of patient care so these costs per hour of care is 20 m.u. (1,000,000 : 50,000 hours). Using these cost drivers leads to different costs per patient day for different types of patients.

In the case of normal childbirth, which accounts for the largest percentage of the total number of patients days of stay and the total number of hours of care, because this type of patients is most commonly used, the costs per patient day amount to 174 m.u. On average, 3,7 hours of care per day of stay should be spent (27,000 h : 7,300 days). Accordingly, the costs calculated by using the activity-based costing method are for 26 m.u. lower than the costs calculated by using the traditional methods. Costs per patient day are calculated as follows:

$$[(7{,}300 \text{ days} \times 100 \text{ m.u.}) + (27{,}000 \text{ h} \times 20 \text{ m.u.})] : 7{,}300 \text{ days} = 174 \text{ m.u.}$$

In the case of Caesarean section there is less number of patient days and the number of hours of care on the annual basis compared to a normal childbirth, but in this case an average of 6,7 hours of care per day should be spent – twice as many hours of care per day than in the case of normal childbirth, because, by nature of the problem, these patients require more care. Costs per patient day calculated by using the activity-based costing method amount to 233 m.u. and are higher for 33 m.u. in comparison to the costs calculated by the traditional method. Costs per patient day are calculated as follows:

$$[(1{,}800 \text{ days} \times 100 \text{ m.u.}) + (12.000 \text{ h} \times 20 \text{ m.u.})] : 1.800 \text{ days} = 233 \text{ m.u.}$$

Patients with complications make up the smallest percentage number of patient days and the least number of hours of care per year. However, an average of 12,2 hours of care per day should be spent - twice as many hours of care per day than in the case of Caesarean section and three times more hours of care in relation to the normal childbirth. By nature of the problem, these patients require more care. Costs per patient day calculated by using the activity-based costing method amount to 344 m.u. and are higher for 144 m.u. in comparison to the costs calculated by the traditional method. Costs per patient day are calculated as follows:

$$[(900 \text{ days} \times 100 \text{ m.u.}) + (11.000 \text{ h} \times 20 \text{ m.u.})] : 900 \text{ days} = 344 \text{ m.u.}$$

Hansen & Mowen (2011, p.147-156), also detail the process of designing and implementing ABC in health institutions in the case of the department of cardiology. By applying well thought interview that was conducted with the head nurse in the department of cardiology the information on the performed activities was collected, resources that are necessary to spend on the performed activities, resource drivers that are used for allocating the resource cost on activities, activity drivers that are used for allocating activity costs on cost drivers, as well as information about potential cost objects. On the basis of data obtained from the interview it was created an activity dictionary which next to the activity name contained a description of each activity, the classification into primary and secondary activities, cost objects and activity drivers, as shown in the Table 3.

Table 3 Activity Dictionary: Cardiology Unit

Activity name	Activity description	Activity type	Cost object(s)	Activity driver
Supervising nurses	Scheduling, coordinating, and performance evaluation	Secondary	Activities within department	Percentage of time nurses spend on each activity
Treating patients	Administering medicine and changing dressings	Primary	Patient types	Number of treatments
Providing hygienic care	Bathing, changing bedding and clothes, walking patients	Primary	Patient types	Labor hours
Responding to patient requests	Answering calls, counseling, providing snacks, etc.	Primary	Patient types	Number of requests
Monitoring patients	Checking vital signs and posting patient information	Primary	Patient types	Monitoring hours

Source: (Mowen & Hansen, 2011, p.149)

Data from the table are a good starting point for the implementation of the activity-based costing in health care organizations. There are many examples of the application of ABC in health care organizations. The present case related to day care services is given as an insight into the differences between the traditional method of costing and the activity-based costing and it is quite simple. However, in practice, it is necessary to spend a lot of time and not to carry out cheap interviews and researches to identify and classify activities, resource drivers and activity drivers, in order to determine the cost for each activity and various cost objects. The answer of accounting to overcoming the perceived shortcomings of activity-based costing is to find an improved time driven activity-based costing model, which has also found wide application in health care.

4. APPLYING THE IMPROVED MODEL OF ACTIVITY-BASED COSTING IN HEALTH CARE ORGANIZATIONS

As it has been noted in previous presentations, during the implementation of activity-based costing the constraints and problems that were identified related to: the high costs of implementing the concept, the purchase or development of software, payment of consultations, reorganization and possible costs of firing employees; resistance of staff who are afraid of possible layoffs or changed modes; a large number of activities and cost drivers which enable to more precise costs allocation, but increase the cost of implementation of the concept and complexity of its processing and understanding (Gowthrope, 2009, pp.84-85).

In order to overcome the perceived problems, the activity-based costing model was promoted to the time driven activity-based costing (Time Driven Activity-Based Costing - TDABC), which is simpler, cheaper, faster to implement and enables that the rates for cost allocation are based on the practical capacity of provided resources (Kaplan & Anderson, 2003).

The process of calculating the costs of cost objects within the TDABC implies a somewhat different methodology compared to the ABC method. Namely, the TDABC method simplifies the first stage in the cost allocation – allocation of resource costs to activities through eliminating the need for detailed interviews and researches in order to determined the resource drivers. (Mowen & Hansen, 2011, p. 154)

In applying this concept, the different groups, the amounts and the total cost of the resources needed to perform activities should firstly be identified. The practical capacity is often calculated as a percentage, in the range of 80% to 85% of the theoretical capacity. The resource costs per unit of time are calculated by sharing the costs of the available capacity with the practical capacity of available resources, expressed in hours of work. The costs for each activity are calculated by multiplying the resource costs per unit of time with the number of time units necessary for performing the activity.

TDABC requires to calculate the time needed to perform each activity, by direct observation or conducting interviews. TDABC in costing includes the variations in the demand for time, depending on the category of patients who are treated, for example. If it assumes that it takes 0.4 hours to reply to requests from patients that require normal care, than an additional 0.3 hours when it comes from the patients in the semi-intensive care and an additional 0.8 hours for the patients in the intensive care, in a particular department in health care institution it should define new activities for these situations. TDABC introduces the equation of time. In general terms, the equation of time of given activities is a function of *n* potential factors of this activity and is expressed as follows (Kaplan & Anderson, 2003):

$$T = \beta_0 + \beta_1 X_1 + \ldots + \beta_n X_n,$$

where are:
T – the time required to perform the activities,
β_0 – the standard time required to perform the activities,
β_i – the estimated additional time required to perform the activity i, ($i = 1,\ldots, n$),
X_n – the amount of incremental activity i, ($i = 1,\ldots, n$).

or in the example:

Response time = 0.40 + 0.30 (for the patient in the semi-intensive care)
+ 0.80 (for the patient in the intensive care)

For its simplicity and advantages over the traditional ABC, TDABC has found wide application in health care organizations.

Therefore, Demeere et al. (2009) through a case study showed how to perform TDABC of five patient in clinic's departments and provide evidence of the benefits of such an analysis. They pointed out the advantages of TDABC in terms of two parameters necessary for determining the costs: the unit cost of supplying capacity and the time required to perform a transaction or an activity, as well as concerning possibility to provide many opportunities to design cost models in an environment with complex activities as in health care organizations and provide accurate and relevant information to health care managers and physicians which assisted them in operational improvements, making a profitability analysis per department and deciding on future investments.

Kaplan et al. (2015, pp. 43-48) implemented TDABC to assess the cost of benign prostatic hyperplasia across the entire care pathway, from initial primary care visit to urologic consultation through surgical intervention, to improve value at their institution.

Campanale et al. (2014) presented and discussed an IR project that involved all the 16 hospitals of Tuscany in the designs the TDABC, whose results showed the extent to which TDABC provided support to and could help health care organizations to face new challenge of managing available limited resources in order to satisfy a growing demand of users - patients.

On the example of cardiology unit Hansen & Mowen (2011, pp.155-156) ilustrated the basic concepts of TDABC. The needed information to calculate the capacity cost rate for the cardiology unit and calculate the activity rate and the cost of the activity Treating patients (a total of 3,000 hours were spent to perform this activity) and Monitoring patients (a total of 5,400 hours were spent to perform this activity) are given in the Table 4.

Table 4 Resources, activities and time/unit of activity on a cardiology unit

Resources		Activities	Time/ Unit of activity
Supervision	$50,000	Treating patients	1.40 hrs.
Supplies&uniforms	60,000	Providing hygienic care	1.00 hr.
Salaries	340,000	Responding to requests	0.60 hr.
Computer	10,000	Monitoring patients	1.00 hr.
Monitor	26,000		
Total	$486,000		
Total nursing hours	18,000	(practical capacity)	

Source: (Mowen & Hansen, 2011, p.155)

Capacity cost rate is $27 per hour and it is calculated by dividing the total resources cost in the amount of $486,000 with the practical capacity of 18,000 hours. In a very simple way the activity rate and the cost of the activities Treating patients and Monitoring patients can be determined.

Treating patients

Activity rate: $27 × 1.40 = $37.80
Cost of activity: $37.80 × 3,000 = $113,400

Monitoring patients
Activity rate: $27 × 1 = $27
Cost of activity: $27 × 5,400 = $145,800

TDABC demonstrated numerous advantages over the use of other concepts of costing, which are reflected in the fact that the model can be quickly and easily implemented and updated, allow assessment of the efficiency of the processes that are carried out as well as the capacity utilization, the model can be used for what-if analysis and provide information for planning and control, and the like. A well-designed TDABC model provides a complete picture of the performance of activities and processess in health-care organizations and necessary information for making strategically important decisions.

CONCLUSION

Nonprofit organization form the backbone of any society in terms of providing goods of common interest and creating a more humane society. Due to specific effects achieved through the provision of health care and protection, nonprofit organizations in health care sector are of special importance. In order to survive in an economy that requires greater efficiency and greater accountability, nonprofit organizations need to adapt to changes, to maintain their mission and the reason for their existence, which is quite a complex task. One of the ways to improve the efficiency and effectiveness of operations of these organizations, accompanied by their performance, is to improve the control and management of certain activities in their business. This can be achieved by respecting and strengthening the role of management accounting in these organizations, especially in the field of providing information on the costs of services.

Namely, in the process of decision making in health care organizations, as socially responsible nonprofit organizations, information about the cost of services they provide is very important. In that sense, the activity-based costing, and the improved model of time driven activity-based costing as a modern method of cost accounting that is used in health care organizations, provide necessary information to determine the precise cost of providing health services, to improve business activities, to eliminate the activities that do not add value for customers – patients, to identify cost drivers, and to plan and create corporate strategy. The pieces of information that the activity-based costing provides for the management of health care and other nonprofit organizations, due to their high level of reliability are very useful for making various business decisions, particularly related to the planning and allocation of resources and assessment of performance of activities.

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OBRAČUN TROŠKOVA PO AKTIVNOSTIMA U ZDRAVSTVENIM ORGANIZACIJAMA

Koncept obračuna troškova po aktivnostima pruža informacionu podršku obavljanju ključnih aktivnosti menadžmenta u različitim organizacijama. Fokusiran na aktivnosti i procese u organizaciji, ovaj koncept, korišćenjem odgovarajućih uzročnika troškova, pruža preciznije informacije o troškovima aktivnosti i nosilaca troškova. U radu se analiziraju specifičnosti primene tradicionalnog i unapređenog modela obračuna troškova po aktivnostima u zdravstvenim organizacijama.

Ključne reči: *zdravstvene organizacije, obračun troškova, aktivnosti, uzročnici troškova*

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Preliminary communication

FACTOR ANALYSIS OF TOTAL QUALITY MANAGEMENT ADOPTION BY SMEs IN NIGERIA

UDC 005.6(662)

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Abstract. *This study focused on Total Quality Management (TQM) adoption by SMEs in Nigeria. The study investigated and analyzed factors responsible for TQM adoption by SMEs in Nigeria, its rate and success of the implementation and influence in competitive situation. Cross-sectional survey method was adopted to achieve these objectives. 250 SMEs were selected from manufacturing, textile, agricultural, food processing and service industries for data gathering; making the population of 2548, from which the sample size of 346 was determined using Taro Yamane method. The study found that the adoption of total quality management by SMEs is subject to many factors, and that TQM practices significantly affect different performance outcomes. Thus, the study concludes that TQM practice is another strategic option that can enhance viable performance outcome, and subsequently, competitive advantage of any SMEs at the marketplace. The study therefore recommends that SME owner-managers should invest substantial resources in adapting and implementing TQM in their operations so that success and viable performance outcome can be achieved.*

Key words: *Total Quality Management, performance outcomes, competitive advantage, communication, continuous improvement programs*

INTRODUCTION

Today, the changes in both local and global competition inform SMEs of the need to improve on their efficiencies. Many researchers (Zhang, Waszink and Winjgaard, 2000; Antony, Leung, Knowles and Gosh, 2002) investigated the imperatives of Total Quality Management (TQM) as a better approach to enhancing efficiency and activeness in effective competition. TQM was viewed as an essential arm of operations management

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practices that is result oriented, and Heizer and Render (2004) asserted that the adoption and implementation of a set of operations management practices is one of many ways to win the competition in the marketplace. For businesses that would want to meet and exceed the expectations of their customers both at home and abroad, quality management practices is the strategy tool (Fening, 2012). Global competitiveness is a reality and quality is key to winning in the marketplace (Vokurka, 2001).

Recently, it has been observed that many small business owners now adopt Total Quality Management to win customers' patronage in Nigeria. Quality management is conceived to be a better approach to distinguishing their entrepreneurial activities in pursuit of a better pay-off in a competitive situation. Mustaph, Muda and Hasan (2011) posited that quality is very important in business today especially with product recalls and investigations as to what went wrong. Though, some SME owner-managers in Nigeria believe that the scope of their business has a great implication on the success or failure of the adoption and implementation of TQM. Few empirical studies (Ramsey 1998; Kuratko, Goodale and Hornsby, 2001) were conducted into finding out the rate and success of implementation of TQM in SMEs. Findings from these studies proved that the rate and success of implementation of TQM in SMEs is heavily insignificant. Studies in this regard are very scanty, but according to Husband and Mandal (1999), it appeared at the time of their study that SMEs have been very slow in implementing formal quality models, and where they have, the outcomes are inconclusive. Interestingly, this still remains apparent in Nigeria today. With great concern from their study, Fening (2012) stressed that Total Quality Management is seen as a tool to improve organizational performance in both large and small organizations and in any part of the world. The dimensions of the performance outcomes are financial performance, customer satisfaction, product/service quality performance and operational performance (Jaca and Psomas, 2015). Though, various studies have been conducted to examine the impact of TQM on financial performance, there is still disagreement concerning the effectiveness of TQM (Hansson and Eriksson, 2002). For example, Sadikoglu and Olcay (2014) asserted that TQM practices improve the financial performance of the firms; as against the research position of Ramsey (1998) and Kuratko *et al.* (2001). The factors responsible for TQM adoption by SMEs in Nigeria and the performance outcome of its implementation, in general, drive the focus of this study. Therefore, the main aim of this study is to investigate and analyze factors responsible for TQM adoption by SMEs in Nigeria. The study's specific objectives are:

1. To investigate the rate and success of the implementation of TQM by SMEs in Nigeria (in terms of customer preference, operation efficiency and product/service quality).
2. To investigate the influence of TQM practices on the competitive situation of SMEs in Nigeria.

1. Review of Relevant Literature

1.1. Concept of Total Quality Management (TQM)

Total Quality management is an aged concept. According to Jung and Wang (2006), Total Quality Management has received great attention in the last two decades. A literature review of the previous studies on TQM evolved that researchers and academicians have

defined TQM practices in different ways although they are complementary to each other (Prajogo and Sohal, 2003). In this regard, Sohal *et al.* (2010) identified five elements such as customer focus, management commitment, total participation, statistical quality control and systematic problem solving. Understanding the first element, Padhi (2016) stressed that total quality is a description of the culture, attitude and organization of a company that strives to provide customers with products and services that satisfy their needs.

According to Zairi (2009), TQM can be defined as the agreed company-wide and plant-wide operating work structure, documented in effective, integrated technical and managerial procedures, for guiding the coordinated actions of the people, the machines, and the information of the company and plant in the best and most practical ways to assure customer quality satisfaction and economical costs of quality. Pfau (2007) stated that TQM is an approach for continuously improving the quality of goods and services delivered through the participation of all levels and functions of the organization. Tobin (2004) views TQM as the totally integrated effort for gaining competitive advantage by continuously improving every facet of organizational culture. From the various view points of the authors, it could be depicted that TQM practice focuses on man, process and output; and these might have probably led authors into dimensioning TQM.

1.2. Dimensions of Total Quality Management

Price and Gaskill (2005) identified three dimensions of TQM as:

1. *The product and service dimension*: The degree to which the customer is satisfied with the product or service supplied. This involves the product reliability, durability and conformity.
2. *The people dimension*: The degree to which the customer is satisfied with the relationship with the people in the supplying organizations;
3. *The process dimension*: The degree to which the supplier is satisfied with the internal work processes, which are used to develop the products and services supplied to the customers.

Today's business world has posed various challenges to SMEs and this has often sprung up various researches into how customers can be better served. According to Khurshid, Kumar and Waddell (2012), QM has emerged as an effective competitive tool amongst these organizations.

1.3. Total Quality Management: the cost and success of its practices by SMEs

In Nigeria, it appears that the perception of SME owner-managers is that the cost of quality is tied up with the cost accrued to the production of a standard product. Gharakhani *et al.* (2013) explained that the cost of quality is considered by both Crosby and Juran to be the primary tool for measuring quality. The cost implication of not adopting TQM is relevant for the explanation of little or no growth or entropy of some SMEs within the shortest period of start-up. In the same vein, Khurshid *et al.* (2012) expressed that the costs associated with such issues are always significant and may result in the closure of businesses. Logically, a firm with a defective or rejected product will experience hike in the average cost of redoing a quality product, and this affects the financial scale of the business. Crosby referred to it as the price of nonconformance.

Gharakhani *et al*. (2013) stated that the cost of prevention is less than the cost of correction. In addition, any compromise on quality by SMEs could also jeopardize the supply chain, resulting in raising costs because of poor quality (Kumar, 2007).

The cost of quality analysis will help SME owner-managers to focus on customer satisfaction, and therefore, enhance profitability and vibrant competitive position. According to Fryer *et al.* (2007), the importance of TQM practices for implementation is to increase the success rate, reduce delivery time, and prevent disillusioned state with continuous improvement programs. However, SME owner-managers need to bear in mind that the success of TQM practice depends among other on the following:

1. A review in the operating policy and processes for effective quality management.
2. Employee participation and commitment towards quality goal.
3. Customer focus quality management task.
4. Continuous improvement programs
5. Effective communication and teamwork.

Similarly, Ghobadain and Gaellar (1997) recommend that for successful TQM implementation providing clear direction and recognition for employees, an effective communication system, a progressive training program and realistic targets should be included.

However, Gharakhani *et al*. (2013) summarized the theory of total quality as follows:

1. Quality leads to lower costs as defects are reduced;
2. Quality is made in the boardroom; it cannot be instilled into shop floor without the initiative and commitment of top management;
3. Most defects are caused by the system, not the worker;
4. Inspection is too late; aim to reduce defects during production and eliminate mass inspection;
5. Eliminate numerical quotas, slogans, exhortation and targets for the workforce and promote sustained and continuous improvement of process and quality of output;
6. Drive out fear of change from workers; institute a vigorous program of education, training, and retaining to help the workforce improve continuously and to increase their job security;
7. Breakdown barriers between staff areas and abandon review systems that will destroy teamwork and create rivalry;
8. End the practice of awarding business on price tag alone; look for suppliers committed to quality and develop long term relationships with them.

1.4. TQM Activities and small firm competitiveness

According to Anderson and Mc Adam (2004), the evolution of the business environment over the past four decades has resulted in a need for improvements in business practices. TQM is a philosophy that small firms can use to improve their competitiveness. Khurshid *et al.* (2012) asserted that the business environment in which SMEs are operating demands quality at each operational step. Quality aspect is one of the most essential parameters in global competition today. The demand for better quality of product by customers in market place has made many companies provide quality product and services in order to compete in the marketplace successfully. To meet the challenge of this global competition, small firms can also invest substantial resources in adopting and implementing total quality management (TQM)

practices in their operations. Khurshid *et al.* (2012) assumed that a rapid adoption of QM by enterprises has become an important determinant of success in the global market. For the adoption and implementation of TQM, SMEs stand the chance of winning the market and competitive advantage, and as well refurbishing their internal operating efficiencies. They need not only upgrade their critical operations and technologies, but are required to put some focus on QM issues as well (Khurshid *et al.*, 2012). A strategy of high quality leads to a sustainable competitive advantage, (Porter, 1980).

Past studies have reported that the application of quality management practices in SMEs helps them to sharpen their market focus, use their material and human resources more efficiently and improve their competitive position in the market (Ahire and Golhar 1996). Continuous improvement can enable small scale enterprises to meet the competitive pressures of the global economy head-on, and to develop strategies for making products that are both high in quality and commercially successful. Khurshid *et al.* (2012) opined that it provides a foundation for the competitive pricing and ways of increasing profit margins. Obviously, competitive advantage required that a small scale enterprise possess one or more of the following capabilities when compared with its competitors, such as lower prices, higher quality, higher dependability, and shorter delivery time. Since small scale enterprises are faced with a competitive marketplace made up of these challenges, continuous improvement can be more than merely a formal or routine system of business management. Such continuous improvement can establish capabilities that will enhance the organization's overall performance (Mentzer *et al*., 2000).

Total Quality Management can be a success or failure depending on how well it is planned, implemented, measured and encouraged. However, the success of TQM premises on the communication channels, cooperation and culture embraced by both the SME owners and the employees.

1.5. Implementing Total Quality Management

The foundation problem with the workability of TQM is the weak status quo of owner-managers' knowledge and skills regarding quality techniques. SME owner-managers have the sole-responsibility of conveying the philosophies of TQM to their employees, and this requires distinctive managerial Knowledge, Skill and Attitude (KSA). These among other factors remain essential ingredients of successful implementation of TQM.

However, Padhi (2016) opined that to be successful in implementing TQM, an organization must concentrate on the eight key elements such as ethics, integrity, trust, training, teamwork, leadership, recognition and communication. Padhi divided these elements into four groups as follow:

1. **Foundation;** which includes ethics, integrity and trust.
2. **Build Bricks;** which includes training, teamwork and leadership.
3. **Binding Mortar;** which includes communication
4. **Roof;** which includes recognition.

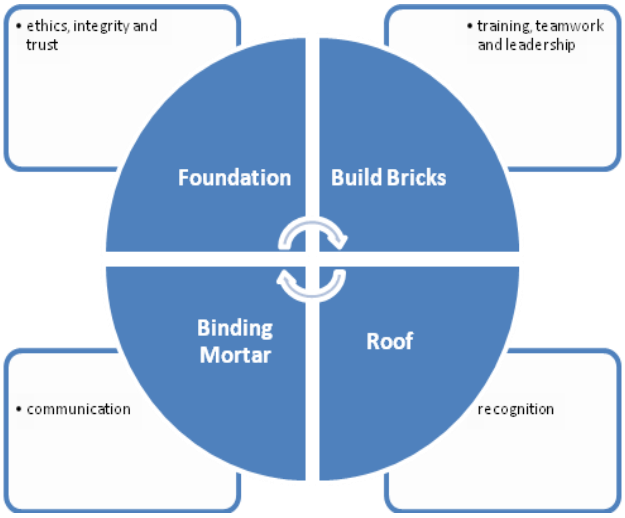

Fig. 1 Elements of successful TQM implementation
Source: Adopted From Padhi (2016)

The first step in managing quality is building a platform for individual display of competence based on ethics, integrity, trust and recognition. In the real sense, ethics focuses on what is right or wrong as a guiding principle; integrity indicates honesty, moral values, fairness, and adherence to the facts and sincerity (Padhi, 2016); and Trust allows decision making at appropriate levels in the organization, fosters individual risk-taking for continuous improvement and helps to ensure that measurements focus on improvement of process and are not used to content people (Padhi, 2016).

2. Research Methods

The objectives of this study stimulate the adoption of cross-sectional survey method. In their view, Aldridge and Levine (2001) believed that this survey design was useful due to its ability to predict behavior and assist researchers in collecting identical information concerning all the cases in a sample. In line with this, 250 SMEs were selected from manufacturing, textile, agricultural, food processing and service industries without considering the scale for data gathering. The population for this study was 2548. The study determined its sample size of 346 using Taro Yamane method as shown below:

$$n = \frac{N}{1 + N(e)^2}$$

where n = sample size; N = population of the study; e = error estimated at 5% (0.05).

$$n = \frac{2548}{1 + 2548(0.05)^2} = \frac{2548}{1 + 2548(0.0025)} = \frac{2548}{1 + 6.37} = \frac{2548}{7.37} = 346 \text{ approximately}$$

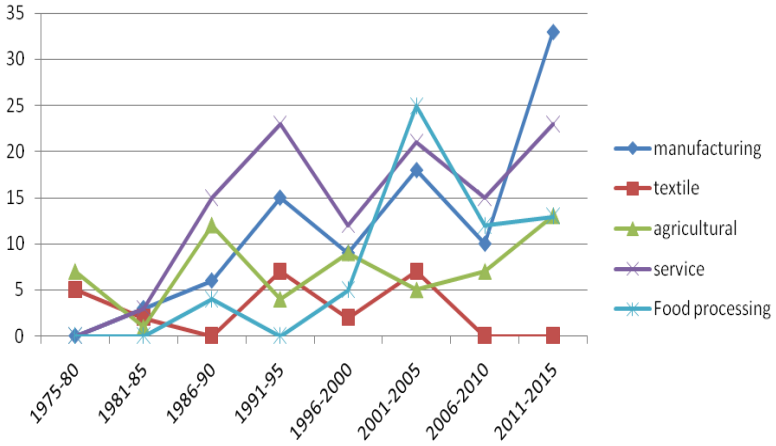

Fig. 2 Graphical illustration of sample spread across trends

From figure 2 above, it could be observed that the survey cut across SMEs that have existed within a timeframe considered being helpful to this study. For instance, owner-managers of SMEs that have existed for at least five years were able to provide adequate data and information regarding the subject matter. Alexander, Davern and Stevenson (2010) opined that five years is often used as a yardstick for survival by demographers (to permit greater balancing of statistical power of test). To ensure unbiased data gathering process, multi-stage sampling techniques was adopted and simple random sampling techniques to select its required sample. This whole process of gathering data was carried out in collaboration with twelve research assistants. The instrument used for this study consists of items with 4 & 5-point scale for each.

3. Data Presentation and Analysis

Table 1 Questionnaire administration

Questionnaire	Frequency	Percentage
Ad min *istered*	346	100
Re*trieved*	323	93.4
Not Re*trieved*	23	6.6

Source: Field Survey, 2016

Table 1 reveals that the total questionnaires administered was 346 (100%); 323 questionnaires (93.4%) were retrieved and 23 questionnaires (6.6%) were not retrieved. Based on this, analysis was done on the number of questionnaires retrieved.

Table 2 Demographic characteristics of the respondents

Variables	Frequency	Percentage	Mean / Mode
Age			
15 – 25	62	19.2	41
26 – 36	59	18.3	
37 – 47	87	26.9	
48 – 58	73	22.6	
59 & *above*	42	13.0	
Total	**323**	**100**	
Sex			
Male	178	55.1	178
Female	145	44.9	
Total	**323**	**100**	
Educational Qualification			
FSLC	59	18.3	97
SSCE	92	28.5	
NCE / OND / DIPLOMA	97	30.0	
HND / BSC	50	15.5	
MSC & above	25	7.7	
Total	**323**	**100**	
Experience			
0 – 10	191	59.1	12
11 – 20	61	18.9	
21 – 30	46	14.2	
31 – 40	25	7.7	
Total	**323**	**100**	

Source: Field Survey, 2016

In table 2, it is revealed that 62 respondents (19.2%) fall within the age range of 15 to 25; 59 respondents (18.3%) fall within the age range of 26 to 36; 87 respondents (26.9%) fall within the age range of 37 to 47; 73 respondents (22.6%) fall within the age range of 48 to 58; and 42 respondents (13.0%) fall within the age range of 59 and above. The value of the mean for the frequency of these age group indicates that majority of the respondents are 41 year old. Also, table 2 revealed that 178 respondents (55.1%) were male; and 145 respondents (44.9%) were female. The mode for this frequency of sex (168) indicates that majority of the respondents are male. In addition, the table revealed that 59 respondents (18.3%) hold first school leaving certificate; 92 respondents (28.5%) hold Senior School Certificate; 97 respondents (30.0%) hold National Certificate (or its equivalent); 50 respondents (15.5%) hold Higher National Diploma/ Bachelor of Science Certificate; and 25 respondents (7.7%) hold Master of Science (or its equivalent) and above. Similarly also, the mode for this frequency of educational qualification (97) indicates that majority of the respondents have Higher National Certificate (or its equivalent). Finally, the table reveals that 191 respondents (59.1%) have business experience of 0 to 10 years; 61 respondents

(18.9%) have experience of 11 to 20 years; 46 respondents (14.2%) have experience of 21 to 30 years; and 25 respondents (7.7%) have experience of 31 to 40 years. Likewise, the value of the mean for the frequency of experiences indicates that majority of the respondents have business experience of 12 years.

Table 3 Factors responsible for TQM adoption by SMEs in Nigeria

Various factors	VGE	GE	LE	VLE	Total	TVGE	TGE	TLE	TVLE	Total	Mean Score	Remark
Adequate resource availability	106	83	54	80	323	424	249	108	80	861	2.7	Moderately high
Technology advancement	79	85	96	63	323	316	255	192	63	826	2.6	Moderately high
Quality assurance knowledge	112	91	74	46	323	448	273	148	46	915	2.8	Moderately high
Managerial planning	126	75	56	66	323	504	225	112	66	907	2.8	Moderately high
Communication channels	98	102	28	95	323	392	306	56	95	849	2.6	Moderately high
Cooperation and business culture	107	80	36	100	323	428	240	72	100	840	2.6	Moderately high

Source: Field Survey, 2016

Table 3 above indicates that factors such as adequate resource availability with mean score of 2.7, technology advancement having a mean score 2.6, quality assurance knowledge with mean score 2.8, managerial planning with mean score of 2.8, Communication channels with mean score of 2.8, Communication channels with mean score of 2.6, and Cooperation and business culture with mean score of 2.6 respectively were observed to be moderately responsible for TQM Adoption by SMEs in Nigeria.

Table 4 Responses on rate and success of the implementation of TQM by SMEs in Nigeria

Question	Frequency					Mean Score	Cutoff Point
	VGE (%)	GE (%)	ME (%)	LE (%)	VLE (%)		
1. *Customer satisfaction*	85 (26.3)	92 (28.5)	59 (18.3)	23 (7.1)	64 (19.8)	3.344	3.050
2. *Market share*	84 (26.0)	53 (16.4)	64 (19.8)	79 (24.5)	43 (13.3)	3.173	3.050
3. *Financial performance*	102 (31.6)	47 (14.6)	50 (15.5)	87 (26.9)	37 (11.5)	3.279	3.050
4. Pr*ocess improvement*	24 (7.4)	142 (44.0)	86 (26.6)	15 (4.6)	56 (17.3)	3.195	3.050
5. Pr*oduct / Service quality*	73 (22.6)	83 (25.7)	97 (30.0)	25 (7.7)	45 (13.9)	3.353	3.050

Source: Field Survey, 2016

Note: VGE-Very Great Extent; GE- Great Extent; ME- Moderate Extent; LE-Low Extent; VLE-Very Low Extent; Significant at 0.05 level; Cut off Point = Mean + e

Table 4 shows the responses regarding the rate and success of the implementation of TQM by SMEs in Nigeria. 85 respondents (26.3%) opined customer satisfaction to a very great extent; 92 respondents (28.5%) opined to a great extent; 59 respondents (18.3%) opined to a moderate extent; 23 respondents (7.1%) opined low extent; and 64 respondents (19.8%) opined very low extent. It is observed that the mean score of

customer satisfaction is 3.344 which are greater than the cut-off point. However, this result shows a moderately high indicator of success. This implies that the implementation aspect of quality decision is strategically focused on capturing the interest and serving the demand of the customers satisfactorily without compromising their expectations to a reasonable extent.

For question two, the table shows that 84 respondents (26.0%) are observed to have had market share to a very great extent; 53 respondents (16.4%) are observed to have had market share to a great extent; 64 respondents (19.8%) are observed to have had market share to a moderate extent; 79 respondents (24.5%) are observed to have had market share to a low extent; and 43 respondents (13.3%) are observed to have had market share to a very low extent. It is observed that the mean score of responses (regarding market share) is 3.173 which is slightly greater than the cut-off point. Though, the mean score appears to be high; the result shows a weak indicator of success. This implies that market share of SMEs in Nigeria is a less significant measure of their successful implementation of TQM.

Question three focused on financial performance as an indicator of success in the implementation of TQM by SMEs in Nigeria, the table shows that 102 respondents (31.6%) agreed to a very great extent; 47 respondents (14.6%) agreed to a great extent; 50 respondents (15.5%) agreed to a moderate extent; 87 respondents (26.9%) opined low extent; and 37 respondents (11.5%) opined very low extent. The table depicts that the mean score of responses based on financial performance is 3.279 greater than the cut-off point. The mean score shows that financial performance is a moderate indicator of success. Hence, financial performance of SMEs in Nigeria is an evidence of moderate implementation of TQM.

Question four focused on process improvement as an indicator of success in the implementation of TQM by SMEs, the table shows that 24 respondents (7.4%) agreed to a very great extent; 142 respondents (44.0%) agreed to a great extent; 86 respondents (26.6%) agreed to a moderate extent; 15 respondents (4.6%) opined low extent; and 56 respondents (17.3%) opined very low extent. The mean score of these responses is 3.195; greater than the cut-off point. This shows that SME owner-managers have not given severe attention to process improvement recently. Hence, process improvement of SMEs is weak indicator of successful implementation of TQM in Nigeria.

Question five focused on product/service quality as an indicator of success in the implementation of TQM by SMEs, the table shows that 73 respondents (22.6%) have improved to a very great extent; 83 respondents (25.7%) have improved to a great extent; 97 respondents (30.0%) improved moderately; 25 respondents (7.7%) improved to a low extent; and 45 respondents (13.9%) improved to a very low extent. The mean score of these responses is 3.353; greater than the cut-off point. This shows that SME owner-managers have given moderately severe attention to product/service quality improvement recently. Hence, product/service quality improvement of SMEs is a moderate indicator of successful implementation of TQM in Nigeria.

However, rate and success of implementation is taken as the performance outcome of TQM adoption by SMEs in Nigeria. The findings of this present study thus agree with the results of Sadikoglu and Olcay (2014) which revealed that different TQM practices significantly affect different performance outcomes. The findings above advance the studies of Ramsey (1998) and Kuratko *et al.* (2001) which proved that the rate and success

of implementation of TQM in SMEs is heavily insignificant. It is lately discovered that TQM implementation has assumed a moderate success in SMEs. SME owners' emotional attachment, communication, knowledge, skill, commitment and other efforts towards ensuring customer satisfaction, better market share, financial performance, process improvement and product/service quality are significant to moderate implementation of TQM in Nigeria.

CONCLUSION AND RECOMMENDATIONS

The adoption of total quality management by SMEs is subject to many factors such as adequate resource availability, technology advancement, quality assurance knowledge, managerial planning, communication channels, cooperation and business culture respectively. These factors appear to be moderately responsible for TQM adoption by SMEs in Nigeria.

The rate and success of implementation or the performance outcome of TQM adoption by SMEs in Nigeria seem to have a positive relationship with TQM practice. It remains unnoticed to a very high degree that TQM has influence on SMEs' performance outcome. The underlying fact is that different performance outcomes are subject to different TQM practices. The position of some studies with the reverse result that the rate and success of implementation of TQM in SMEs is heavily insignificant may be probably defective. The empirical verification proves that TQM implementation has assumed a moderate success in SMEs from Nigeria with concomitant performance outcome. TQM is the continuous improvement of quality to meet expected outcomes. There is no way TQM can be left out of business success today, especially with product recalls and investigation problems and proffering solutions. Thus, the practice of TQM is another strategic option that can enhance viable performance outcome, and subsequently, competitive advantage of any small firm at the marketplace.

Based on the findings of this study, it is recommended that:

1. SME owner-managers should invest substantial resources in adapting and implementing Total Quality Management (TQM) in their operations so that success and viable performance outcome can be achieved.
2. SME owner-managers should select and use the most convenient tool of Total Quality Management.
3. In the course of adoption of TQM, SME owner-managers should take into consideration factors such as adequate resource availability, technology advancement, adequate quality assurance knowledge, effective managerial planning, effective communication channels, cooperation and well designed business culture for organizational family affairs.

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ANALIZA FAKTORA USVAJANJA TOTALNOG UPRAVLJANJA KVALITETOM (TQM) OD STRANE MALIH I SREDNJIH PREDUZEĆA U NIGERIJI

Ova studija fokusira se na usvajanje Totalnog upravljanja kvalitetom (TQM) od strane malih i srednjih preduzeća u Nigeriji. Studija je ispitivala i analizirala faktore odgovorne za usvajanje TQM od strane malih i srednjih preduzeća u Nigeriji, njihovu brzinu i uspeh u implementaciji i uticaj na situacije konkurentnosti. Usvojen je metod istraživanja poprečnog preseka za postizanje ovih ciljeva. Odabrano je 250 MSP iz proizvodnih, tekstilnih, poljoprivrednih, prehrambenih i uslužnih delatnosti za prikupljanje podataka; ukupno 2548 ispitanika, od kojih je određena veličina uzorka od 346 korišćenjem Taro Yamane metoda. Studija je pokazala da je usvajanje ukupnog upravljanja kvalitetom MSP podložno mnogim faktorima, a da praksa TQM značajno utiče na različite ishode performansi. Tako, studija zaključuje je da TQM praksa još jedna strateška opcija koja može poboljšati održiv ishod performansi, a kasnije konkurentsku prednost malih i srednjih preduzeća na tržištu. Studija stoga preporučuje da bi vlasnici-menadžeri MSP trebalo da ulože značajna sredstva u prilagođavanje i sprovođenje TQM u svom radu tako da se može postići uspeh i održivi ishod učinka.

Ključne reči: *Menadžment totalnim kvalitetom, Ishodi performansi, konkurentska prednost, komunikacija, programi kontinuiranog poboljšanja*

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Preliminary communication

PROFITABILITY ANALYSIS OF MEAT INDUSTRY IN SERBIA

UDC 061.5:637.5(497.11)

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Abstract. *In this paper, profitability analysis of meat processing industry in Serbia was carried out for the period 2011-2015. Meat processing industry is one of the profitable sectors in the Republic of Serbia, with an average rate of ROA of 5.29. Even though companies in meat processing industry achieve positive net income, profitability is below referent value. In order to investigate which internal factors have a significant influence on the profitability of meat processing industry, a panel data regression was realized. The results show that companies with high liquidity ratio and growth in sales achieve better ROA. On the other hand, high debt ratio negatively influences the level of ROA. Furthermore, the results show that the size of the company, fixed assets ratio and rate of investment, do not have much influence on the profitability of meat processing industry.*

Key words: *Meat industry, profitability, internal profitability factors.*

INTRODUCTION – STATE AND PERSPECTIVE OF MEAT INDUSTRY IN SERBIA

At the beginning of the global economic crisis, at the end of the first decade of the 21st century, the Serbian academic and professional community established agro-economy sector as the bearer of economic development. Since it is clear that plant and animal production cannot be, due to the biological and economic constraints, all, the manufacturing sector is also placed as crucial for economic development. According to this, manufacturing sector, together with the agricultural production, presents an important agro-food system. The manufacturing sector, which is also known as agro-industry, includes also the manufacture of food, beverages, animal food and tobacco products. Food production, according to its importance, stands out from this group. Furthermore, processing of meat products also has an important place in this group. The importance of this sector, as well as the general processing sector, resulting from the conversion of raw materials into final products with greater value, which is, due to the relatively low level of finalization of Serbian agricultural production, important for the entire agricultural sector in Serbia.

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The meat industry is one of the major sectors, especially with significant increase of the added value of livestock production. The livestock is a generator of the intensity of agricultural production, and it can be a significant factor in the overall development of agro-economy together with the developed sectors of processing livestock products. Also, the development of the meat industry would have positive effects on the agricultural holdings engaged in livestock production, which is very important for the social stability in rural areas. Furthermore, the development of the entire meat production chain will have a positive impact on the export performances of Serbian agro-economy, observed through the export value per unit of labor engaged and / or arable land. The reason is that meat and meat products are included in the agricultural products with the highest added value.

In the last ten years, in the period 2006-2015 the average annual production of meat in Serbia was over 460 thousand tons. The biggest part of that includes the production of pork - more than half of total meat production. In the second place is the production of beef and poultry, about 18% of each category. At the last place is the production of mutton- about 5%. During this period there has been a decline in the production of two most common categories of meat, which is especially pronounced in beef, while the production of pork has the stagnant tendencies. The increase was present in the production of mutton, and the production of poultry has similar characteristics. Those tendencies are, of course, more or less in correlation with the movement of the number of certain categories of livestock units (Statistical Office of the Republic of Serbia).

The general characteristic of the manufacturing industry in Serbia is the low level of capacity utilization as a result of the political and economic environment of the former Yugoslavia where the majority of the capacity was created. In previous decades, this industry has shared the fate of agricultural production, so that after stagnation during the eighties, there was a decline in the nineties of the last century, which was accompanied by a reduction in employment in this sector. In the period after 2000 in Serbia, there was somegrowth of production in the manufacturing sector, but further employments reductions (Gajić M., S. Zekić, 2013). For meat production in Serbia, it is characteristic that only some of the animals are slaughtered in slaughterhouses, about 50%, and this number varies depending on the type of livestock (the lowest is associated with sheep and the largest with poultry). The poultry industry represents the most industrialized livestock sector, among the whole of agriculture, so it is not surprising that in Serbia over 60% of the livestock are slaughtered in slaughterhouses. For cattle and pigs, this percentage is much smaller at 44% and 33%, respectively. Keeping sheep in Serbia is characteristic of underdeveloped areas and small semi-subsistence farms, so the small share, about 5% of sheep which are slaughtered in slaughterhouses, is relatively expected (Statistical Office of the Republic of Serbia). A large proportion of slaughtering on farms is quite typical for the more developed EU countries, where it has the marginal character.

In general, the most important factor in the economic viability of any manufacturing industry is the level of profitability that it achieves. Long-term profitability enables the achievement of economic growth and development. Furthermore, the identification of factors affecting the level of profitability is of great significance. These findings may represent useful information for companies operating in a particular sector, but also for the policies that should enable the propulsive development of certain economic sectors. In other words, the results of the study may represent strategic development guidelines, both for the individual production companies, as well as the entire sector. For this reason, the main goal of this paper is to analyze the factors of the profitability of the meat

processing sector in the Republic of Serbia in the period 2011-2015. The first part of the research will give the answer to the question whether the meat processing sector is profitable. Furthermore, the analysis of trend and fluctuations in profitability will be conducted. The second part of the paper will identify the internal factors of companies that significantly affect the level of profitability of meat processing sector.

1. DESCRIBE DATA AND METHODOLOGY

1.1. Profitability and profitability factors

In order to analyze profitability and profitability factors, first, the profitability ratio as dependent variable and factors of profitability as independent variable are defined.

The profitability variable as a dependent variable can be represented by several ratios, such as return on assets, return on equity etc. According to Asiri (2015) the most relevant determinant in explaining the market value of enterprises is ROA, so the profitability of meat processing industry is represented by ROA. ROA is defined as the firm`s book value of net profit after tax divided by total assets.

On the other hand, as factors of profitability, or independent variables, were defined size, current ratio, leverage, fixed assets ratio, growth, and investment. The size of company can be measured by several proxies, such as natural logarithm of the assets, sales or employees. Larger companies have the ability to generate higher income, have better access to capital markets (Titman, Wessels, 1998), and lower cost of borrowing (Whited, 1992). According to this, it is expected that profitability and the size of company are positively related.

The current ratio measures the ability of the company to pay short-term liabilities. The current ratio is calculated as a ratio of current assets to current liabilities (Rodic, Vukelic, Andric, 2007). According to this, it is expected that greater firm ability to pay short-term liabilities is positively related to the profitability.

Leverage as a ratio of total debt to assets indicates the level of the company`s debt (Rodic, Vukelic, Andric, 2007). Higher debt can be negatively related to the profitability because high debt requires more resources to pay the debt.

Fixed assets to total assets ratio indicates the using of working capital and company`s ability to carry accounts receivable and maintain inventory. If the fixed assets ratio is 0.5 and higher, this will limit company`s ability to adequately react to increased demand. So, the higher fixed assets ratio is usually negatively related to the profitability (Pratheepan, 2014).

Growth is calculated as the growth rate of sales in two consecutive periods. If the firm achieves greater growth in sales, that means it provides additional income for the current period. Therefore it is expected that growth affects profitability positively (Asimakopoulos et al. 2009, Geroski et al. 1997).

Investment refers to increase in fixed assets, and it is calculated as the growth rate of gross fixed assets in two consecutive periods. It is expected that investment affects profitability positively since it expands production capacity, in order to improve sales and at the end to increase profit (Asimakopoulos et al. 2009; Guariglia, 2009).

Table 1 Profitability and profitability factors

Ratio	Calculation	Unit	Referent value
Profitability			
Return on assets (ROA)	NI/Taavg	Ratio	>0.1
Profitability factors			
Size	Natural logarithm of S		Higher value preferred
Current ratio	CA/CL	Ratio	>2.0
Leverage	D/TA	Ratio	=0.5
Fixed assets to total assets ratio	FA/TA	Ratio	<0.5
Growth	$(S_t - S_{t-1}) / S_{t-1}$	Ratio	Higher value preferred
Investment	$(FA_t - FA_{t-1}) / FA_{t-1}$	Ratio	Higher value preferred

Source: Author's illustration (based on Asimakopoulos et al., 2009, Rodić et al. 2007).

Where:
NI – net income
TA_{avg} – total assets (average)
CA – current assets
CL – current liabilities
D – debt
FA – fixed assets
S – sales
t – current period
t – 1 – previous period

1.2. Data

The data used in this study refer to a sample of Serbian meat processing companies for the period 2011-2015. The data were collected from the database of Official Serbian Business Registers Agency, and include a detailed balance sheet, income statement, and other data on Serbian large and medium sized meat processing companies (Official Serbian Business Registers Agency, 2016). The original set includes 16 enterprises. In order to construct balanced panel data and avoid effects of new enterprises, and enterprises that shut down during the period, our sample consists of the enterprises that operated during the whole period 2011-2015. Furthermore, the missing or abnormal data were removed, so the final sample consists of 12 companies. Table 2 shows descriptive statistics of the dependent and independent variables of profitability for meat processing companies for the period 2011-2015.

Table 2 Descriptive statistics of profitability ratio and factors of profitability of meat industry in Serbia

Variable	Observation	Mean	Std. Dev.	Min	Max
ROA	60	0.0529	0.0439	0.0003	0.1796
Size	60	14.9804	1.0974	13.0753	16.8203
Current ratio	60	1.5557	0.6796	0.5544	3.4093
Leverage	60	0.5572	0.2256	0.1899	0.9453
Fixed assets to total assets ratio	60	0.5444	0.1137	0.3297	0.7578
Growth	60	0.1207	0.1879	-0.3587	0.5359
Investment	60	0.1452	0.2527	-0.3989	0.4018

Source: Author's calculation

Meat processing companies in the Republic of Serbia achieve average positive profitability, but the level of profitability is below the referent value of 0.10. The following table shows the profitability and factors of profitability during the period 2011-2015.

Table 3 Trend of profitability and profitability factors in the period 2011-2015

Variable	2011	2012	2013	2014	2015	2011-2015
ROA	0.0442	0.0555	0.0603	0.0554	0.0588	0.0529
Size	14.6429	14.9315	14.8922	14.9943	14.9408	14.9804
Current ratio	1.4036	1.3515	1.6782	1.6292	1.5098	1.5557
Leverage	0.5643	0.5211	0.5831	0.5894	0.5382	0.5572
Fixed assets to total assets ratio	0.5354	0.5027	0.5893	0.5563	0.5206	0.5444
Growth	0.1221	0.1316	0.1563	0.1187	0.1488	0.1207
Investment	0.1238	0.2437	0.0958	0.1589	0.1697	0.1452

Source: Author's calculation

The profitability of meat processing companies has characteristics of fluctuation. Until 2013 profitability was in growth to 0.060. Then, in 2014 the level of profitability has fallen down to 0.055, and in the 2015 profitability has a little growth to 0.058. If we compare the profitability in 2015 and 2011 it can be concluded that profitability level of meat processing companies raises for 30%. Even though the profitability of meat processing companies is positive, they have a problem to achieve liquidity, because during the period 2011-2015 current ratio is below the 2 as referent value. The higher leverage than 0.5 indicates that the meat processing companies activities are financed more with debts than the capital. Furthermore, the leverage is very different among meat processing companies. The lowest leverage is 0.19, while the highest leverage is 0.94. The companies with lower leverage have the ability to increase profitability with additional debt. On the other hand , companies with high debt ratio have a problem to solve the current debt. Also, these companies do not have the ability to increase profit with additional debt. During the period 2011-2015, meat processing companies have growth in sales. Sales growth is on average 0.14 each year.

1.2. Hypothesis and methodology

In order to investigate profitability factors of large and medium sized meat processing companies in the Republic of Serbia a panel data techniques were conducted. According to this, the following hypothesis is defined.

H_0: Firm internal characteristics, such as size, current ratio, leverage, fixed assets to total assets ratio, growth, and investment of Serbian meat processing companies have a significant impact on profitability.

A major motivation for using panel data has been the ability to control for possibly correlated, time-invariant heterogeneity without observing it (Williams, 2015). The two models, depending on the nature of the variables, are included into this estimation. If variables are constants over time, random effect model is better (Hsiao, 2010). Random effect model is given as (Bruderl, 2005):

$$Y_{it} = \beta_0 \ + \beta_1 X_{it} + v_{it} + \varepsilon_{it} \tag{1}$$

It is assumed that the v_i are random variables (random effects) and that Cov (x_{it}, v_i) = 0. Using a pooled-GLS estimator provides the random effects estimator. The following transformation is required to estimate random effects model from the pooled regression (Bruderl, 2005):

If independent variables vary over time, then the use of fixed effects model is appropriate.

$$Y_{it} = \beta_1 X_{it} + v_{it} + \varepsilon_{it} \quad (2)$$

The answer to the question which model (fixed effects or random effects model) is appropriate will be realized by tests model validation such as Bresuch-Pagan Larange Multiplies test and Hausman test.

2. RESULTS

Table 4 summarizes the results of panel data regression analysis when random effect and fixed effect estimation were used for meat processing companies.

Table 4 Results of panel data regressions

	Results	
Factors of ROA	Random effect	Fixed effect
Size	0.0041	0.0055
Current ratio	**0.0027**	**0.0021**
Leverage	**–0.0668**	–0.0676
Fixed assets to total assets ratio	0.0656	0.0885
Growth	**0.0562**	**0.0618**
Investment	0.0039	0.0021
	R sq. = 0.4864 Prob> chi^2=0.004	R sq. = 0.4908 Prob> F=0.003

Source: Author's calculation

Test and validation of the models were conducted before results interpretation. The selection of appropriate model between random effect and fixed effect is based on the Hausman test. The Hausman test result indicates the use of random effect model (p=0.9680 is greater than 0.05).

Table 5 Result of Hausman test

Test	Result	Conclusion
Hausman test – Testing of random effect vs. fixed effect model	$chi^2(7)$ = (b–B)'[(V_b–V_B)^(–1)](b–B) = 1.36 Prob>chi^2 = 0.9680	Random effect model is appropriate.

Source: Author's calculation

Based on the result reported in table 5 the following factors have a significant influence on the profitability of meat processing companies in Serbia: current ratio, leverage, and growth. On the other hand, independent variables such as size, fixed assets ratio, and investment are not significantly related to the profitability of meat processing industry. According to this findings, it can be concluded that hypothesis H1 is partially confirmed.

The results indicate that current ratio and growth are positively related to the profitability. Meat processing companies with the higher current ratio, have a better ability to pay short-term liabilities, and also achieve better profitability. This is in accordance with findings of other authors (Barbosa and Louri, 2005; Kuntluru et al. 2008). Sales growth, as expected, positively influences a firm's profitability. The ability to increase the sales provides higher revenues as a positive component of net result.

On the other hand, leverage is negatively related to the profitability. This means that meat processing companies with high debt ratio have a lower net result. Higher debt negatively influences profitability because higher debt requires more resources to pay the debt. This finding is in accordance with the finding of Asimakopoulos et al. (2009) and Al-Jafari and Samman (2015).

CONCLUSION

The research results show that the meat industry in Serbia has been operating profitably, but the level of profitability was below the reference value in the period 2011-2015. Although at this time there are fluctuations in the level of profitability, there is a positive trend, so in 2015 the level of profitability of this industry is about 20% higher than in 2011.

The key factors that influence the level of profitability were identified: liquidity ratio and sales growth, with a positive impact, and the level of indebtedness that has a negative impact. There is a clear positive correlation between the growth and liquidity on the level of profitability, while the level of indebtedness, present in Serbian meat industry cannot have a positive impact on profitability. The reason is that the companies in meat processing sector have a problem of high debt ratio. The results indicate that meat processing companies do not use additional debt in investment that will increase profitability ratio. Debt ratio over referent value, and the situation that high debt ratio is negatively correlated to profitability, indicates that companies are more using additional borrowing to solve present debt and problems in business operations. In order to improve profitability ratio, meat processing companies first must reduce the level of indebtedness and start to use additional borrowing for adequate investment. On the other hand, the size of the company, the fixed assets ratio, and investment growth as factors of profitability are not significant variables for the companies in the meat processing industry in Serbia. These results are not surprising when you take into account previously expressed fact of oversized manufacturing industry, and one of its parts which was created in the period of centrally planned economy.

These results show that the growth in profitability in the meat industry will be significant with increasing capacity for utilization through sales growth. Also, great caution is required with borrowing, which should be directed towards the growth of competitiveness in the domestic and international market. The question of competitiveness is a very important one due to the process of European integration. The reason is that the entire agro-food sector in Serbia, including the meat industry, will be faced with a very high pressure by manufacturers from EU countries.

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ANALIZA PROFITABILNOSTI MESNE INDUSTRIJE U SRBIJI

U radu je sprovedena analiza profitabinosti mesne prerađivačke industrije u Srbiji u periodu 2011-2015. godina. Mesna prerađivačka industrija je profitabilna, uz ostvarivanje prosečne stope profitabilnosti od 5.29. I pored konstantnog poslovanja sa dobitkom, preduzeća u okviru ovog sektora ne uspevaju da ostvare referentni nivo profitabilnosti. U cilju ispitivanja koji interni faktori utiču na profitabilnost preduzeća u mesnoj prerađivačkoj industriji, sprovedena je regresiona analiza na bazi panel podataka. Rezultati ukazuju da preduzeća sa visokim raciom likvidnosti i pozitivnom stopom rasta prodaje ostvaruju bolju profitabilnost. Sa druge strane, visok stepen zaduženosti je negativno povezan sa stepenom profitabilnosti preduzeća. Dalje, rezultati su ukazali da veličina preduzeća, racio fiksne imovine i nivo investija ne predstavljau značajne faktore koji utiču na smer i intenzitet profiabilnosti mesne industrije u Srbiji.

Ključne reči: *mesna industrija, profitabilnost, interni faktori profitabilnosti.*

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Preliminary communication

STRUCTURAL CHANGES AND COMMODITY EXPORTS INCREASE OF THE REPUBLIC OF SERBIA

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Abstract. *The aim of this paper is to show, on the basis of relevant systematized knowledge from the scientific and professional publications, the key changes in the structure of the world economy and world trade, as well as to identify the impacts of these changes on the structure and volume of exports of the Republic of Serbia. First of all, we show the theoretical and methodological limitations in the study of the dynamics and structure of the world economy and world trade. Secondly, IMF evaluations in relation to the global growth in trade and GDP relating to 2016 and 2017 are presented. Then follows the analysis of the structure of the global import and export of goods by sector, according to the Standard International Trade Classification (SITC), and the analysis of the structure of foreign trade of the Republic of Serbia divided by products, as well as by SITC sections and divisions. Finally, the paper shows the importance of foreign direct investments (FDI) for the structural improvement of production and export increase of the Republic of Serbia.*

Key words: *global trade, export structure, improvement and increase exports, FDI*

INTRODUCTION

The movements in global economy determine to a large extent the dynamics and structure of the global trade. In the period from 2005 to 2014 the increase of global exports was larger than the increase of global production and the global GDP. The global economic crisis which, in 2008 emanated as a financial crisis, and later spread also into the realty sector, has shaken the foundations of the global economy and trade. The consequences of this crisis are still present.

The global trade of the 1990s was characterized by a dynamic increase of exports of industrial products of a high technological intensity, and the decrease of exports of

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agricultural produce and raw materials. In the year 2000 followed the changes in the global tendencies of the export structure.

The export of the Republic of Serbia was manifested by a high degree of raw, reproduction materials and products generated from lower processing phases. The insufficient import of modern equipment and technology limits the development of a more modern production structure. In order to generate more evident changes in the realty sector it is necessary to attract sufficient FDIs that shall stimulate the import of new equipment and modern technologies.

1. THE THEORETHICAL BASIS OF RESEARCH

The commodity export of the Republic of Serbia is intrinsically connected to the industrial production, which constitutes more than 90% of domestic. This is why the key to the promotion of the export of commodities lies in the improvement of the structure of the industrial production. However, the present structure of industrial production has manifested certain deficiencies of which the key deficiencies are: deficiency of commodities in goods destined for export; a large share of products of lower processing grade; a vast assortment of goods without narrower specialization; low competitiveness of exports concerning the design and product development; inadequate technical standards; and the durability and design of the products (Nikolić, 2010, 181).

Based on an extensive research H. Lewer-Van den Berg has established that the structure of trade determines exports and economic growth. Countries that export more capital goods and consumer goods have a faster growth than countries that export capital goods (Lewer-Van den Berg, 2003, 39-96).

A study conducted by L. Benedictisand L. Tajoli, which encompassed the exporting structure of four countries in transition (Poland, Hungary, Romania and Bulgaria) into the EU for the period from 1989 to 2000 has shown that the approximation towards a more progressive exporting structure is a long process and that this process is still ongoing. In all these countries, the degree of change concerning the exporting structure into the EU is higher than the degree of the change of the exporting structure of the EU. However, the evolution of structural changes in these countries was different. Poland and Hungary underwent a faster adaptation of the exporting structure to the importing structure of the EU. In Romania that process was much slower, whereas in Bulgaria it had divergent tendencies. However, it was proven that the structural changes of these countries' foreign trade were in accordance with the tendencies of the main economic indicators. (Benedictis, L., Tajoli, L., 2003).

Y. Kandogan has analyzed the industrial (SITC 5-8) export of the CEECs - Central and Eastern European Countries and the Union of Independent Stated (UIS) for the period from 1992 until 1999. This author stated that the increase of the value of exports of the countries in transition, which followed the opening of the market, was implemented by means of: exporting larger quantities of products, exporting a larger number of products, and increasing the quality of these products (Kandogan, 2003).

As far as the Republic of Serbia is concerned, also important are the conclusions of A. Galego and J. Caetano based on their research (Galego, Caetano 2002). These authors have proven that the increase of exchange of goods between the CEECs and the EU is

foremost the result of *the convergence of income and structural reforms* implemented in the CEECs. They have also indicated the fact that technologically intensive sectors (especially sector 7) generate comparable advantages and that the participation of sectors with resource-and-labor intensive products is decreasing.

A. Zaghini studied the commercial specialization of the 10 new EU member states within the framework of its expansion in 2004 (Zaghini, 2005, 629-650). He established that the new member states have changed the structure of trade and have very quickly realized comparative advantages in sectors in which they were lagging at the beginning of their transition (especially concerning *high-tech* products). A large portion of that specialization was realized in the production of those products for which there was a faster growing global demand, and which in turn had led to the increase of their share in global trade.

2. Research Methodology

Structural changes and the increase of commodity exports must have a key role in the new strategy of the economic growth of the Republic of Serbia. The present qualitative improvements of the domestic export of goods were insufficient for a considerable increase of the GDP, the export-generated incomes and the decrease of the commercial deficit. The basic conditions for increasing the export of goods are structural changes of the production in the direction of production growth in the higher phases of processing. Can something like this be achieved? For the purpose of answering this question we shall first analyze the dynamics and structure of the global economy and global trade. Then we shall analyze the technological structure of the exports of commodities and the share of high-tech commodity exports in the total export of goods of the Republic of Serbia. Based on the analysis of the structure of imports and exports of the Republic of Serbia, according to the purpose of the type of products, we shall identify qualitative changes in the industrial structure. By evaluating the change of the share of certain groups of products in the export, we shall establish whether there has been any qualitative improvement in the structure of domestic exports. Finally, we shall analyze the relevance of the FDIs for the implementation of structural changes in the foreign trade of the Republic of Serbia, as well as for its more successful harmonization with modern tendencies in the global trade.

3. The Dynamics and Structure of the Global Economy and Global Trade

Movements in the global economy have a large influence on the dynamics and structure of global trade. In the period from 2005 to 2013, the global export of goods grew at a rate of 3,5% whereas the global production and global GDP grew at a rate of 2%.

Immediately before the outbreak of the world economic crisis (2007) the largest growth in the structure of global exports had industrial products (8%), whereas the global export of agricultural produce increased by 5.5%. Due to the financial crisis, which engulfed the world and expanded into a world economic crisis, global export began to decrease. Its increase in 2008 was only 2.5%. As early as in 2009 a negative rate of export increase of 12% was registered. The same year shows also a negative rate of increase of the global GDP of 2.5%, production of 5.5%, industrial production of 4% and mining of 1.5%. Due to the large decrease of industrial production, the export of industrial products in 2009 even dropped by 15.5%,

which is three times more than the decrease of exports of fuel and ore and approximately five times more than the decrease of exports of agricultural produce. However, as early as in 2010, there was short-term increase of global exports, production and GDP, but in the period from 2011 to 2014 there was a deceleration of their growth (see Table 1).

According to the estimates made by the experts of the International Monetary Fund (IMF) from April 2016, in 2016 it is to be expected that the global GDP shall be at the rate of 3.2%, which is somewhere at the level of its increase in 2015. The projected GDP increase rate for 2017 is 3.5%. The IMF experts estimate that the largest increase of the GDP, within this group of developed countries shall in 2016 be realized by Spain (2.6%), which has also in 2015 realized the largest growth of GDP among these countries of 3.2%, whereas the USA shall be in the second place with the GDP growth of 2.4%. From the group of developed countries, the USA shall realize the largest rate of increase (2.5%) of GDP in 2017.

Table 1 Relative changes of global commodity trade, production and GDP in the period from 2005 to 2014

	Period								
	2005-2013	2007	2008	2009	2010	2011	2012	2013	2014
Global export	**3.5**	6.5	2.5	**-12.0**	14.0	5.5	2.5	2.5	2.5
Agricultural products	3.5	**5.5**	2.0	-3.0	8.0	6.0	2.0	3.0	2.5
Fuels and ore	1.5	3.5	0.5	-4.5	5.5	2.0	2.5	0.5	1.0
Industrial products	4.0	**8.0**	2.5	**-15.5**	18.5	7.0	2.5	2.0	4.0
Global production	**2.0**	0.5	1.0	-5.5	4.5	3.0	2.5	2.0	2.0
Agricultural production	2.5	2.5	3.5	0.5	0.0	2.0	1.5	5.5	1.5
Mining	1.0	0.0	1.5	-1.5	2.0	1.5	2.5	0.5	2.5
Industrial production	2.5	0.0	0.0	-4.0	5.5	4.0	2.5	1.5	2.5
Global GDP	**2.0**	4.0	1.5	**-2.5**	4.0	2.5	2.0	2.0	2.0

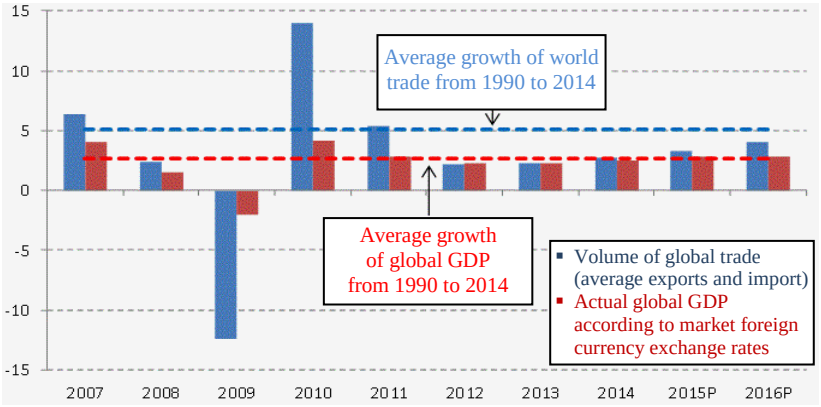
Source: (WTO, International Trade Statistics, 2010, 2011, 2012, 2013, 2014, 2015)

The projected global trade increase rates from April 2016 were decreased in comparison to those in October 2015 and January 2016. In spite of all these corrections, the growth of the global trade in 2016 is estimated to be 3.1%, and 3.8% in 2017 (IMF, 2016, p. 2). According to other prognoses from April 2015 (WTO, 2015), the expected growth of global trade in 2016 shall be approximately 4% (see Chart 1.).

As opposed to the USA which in 2014 recorded a rate of economic growth of more than 2%, the countries of the Eurozone are facing a much slower development. Since the countries of the Eurozone are the most important trade partners of the Republic of Serbia, the prospects of its exports depend to a large extent of their import demand. The demonstrated tendencies concerning the growth of global trade and the GDP indicate a loss of the development continuity which is marked by stable and moderate world trade and production growth rates. Following the world economic crisis of 2008, the development of global trade had a slower dynamics in comparison to the year before the crisis. Before this crisis the growth rates of the global trade were approximately two times higher than the growth rate of the global GDP (Kovačević, 2016, p. 117).

The structure of the global export of commodities during the 1990s changed in the direction of decreasing the relative share of food and agricultural raw materials, on the one hand, and the

increase of the relative share of industrial products, on the other. This trend was interrupted after 2000 due to the increase of oil prices, which caused a constant increase of the share of mineral fuels and lubricants in the global exports from 10.6% in 2000 to 13.3% in 2005, to 15.4% in 2010 and to 16.7% in 2014. Such movements also led to a decreased participation of industrial products in global trade from 75.3% in 2000 to 64.8% in 2014.



Note: Projected values are shown for the years of 2015 and 2016.

Chart 1 Relative annual scope of increase of global trade and the real GDP in the period from 2007 to 2016

Table 2 The structure of the global export and import of commodities divided by SITC sectors, in the period from 2000 to 2014 (in %)

	Group of products: 0+1+22+4	Group of products: 2-(22+27+28)	Group of products: 3	Group of products: 27+28+68+667+971	Group of products: 5+6+7+8-(667+68)
EXPORT					
2000	6.7	1.8	10.6	2.8	75.3
2005	6.4	1.6	13.3	3.3	71.7
2010	7.5	1.6	15.4	6.4	66.2
2014	7.9	1.5	16.7	6.3	64.8
IMPORT					
2000	6.9	2.0	10.4	3.2	**74.4**
2005	6.6	1.7	13.6	3.6	71.3
2010	7.6	1.6	15.4	6.4	66.8
2014	7.9	1.5	16.2	6.5	**65.5**

Note: The sectors are divided according to SITC and include the following groups of products: group (0+1+22+4) includes the export of all foodstuffs including drinks, tobacco, edible oils and seeds; group 2-(22+27+28) includes the exports of raw agricultural materials; group (27+28) includes unprocessed fertilizers, raw minerals, black metal ores and scrapped metals; group (3) includes the export of mineral fuels, lubricants and similar materials; group (68+667+971) includes the export of ferrous metals, precious gems and non-monetary gold; sectors 5 to 8- (667+68) include the export of industrial products; sector (5) includes the export of chemical products; group (7) includes the export of machines and transporting equipment.
Source: United Nations, (2006-2007, 2011, 2015), UNCTAD Handbook of Statistics, United Nations Publication, New York and Geneva

It is evident that there has been an increase of the share of import of mineral fuels and lubricants in the global import from 10.4% in 2000 to 16.2% in 2014. Contrary to this, the share of imported industrial products in the global import has dropped from 74.4% in 2000 to 65.5% in 2014 (Table 2).

4. STRUCTURAL CHARACTERISTICS OF FOREIGN TRADE OF THE REPUBLIC OF SERBIA

During the period of the economic sanctions against the FRY imposed by the EU and the United Nations Security Council, there has been a large drop of exports of the Republic of Serbia. Numerous competitor companies from other countries have taken positions on markets on which the Serbian companies used to conduct their businesses. The Serbian economy was marginalized during the sanctions. The Republic of Serbia lacked domestic accumulation so as to implement substantial structural economic changes and improve its export (Kovačević, 2012, 381). Due to that fact, in the period from 2006 to 2015 the Republic of Serbia had founded approximately 60% of its export mainly on raw materials. As opposed to that, consumer goods comprised in average approximately 31% and equipment approximately 8% of its exports (Table 3).

Table 3 The structure of export and import of the Republic of Serbia divided by the purpose of products in the period from 2006 to 2015 (in %)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average 2006-2015
	EXPORT										
Reproduction materials (raw materials)	66.8	65.5	64.4	59.4	65.0	66.4	57.8	52.7	52.3	52.8	60.3
Consumer goods	27.1	26.8	26.3	30.9	26.8	25.2	32.6	39.5	40.0	38.3	31.3
Equipment	6.1	7.7	9.3	9.7	8.2	8.4	9.6	7.8	7.8	9.0	8.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100
	IMPORT										
Reproduction materials (raw materials)	63.0	70.6	71.8	68.8	67.0	67.2	68.2	70.2	61.2	57.3	**66.5**
Consumer goods	21.4	15.6	15.4	19.2	21,7	20.0	19.5	18.8	19.5	19.2	19.0
Equipment	15.6	13.8	12.8	12.0	11,3	12.8	12.3	11.0	11.2	11.8	12.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: NBS, Statistički bilten, January 2014, p. 98; RZS, Statistički kalendar Republike Srbije, Beograd, 2014. p. 72; RZS, (2016), Statistika spoljne trgovine , Saopštenje br. 24. Imported from: http://webrzs.stat.gov.rs/WebSite/repository/documents/00/02/00/75/st12012016.pdf. Accessed on: 29.01.2016.

In the period from 2006 to 2015 the structure of imports of the Republic of Serbia was also mostly dominated by reproduction materials (average 66.5%), which was mostly the consequence of a high dependability on imports of its economy. In the same period, the participation of consumer goods in the export was on average approximately 19%, whereas the average participation of equipment in the import was only 12.5%. The drop of exports of the Republic of Serbia was accompanied by a deterioration of the industrial component of its export. Proof of that is the decrease of the relative participation of machines and car parts in the

export and the increase of agricultural produce and foodstuffs. In order to increase the share of exports in the implementation of the GDP, the Republic of Serbia needs to harmonize the structure of its export with the structure of the demand for imports, above all with those of EU countries.

The structural characteristics of the foreign trade of the Republic of Serbia may be observed based on the analysis of information contained in Table 4. It is evident that a dominant part of the exports in 2010 was comprised of products belonging to the following four SITC sectors: *Processed products divided by materials (6), Food and live animals* (*0), Machines and transporting equipment (7)* and *Different finalized products (8)*. These four sectors comprised together approximately 76% of goods exported from the Republic of Serbia in 2010. In the first place, according to the participation in the total export of goods, was sector *6* (*Processed products divided by materials*). The second place according to the value of exports belongs to sector *0* (*Food and live animals*) which is mostly comprised of products from lower phases of processing. The most dominant products from this sector are cereals, fruit and vegetables. The third place according to the value of exports belongs to sector *7* (*Machines and transporting equipment*). The same sectors were dominant in the export also in the following five years, with the difference that the leading sector *6* (*Processed products divided by material*) was in second place in 2015 and the leading role was taken by sector *7* (*Machines and transporting equipment*). In the period from 2010 to 2013 the exports of products from sector *7* showed a constant tendency of growth, whereas the export of products from sector *0* was in a mild decline in the period from 2012 to 2015, which indicates a certain improvement and structural progress of the exports of the Republic of Serbia.

Table 4 Structure of foreign trade exchange of the Republic of Serbia divided by SITC sectors, in the period from 2010 to 2015 (in %)

	2010	2011	2012	2013	2014	2015	2010	2011	2012	2013	2014	2015
	EXPORT						IMPORT					
Total	100	100	100	100	100	100	100	100	100	100	100	100
0	18.0	17.8	18.7	14.3	16,0	15.6	5.3	5.3	5.8	5.6	6.4	6.0
1	2.4	2.3	2.5	2.2	2,7	3.3	1.0	1.0	1.0	1.00	1.0	1.2
2	4.7	5.6	5.0	4.4	3,6	3.4	4.2	4.0	3.2	3.1	3.2	3.9
3	5.1	4.2	3.6	4.9	3,7	2.8	19.8	20.0	17.5	15.1	14.1	11.3
4	1.5	1.7	1.7	1.3	1,0	1.2	0.2	0.2	0.3	0.3	0.3	0.3
5	9.0	8.5	8.1	8.6	8,0	8.5	14.9	15.0	16.5	15.1	14.8	14.4
6	29.0	29.5	22.9	20.0	20,9	21.5	19.9	19.3	18.4	17.0	17.9	17.7
7	16.2	16.7	22.7	31.0	30,0	29.1	21.0	22.8	23.6	27.3	26.3	26.3
8	12.6	12.8	13.8	12.5	13,1	13.2	7.9	7.6	7.1	7.5	7.8	7.2
9	1.5	0.9	1.0	0.8	0,8	1.5	5.8	4.8	6.6	8.0	8.0	11.8

Sectors

0 – Food and live animals
1 – Drinks and tobacco
2 – Raw materials, except fuel
3 – Mineral fuels and lubricant
4 – Animal and vegetable oils and fats
5 – Chemical products
6 – Processed products divided by material
7 – Machines and transporting equipment
8 – Various finalized products
9 – Products not mentioned in the SITC Rev. 4

Source: NBS, Statistički bilten, January 2014; RZS, (2016), Statistika spoljne trgovine, Saopštenje No. 24. Taken from: http://webrzs.stat.gov.rs/WebSite/repository/documents/00/02/00/75/st12012016.pdf. Accessed on: 29.01.2016.

The increase of exports of products from sector *8* (*Various finalized products*) in the period from 2010 to 2015, shows a decelerated development of the processing industry of the Republic of Serbia. On the importing side in 2010 products from sector *7*, sector *6*, sector *3* (*Mineral fuels and lubricants*) and sector *5* (*Chemical products* were dominant). Imports of products from these four sectors comprised approximately 76% of the total imports of the Republic of Serbia in 2010. The same group of sectors had the largest share in the imports also during the following years.

The structure of export of goods of the Republic of Serbia shows that a larger portion of the export value is comprised of products of lower processing stages (see Table 4). A special problem in the structure of exports is the outdated equipment, which is lagging several technological cycles in comparison to the same equipment in developed countries. With such weak technical and technological features the domestic economy cannot be competitive on the global market.

Table 5 The relative structure of imports and exports of the most important groups of products ranked according to SITC sections, revision 4, in 2015 (in millions of Euros)

EXPORT			IMPORT		
1. Road vehicles	1.569,1	11.7	Road vehicles	1.828,6	10.0
2. Electrical machines and appliances	1.031,4	7.7	Oil and oil derivatives	1.190,3	6.5
3. Fruit and vegetables	764.0	5.7	Electrical machines and appliances	770.0	4.2
4. Cereals and products made of cereals	638.1	4.8	Industrial machines	684.1	3.8
5. Ferrous metals	563.1	4.2	Natural gas	617.6	3.4
Participation in the total export	4.565,7	34.1	Participation in the total import	5.090,6	27.9

Source: RZS, Spoljnotrgovinska robna razmena Republike Srbije, December 2015. Taken from: http://webrzs.stat.gov.rs/WebSite/public/PublicationView.aspx?pKey=41&pLevel=1&pubType=2&pubKey=3408. Accessed on: 17.05.2016.

Table 5 shows that the export of *Road vehicles* represented the leading group of exports of products ranked according to SITC sectors in 2015, with a share of 11.7% in the total export. In the second place according to the value of exports were products from the group *Electrical machines and appliances* with 7.7%. *Fruit and vegetables*, *Cereals and products made of cereals*, as well as *ferrous metals* were the five leading export products. The leading group of imported products was the group of *Road vehicles* with a value of 1.828,6 millions of Euros and a share of 10% in the total import. In the second place were *Oil and oil derivatives* with the value of 1.190,3 millions of Euros, whereas the third position was taken by *Electrical machines* with a share of 4.2%. In the fifth place of imports in 2015 was *Natural gas* with a value of 617.6 mil. USD. The first five groups of products in the total exports of 2015 had a share of 34.1%, whereas the five leading groups of products in the total imports had a share of 27.9%. The high share of *Road vehicles* in the structure of exports divided by sections is a consequence of the expansion of exports achieved by the company Fiat Automobili Srbija in 2012. The export of *Electrical machines and appliances* is also growing, which is the result of the purchase of numerous Serbian companies from this field by foreign companies (e.g. the company Sever from Subotica was purchased by the foreign company ATB Austria).

Cereals comprise a considerable share of domestic exports, above all corn, and concerning fruit, the leading export products are frozen raspberries and fresh apples. Ferrous metals,

copper cathodes and products made of aluminum are a standard part of Serbian exports. The drop of copper exports is a consequence of the raise of prices of copper on the stock exchanges during the past few years, whereas the export of aluminum was stimulated by the successful privatization (Impol-Seval) of the aluminum rolling mill in Sevojno. Based on the presented data in tables 4 and 5, one can conclude that the Republic of Serbia has increased its exporting potential in the sector of the *Processing industry*, i.e. in the sectors of *Production of motor vehicles and trailers and the Production of electrical equipment*. Passenger vehicles, as the leading group of exports, according to its factorial availability and technological intensiveness, belong to the segment of the mid-technological level, intensified by human capital. In order to make the exports more competitive, it is necessary to increase the export of high-tech products such as: airplanes and light aircrafts; computers; products of the pharmaceutical industry; radio, TV and communication equipment; scientific instruments; and electrical machines (OECD, 2009, 32).

The share of exports of high-tech products from the Republic of Serbia in the total export of goods of the Federal Republic of Yugoslavia (FRY) in the period from 1996 to 2005 had variable values. The share of these products in the total export of goods of the FRY in 1996 was 6% with a subsequent declining trend all until 2000. In 2001 there was again an increase of the share of high-tech products in the total export of goods to 6%, but as soon as in 2003 this trend dropped to even 0%. In 2004 followed an increase of the share of these products to 4% and a repeated decrease in 2005 to 3%. The average share of high-tech products in the total export of goods in this period was 3.7% (World Bank, 2015).

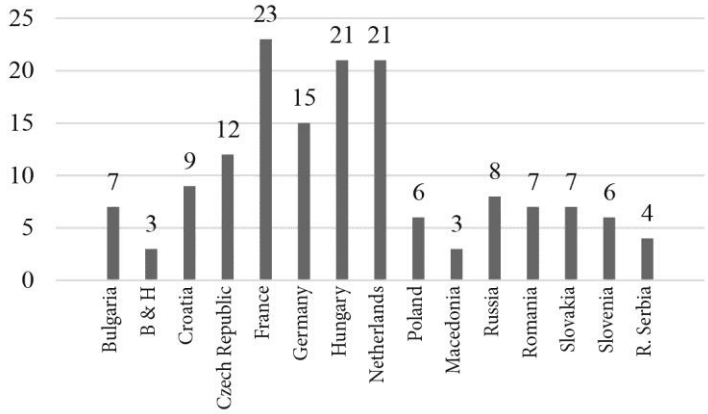


Chart 2 Average relative share of exports of high-tech products in the total export of goods of selected countries in the period from 2006 to 2014
Source: World Bank, (2015). Taken from: http://data.worldbank.org/indicator/NE.EXP.GNFS.ZS/countries. Accessed on: 21.06.2016.

If we compare the share of exports of high-tech products in the total export of goods of the Republic of Serbia with the selected countries we can see that it is considerably lagging behind in comparison to these countries. The average share of high-tech products in the total export of goods of the Republic of Serbia in the period from 2006 to 2014 was approximately 4%, and was only higher than the average of Bosnia and Herzegovina

(BiH) which amounted approximately to 3% and the average of the FYROM which also amounted to approximately 3%. In comparison to other selected countries, the average share of high-tech products in the total export of goods of the Republic of Serbia was 1.5 times lower than in the case of Poland and Slovenia, and almost six times lower than in the case of France.

By having joined the EU, many countries have managed to improve their exports of high-tech products. According to the latest World Bank report, data for the Republic of Serbia exist only until 2007, which indicates that there has not been any substantial progress in the technological structure of the exports.

5. The Influence of Foreign Direct Investments on the Structural Changes and Increase of the Export of Goods of the Republic of Serbia

Structural changes in production and the increase of exports represent the most important effects of the influx of FDIs. In his study, G. Broadman confirmed a highly positive correlation between the level of FDIs per capita and the level of foreign-trade exchange in the CEECs in the period from 1995 to 2003 (Broadman, 2005, 19). He has also proven that in the CEECs, but also in other countries, the foreign-trade exchange and the FDIs are complementary. The results of other empirical analyses have shown that the influx of FDIs creates potential for developing countries to increase the structural quality of their exports (Harding, Javorcik, 2012, 964-980).

Insufficient investments in the past period, insufficient domestic accumulation and the weak influx of foreign capital have led to a deceleration of structural changes in the economy of the Republic of Serbia. In order to become more competitive on the global market, the economy of the Republic of Serbia needs to increase the qualitative structure of its exports. The improvement of the structure of the exports requires prior investments in the import of modern equipment and technology, so that the final products are able to satisfy the standards of the global market. The attracting of FDIs, especially of Greenfield investments in the exporting sector is therefore of special importance. The present FDI structure was very unfavorable because investments were mostly made into the service sector which does not have the potential for increasing exports. Theoretical and empirical studies indicate that FDIs have a positive influence on economic growth, the growth of employment and increase of exports.

FDIs invested in production goods have a direct and multiply important effect on the increase of the GDP. The most frequent investors are multinational companies which dispose of developed technology and are mostly leaders in production. These companies bring Greenfield investments to the country of investing and thus also new technologies. If the product of new investors is a capital commodity it: (a) increases the accumulation of capital (expansion of the existing capital) and (b) enhances the quality of the existing capital or increases its diversion through technological progress.

FDIs are indirectly spilt over by means of transferring a knowledge-based management system or production *know-how*. This is most frequently manifested in the case of Brown-field investments.

By means of spilling over the technology (the so-called *spill-over* effect) foreign companies influence the domestic companies to adopt the new technology and the productional *know-how*.

Thus the production process is modernized and the quality of the products increased (Gligorić, 2014, 277).

Empirical studies confirm a highly positive correlation between the level of FDI per capita and the level of foreign-trade exchange. The developed countries of the EU will have to engage more in improving designs, patenting, as well as in the production of sophisticated products

The CEECs have moved through the transition process towards products of a higher level of finalization thanks to the *spill-overs* effects brought in by the FDIs. There have been deep structural changes in the economies of these countries. Ever since the mid-1990s, the CEECs have also begun to achieve comparative advantages in the production of technologically intensive products (such as machines and equipment, means of transport, electrical and optical instruments) especially in Central Europe, which was under the influence of German industry. The positive effects of the FDIs on structural changes and exports could have certainly been even greater had their larger portion not been directed into the service sector (finances, construction, transport and communications).

The Republic of Serbia must apply appropriate measures of economic policy and thus constantly improve the investment climate so as to attract as much as possible FDIs into the production of high-tech products. The high increase of the share of high-tech products in the export would follow the trend of the share of high-tech products in the global export of commodities. Structural changes in global production have influence on the increase of the international trade in technologically intensive products.

CONCLUSION

The global economy of the last decade of the 20th century has as its key feature a dynamic growth of international trade. The growth of global export was more dynamic than the growth of the global production and the global GDP. In the period from 2005 to 2013 the growth of the global export was 3.5%, which is considerably above the rate of growth of the global production and the global GDP. The growth of global trade also caused the change in its structure divided by SITC sectors. The period of the 1990s was accompanied by a drop of the share of exports of food and agricultural raw materials (due to a long-term drop of their exporting prices) and an increase of the share of exports of industrial products. After 2000, due to the increase of oil prices, there is an increase of the share of mineral fuels and lubricants. There is also an increase of the share of minerals, black and ferrous metals, the prices of which have also increased. Such trends have led to the decrease of the global export of industrial products.

In the period from 2010 to 2015 the Republic of Serbia predominantly exported reproduction materials and consumer goods and, to a far lesser degree, equipment. Sector 7 (*Machines and transporting equipment*) has recorded the highest level of export. Its average growth at that time used to be approximately 24.3%. In the second place was sector 6 (*Processed products divided by materials*) with an average growth of approximately 24%. A positive tendency is the fact that sector 0 (*Food and live animals*) is recording a decrease during the past years.

According to SITC sectors, products from the group *Road vehicles* comprised in 2015 11.7% of the value of the total exports. In second place were products from the group

Electrical machines and appliances with a share of 7.7% of the total value of exports. The leading imported products also belonged to the group *Road vehicles*, whereas the second position was held by *Oil and oil derivatives*. In order to achieve a considerable structural progress and increase of exports, it is necessary to develop products that are the result of a high-level research and development activity. Due to the lack of the country's own accumulation for financing these products it is necessary to provide an influx of FDIs.

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STRUKTURNE PROMENE I POVEĆANJE IZVOZA ROBE REPUBLIKE SRBIJE

Cilj ovog rada je da pokaže, na osnovu relevantnih sistematizovanih znanja u naučnim i stručnim publikacijama, ključne promene u strukturi svetske privrede i svetske trgovine, kao i da se identifikuje uticaj tih promena na strukturu i obim izvoza Republike Srbije. Najpre, pokazali smo teorijska i metodološka ograničenja u studiji dinamike i strukture trgovine svetske privrede i svetske trgovine. Drugo, prezentovane su procene MMF-a u odnosu na globalni rast u trgovini i BDP-a koji se odnose na 2016. i 2017. godinu. Sledi analiza strukture svetskog izvoza i uvoza robe po sektorima, u skladu sa Standardnom međunarodnom trgovinskom klasifikacijom (SMTK), a analiza strukture spoljne trgovine Republike Srbije prema proizvodima, kao i po oblastima i odsecima SMTK. Na kraju se ukazuje na značaj stranih direktnih investicija (SDI) na strukturno unapređenje proizvodnje i povećanje izvoza Republike Srbije.

Ključne reči: *svetska trgovina, struktura izvoza, unapređenje i povećanje izvoza, SDI*

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Preliminary communication

BENEFIT SEGMENTATION OF OUTBOUND SUMMER PACKAGE TOURISTS

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Abstract. *This study assesses tourist preferences for summer package vacation benefits. The purpose of this paper is to classify summer package tourists based on preferred benefits they seek from their vacation. Analysis of preferences for benefits sought is done by using the Analytic Hierarchy Process (AHP). A sample of 850 respondents was interviewed by telephone in order to reveal their preferences. In order to reveal the grouping of tourists according to their preferred benefits, a two-step cluster analysis has been applied using the log-likelihood measure, while the number of clusters has been determined using Schwarz's Bayesian Criterion. Four segments have been identified based on the benefits sought: variety seekers, package-centrics, comfort seekers and safety seekers. This research showed that fuzzy AHP could be used not just for understanding of tourist preferences, but also as a base for segmentation. This is a first attempt to apply fuzzy AHP for that purpose in tourism.*

Key words: *tourist benefits, benefit segmentation, outbound package tourists*

INTRODUCTION

Customer perceived value is a subjective construct (Eggert & Ulaga, 2002; Zeithaml, 1988), defined as the perception of consumers about the difference between the benefits received from certain products and services and sacrifices that need to be invested in order to obtain and use the product or service (Zeithaml, 1988), regardless of whether value is seen as unidimensional (Cronin et al., 1997; Zeithaml, 1988) or multidimensional construct. Other group sees customer perceived value as a multidimensional construct (Mayr & Zins, 2012; Sánchez-Garcia et al. 2007; Sinha & DeSarbo, 1998; Sweeney & Soutar, 2001), benefits and sacrifices are components of the value. Therefore, benefits are the essence of the perceived value (Cronin et al., 1997).

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In order to attract visitors, tourism destinations and service providers have to understand the needs and preferences of their customers. Knowing tourist preferences allows for the development of competitive offer and better product-market fit (J. S. Chen & Gursoy, 2001; Kang, 2003; Pike, 2006). There are a number of research articles dealing with tourist preferences (Basala & Klenosky, 2001; Hede & Kellett, 2011; June & Smith, 1987; Kim, 1996; Koo et al. 1999; Kruger & Saayman, 2015; Lehto et al. 2004; Pike, 2006). When buying tourism products, customers are basically buying benefits. Understanding benefits tourists seek is important for destinations and business alike so they can match their offer with tourists' preferences (Woodside, 1982).

Different tourists can seek and obtain different benefits from the same product (Alford, 1998; Koh et al., 2010). Based on the importance they attach to different benefits they seek form their vacation, tourists make decisions on their travel. In this paper, Serbian summer vacation outbound tourists using services of tour operators are segmented based on preferred benefits, using fuzzy AHP.

1. LITERATURE REVIEW

1.1. Benefit segmentation

Destination and vacation attributes are causes of tourist benefits (Evans & Chon, 1989; Goodrich, 1978; Sarigöllü & Huang, 2005). Benefits tourists seek are an important factor of destination choice (Lang et al. 1997; Lehto et al. 2002) and also affect different tourist movement patterns within destinations (Lau & McKercher, 2006). Understanding benefits tourists seek is important for destinations and business alike so they can match their offer with tourists' preferences (Woodside, 1982).

Benefits can be both functionally and psychologically based (Frochot & Morrison, 2000), and refer to what is known as push and pull factors (Crompton, 1979; Dann, 1977). The first group of benefits is related to functional attributes of a vacation destination, such as nature, climate, culture and heritage, cleanliness, quality of hotels etc. The second group are socio-psychological benefits related to social interaction, strengthening family bonds, escape from everyday routine, novelty seeking etc. Socio-psychological benefits sought by tourists are result of two related processes – escape from everyday routine and intrinsic rewards tourists seek from travel activities (Iso-Ahola, 1982; Mannell & Iso-Ahola, 1987). While psychological benefits like seeking escape from stress and everyday routine, meeting new people, spending time with family push tourists to go on a vacation in general (Crompton, 1979; Kozak, 2002), it is pull factors (trip/vacation/ destination attributes) that set the grounds for realizing those benefits (Uysal & Jurowski, 1994).

Haley was the first to introduce the idea of benefit segmentation in 1968 (Haley, 1968). He pointed out that the knowing the benefits that consumers seek from the purchase and consumption of a product or service is the best predictor of future buying behaviour, and that the benefits are true basis for the existence of market segments (Haley, 1968, 1971), since customers differ regarding benefits they seek (Haley, 1984). The benefit based segmentation implies the analysis of what consumers think about specific product attributes, and how much importance they attach to them (Mohsen & Dacko, 2013). Benefits sought are one of the segmentation criteria that caused great interest of researchers in tourism (Frochot, 2005; Loker & Perdue, 1992; Palacio, 1997;

Shoemaker, 1994). Frochot and Morrison (2000, p.24) gave a detailed overview of key studies on benefit segmentation in travel and tourism, classifying them into four broad categories of benefit segmentation application: (1) destination marketing, (2) targeting specific markets, (3) attractions, events, and facilities, and (4) examining traveller decision making process. Sarigöllü and Huang (2005) classify previous studies on benefit segmentation in terms of how benefits were obtained - through direct or indirect questioning, and by being destination specific or general. This study is based on direct questioning of tourists, and it is not destination specific.

1.2. Tourist value chain

The tourism industry is a complex one, which stems from the fact that the creation of tourism products are affected by many factors related to the tourist destinations and the services provided by different actors during the vacation (Gunn, 1997, p.32). A destination is an amalgam of a number of individual products and services tourists are consuming by combining them according to their needs and preferences. (Murphy et al. 2000), and value for tourists is made up of a large number of different services provided by different suppliers (Voss et al. 2008). Tourists perceive various individual services as parts of a single total experience (Räikkönen & Honkanen, 2013), which requires linking various services provided by different actors in a unique value creation framework (Kashyap & Bojanic, 2000).

The concept of a value chain was introduced by Porter (1985), in order to explain how different internal processes of the firm jointly contribute to the creation of customer value. Value is created not only by the firm itself but also by different companies located across different areas or even countries (Song et al. 2012). Firms can both compete and cooperate (Bendoly et al. 2004). Tourism and hospitality businesses, although many of them competing with each other, have to and can cooperate on the destination level (Leiper et al. 2011) in order to make destination more appealing to the tourists and create opportunities for better destination experience. Tourism value chain is a system of provider-customer encounter points where service is delivered (Romero & Tejada, 2011), Yılmaz and Bititci (2006) have defined the value chain in a way that it covers all business systems involved in provision of services from the moment of the packaged vacation decision/purchase and performing necessary activities before travelling, to the return from the trip. That way the value chain is divided into four stages (p.343): *Win order* stage, where tourists purchase package vacation from the tour-operator. Individual tourists do not go through this stage. *Pre-delivery support* covers activities tourists need for the realization of the vacation before going on vacation (handling visa requirements, giving the detailed information about the vacation etc.). These two stages are supported by the activities of tour-operators and outbound travel agents. The *delivery* stage is where different tourism suppliers deliver their services to tourists (transportation, accommodation, transfers, excursions etc.). *Post delivery support* stage includes corrective measures based on the results of customer satisfaction measurement. All experiences customer has with any of the value chain members, is a part of his/her total experience delivered by the value chain (Brathwaite, 1992).Therefore, tourist benefits are realised along the value chain.

2. METHODOLOGY

2.1. Fuzzy analytic hierarchy process

Assessment of the importance of the benefits is based on the Hierarchy Analytic Process (AHP). AHP is an analytical method that was introduced by Saaty (1977; 1980) and is regarded as a useful multi-attribute decision making tool in determining relative importance of certain variables (Kumar et al., 2015; Mulye, 1998). AHP is a method for relative measurement, useful in situations when there is a need for making a choice among a set of alternatives based on defined criteria. Due to its inability to deal with imprecision and vaguenes of human reasoning (Wang et al. 2014), a fuzzy AHP as an extension of traditional AHP has been developed, with van Laarhoven and Pedrycz (1983) being the first to propose a fuzzy AHP with triangular fuzzy numbers. Fuzzy AHP is based on the fuzzy set theory (Zadeh, 1965). A fuzzy set is a mathematical way for the representation of uncertainty in real-life problems. Fuzzy numbers are a standard set of real numbers belonging to a limited interval of real numbers. Triangular fuzzy numbers are defined in vector form with three parameters (l, m, u). The membership function of a triangular fuzzy number is represented in the following equation:

$$\mu_{\tilde{A}}(x) = \begin{cases} \dfrac{(x-l)}{(m-l)}, l \le x \le m \\ \dfrac{(x-u)}{(m-u)}, m \le x \le u \\ 0, \quad otherwise \end{cases}$$

where the parameter *m* determines the maximal grade, while the parameters *I* and *u* at the lower and upper bounds. Central to fuzzy logic are linguistic variables, which are variables whose values are words or sentences in a natural or artificial language (Zadeh, 1975). In fuzzy AHP, the pairwise comparisons are performed through the linguistic variables. Linguistic variables are represented by triangular numbers (Table 1).

Table 1 Definition and membership function of fuzzy number

Linguistic variable	Fuzzy number	Triangular fuzzy number (l, m, u)
Equal importance	$\tilde{1}$	(1, 1, 3)
Little importance	$\tilde{3}$	(1, 3, 5)
Strong importance	$\tilde{5}$	(3, 5, 7)
Very strong importance	$\tilde{7}$	(5, 7, 9)
Extreme importance	$\tilde{9}$	(7, 9, 9)

Implementation of fuzzy AHP involves several steps: (1) Building a hierarchy. (2) Developing pairwise fuzzy comparison matrices. (3) Testing consistency of respondents' judgments using CR ratio (Saaty, 1980). CR is calculated as a ratio between consistency index of the pairwise comparison matrix (CI) and consistency index of random matrix (RI), where CI, denoted CI = (λmax-n)/(n-1), gives information about consistency among pairwise comparison judgments, and RI is the average value of CI obtained from 500 random positive reciprocal pairwise comparison matrices generated using the Saaty scale. If CR is less than 5% for a 3×3 matrix, less than 9% for a 4×4 matrix, and less than 10% for larger matrices, then the matrix is consistent (Saaty, 1995). (4) Calculating fuzzy

weights. Using algebraic operations for fuzzy numbers (Zadeh, 1965), for each row the geometric mean $\tilde{r}_i = \left(\prod_{j=1}^{n} \tilde{a}_{ij}\right)^{1/n}, i = 1,2,\dots,n$ is computed (Buckley, 1985), and then fuzzy weights for each criterion are computed by $\tilde{w}_i = \tilde{r}_i \otimes (\tilde{r}_1 \oplus \tilde{r}_2 \oplus \dots \oplus \tilde{r}_n)^{-1}$, where $\otimes$ and $\oplus$ represent multiplication and addition of fuzzy numbers, respectevely. (5) In order to be compared and ranked, priorities have to be defuzzified. In this study they are deffuzified by using Center of Area method. This way the Best Crisp Performance (BCP) value or Best Nonfuzzy Performance (BNP) value (Hsieh, Lu, & Tzeng, 2004; Tzeng & Teng, 1993) is calculated by $BNP_i = \frac{1}{3}[(u_i - l_i) + (m_i - l_i)] + l_i, \forall i.$ (6) Crisp values have to be normalized by equation $x_{i\ (NORM)} = x_i / \Sigma_{i=1}^{n} x_i$. (7) Local priorities obtained at different hierarchy levels are aggregated into final, global priorities.

A review of the literature revealed that AHP and fuzzy AHP have been applied in a number of tourism related studies. Crouch (2010) used AHP to determine the relative importance of different attributes of the competitiveness on the overall competitiveness of the tourist destination. AHP is used in research related to determining the relative importance of natural attractions at destinations (Deng et al. 2002), selection of a location for a theme park (Moutinho & Curry, 1994), in convention site selection (Chen, 2006), and evaluation of hotel websites (Akincilar & Dagdeviren, 2014). Fuzzy AHP has been applied in a selection of hotel location (Chou et al., 2008), cruise port of call selection (Wang et al., 2014) and the development of online attraction recommendation system for tourists (Huang & Bian, 2009). Sheng-Hshiung et al. (1997) evaluated importance of travel related risks perceived by Taiwanese package tourists, and Hsu et al. (2009) used fuzzy AHP for analysing incoming tourists' preferences for destination attributes and resulting preferences for 8 tourism destinations in Taiwan. However, until now, fuzzy AHP model was not used in the analysis of the relative importance of the various benefits package tourists seek during the summer holidays, in order to reveal different market segments. To the best of our knowledge, this is the first attempt to apply fuzzy AHP for these purposes.

2.2. Hierarchy and questionnaire design

Benefits sought by summer vacation package tourists are broken down into the hierarchical structure according to the phases in the value chain (Fig. 1). In order to determine key benefits sought by outbound summer vacation package tourists, in-depth interviews with sales representatives of five biggest Serbian tour operators have been made, in order to determine key attributes their clients are most deeply and in detail asking about when choosing vacation package. At the end, a list of 18 most frequently sought attributes/benefits that fit into package tourist value chain has been formed. When constructing hierarchy, a value chain model developed by Yılmaz and Bititci (2006) has been adopted, with an addition of a prepurchase travel related information benefits. These are comprised of travel information search benefits related to the various information needs (Vogt & Fesenmaier, 1998), as well as those related to the destination brand (Chang, Chen, & Hsu, 2012).

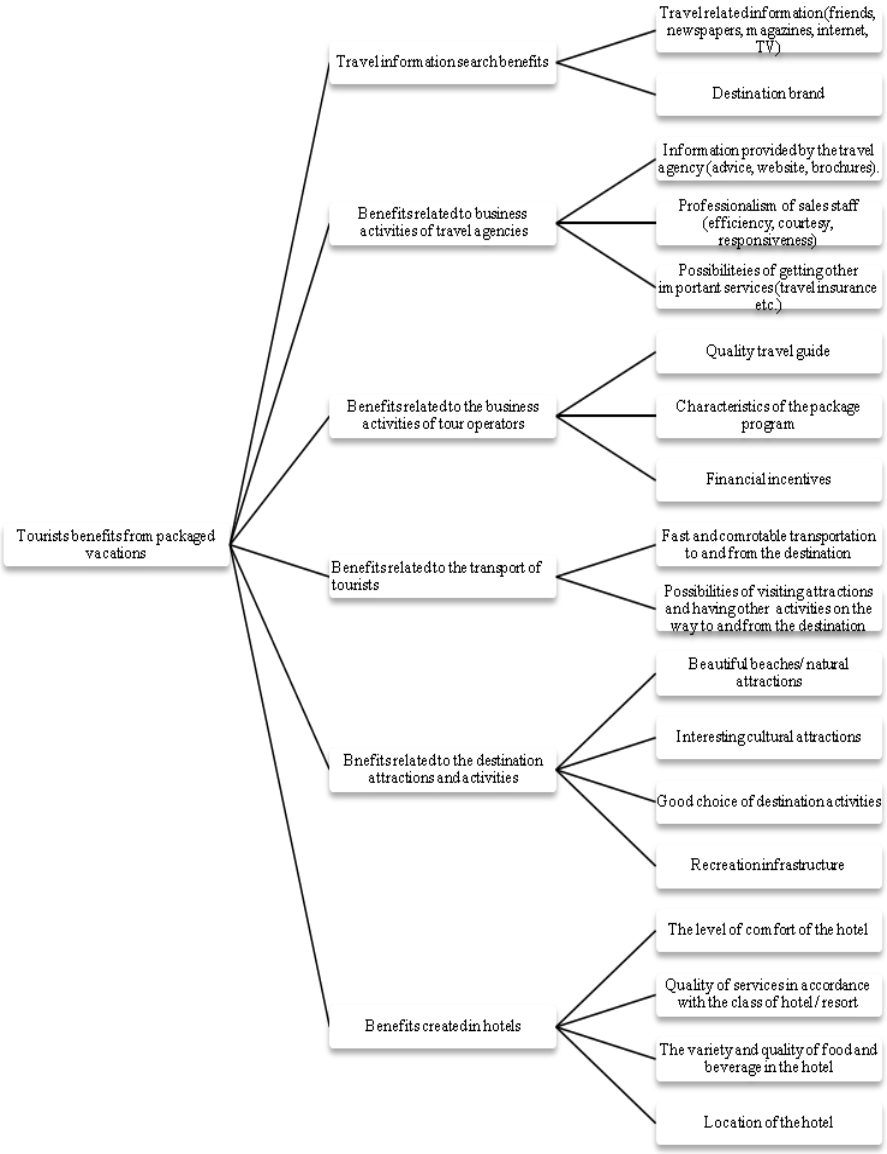

Fig. 1 Hierarchy diagram of benefits sought by summer vacation tourists

In the first part of the questionnaire the respondents were asked to answer on a five-point scale to what extent one variable is more important than another, using linguistic variables (Table 1). The second part of the questionnaire contained socio-demographic questions. Telephone interviewing has been used in order to get information from respondents.

2.2. Sample and data collection

The survey was conducted in the Republic of Serbia on a sample of 850 respondents. The criterion of selection was the experience of travelling in the last three years within the package arrangement of tour operators. The necessity of compliance with this criterion was essential in order to be able to assess respondents' importance of different benefits they expect from the package vacation. The study used stratified sample. The criterion for defining the strata was selected based on the official statistical division of Serbia into four statistical regions - Šumadija and Western Serbia, Belgrade, Southern and Eastern Serbia, and Vojvodina. In each geographic area two largest towns were selected.

Table 2 Survey sample

		Final sample		The original sample	
		%	N=729	%	N=850
Sex	Male	37.2%	271	37.1%	297
	Female	62.8%	458	62.9%	503
Age	18-24	14.5%	106	14.9%	119
	25-29	17.8%	130	17.6%	141
	30-39	19.9%	145	19.7%	158
	40-49	19.1%	139	18.5%	148
	50-59	16.6%	121	16.7%	134
	60+	12.1%	88	12.5%	100
Personal monthly net income (in Serbian dinars)	No income	23.7%	173	24.2%	194
	Up to 30 000	16.5%	120	17%	136
	30 001-50 000	22.5%	164	21.4%	171
	Over 50 000	14.7%	107	14.7%	118
	Doesn't know/refuses to answer	22.6%	165	22.6%	181
Monthly household net income per person (in Serbian dinars)	Up to 20 000	17.8%	130	18.5%	148
	20 001-30 000	16.6%	121	15.7%	126
	30 001-50 000	18.8%	137	18.5%	148
	Over 50 000	11.8%	86	12.1%	97
	Doesn't know/refuses to answer	35.0%	255	35.1%	281
Place of residence	Belgrade	23.9%	172	23.64%	187
	Šumadija and Western Serbia	28.9%	208	29.3%	232
	Southern and Eastern Serbia	25.8%	186	25.8%	204
	Vojvodina	21.4%	154	21.2%	168
Education	Incomplete primary / primary / 3 years secondary school	7.4%	54	8.1%	65
	4 years secondary school	41.3%	301	41%	328
	College	15.2%	111	16%	128
	University diploma	36.1%	263	34.9%	279

The survey was conducted by telephone. Contacts have been chosen randomly from the Telekom Serbia database. On average, every twentieth contact was eligible for the survey. Reasons for ineligibility were: (1) not answering the phone; (2) refusal to participate in the survey; (3) unfulfilled criteria regarding previous package vacation experiences, and (4) not fitting in the necessary demographic profile.

3. Results and Discussion

Based on answers from respondents, a fuzzy comparison matrix has been formed. Based on Saaty's threshold (Saaty, 1995), respondents whose comparisons were inconsistent, were excluded from the further analysis. It was found that there were 121 respondents with 189 inconsistent responses. Following the fuzzy AHP procedure, the overall ranking of the benefits summer package tourists seek, has been obtained based on their importance (Table 3).

In order to reveal the grouping of tourists according to their preferred benefits, a two-step cluster analysis has been applied using the log-likelihood measure (Chiu et al., 2001; Zhang et al., 1996). The number of clusters have been determined using Schwarz's Bayesian Criterion (BIC). With four clasters, BIC has the lowest value (901,323) and the change in BIC between adjacent number of clusters is smallest (0,293), while the ratio of distance measure is the biggest (1,412).

Table 4 shows the importance of benefits for each of the four segments identified. It is obvious that segments differ in preferred benefits they seek. Moreover, there is no overlapping between segments in first 4 most preferred benefits

The first segment (*variety seekers*) is comprised of tourists who prefer benefits emanating from destination attractions and activities. Benefits they seek are related to natural resources (beautiful beaches and natural attractions), a rich cultural heritage, good choice of quality destination activities and recreation infrastructure. In other words, this segment seeks the diversity of destination experiences. Also, this segment finds availability of information about the destination from different sources (TV, magazines, internet, friends etc.) very beneficial.

The second segment (*package-centrics*) is made of tourists whose benefits sought center around activities of tour operators and travel agencies. Characteristics of the tour program, the provision of tour leading/guiding services as well as the existence of financial incentives are essential to them, followed by the possibilities of visiting attractions and having other activities on the way to and from the destination, and quick and comfortable transportation to and from the destination. This segment represents the typical mass tourist, without interest for a deeper exploration of the destination.

The third segment are *comfort seekers* whose most important benefits are those created in hotels - the variety and quality of hotel food and beverages, the quality of services in accordance with the class of hotel / resort, the level of comfort of the hotel, the location of the hotel. In addition to the services provided in hotels, significant benefits are related to the transport services that facilitate travel - quick and comfortable transportation to and from the destination. This segment, in essence, prefers maximum comfort on holiday.

Table 3 Overall ranking of the importance of benefits

Goal	Level 1 (Criteria)	Weight	Level 2 (subcriteria)	Weight	Global weight	Rank
Tourists benefits from packaged vacations	Benefits from travel related information C. I. = 0.093, C. R.= 0.010	0,115	Information search benefits (information from friends, newspapers, magazines, internet, TV)	0,516	0,059	7
			Destination brand	0,484	0,056	8
	Benefits that are created through the business activities of travel agencies C. I. = 0.0095, C.R. =0.011	0,131	The information provided by the travel agency (advice, website, brochures)	0,307	0,040	17
			The professionalism of sales staff (efficiency, courtesy, responsiveness)	0,361	0,047	15
			Possibilities of getting other important services (reservations, travel insurance etc.).	0,331	0,043	16
	Benefits related to the business activities of tour operators C.I. =0.0129, C.R. = 0.014	0,185	Quality travel guide	0,291	0,054	10
			The characteristics of the package program	0,353	0,065	3
			Financial incentives for the purchase of the package	0,354	0,066	2
	Benefits related to the transport of tourists C. I. = 0.073, C. R.= 0.018	0,102	Quick and comfortable transportation to and from the destination	0,492	0,052	12
			The possibility of visiting attractions and having other activities during the trip	0,508	0,050	13
	Benefits related to the destination attractions and activities C. I. = 0.089, C.R. =0.015	0,245	Beautiful beaches/natural attractions	0,256	0,063	6
			Interesting cultural attractions	0,264	0,067	1
			Good choice of destination activities	0,259	0,064	5
			Recreation infrastructure	0,221	0,053	11
	Benefits created in hotels C.I.=0.036, C.R.=0.032	0,222	The level of comfort of the hotel	0,250	0,057	7
			Quality of services in accordance with the class of hotel / resort	0,219	0,049	14
			The variety and quality of food and beverages in the hotel	0,287	0,065	4
			The location of the hotel	0,244	0,054	9

Table 4 Ranking of benefits sought by segments of outbound summer vacation tourists

Benefits	Segment 1 **Variety seekers** (N=167, 22.9%)	Segment 2 **Package-centrics** (N=154, 21.1%)	Segment 3 **Comfort seekers** (N=145, 19.9%)	Segment 4 **Safety seekers** (N=263, 36.1%)
Information search benefits	5	18	18	1
Destination brand	7	15	17	2
The information provided by the travel agency (advice, website, brochures)	12	11	16	3
The professionalism of sales staff (efficiency, courtesy, responsiveness)	13	9	14	5
Possibilities of getting other important services (reservations, travel insurance etc.).	11	12	15	4
Quality travel guide	16	2	7	8
The characteristics of the package program	8	1	9	6
Financial incentives for the purchase of the package	10	3	10	7
Quick and comfortable transportation to and from the destination	15	5	3	12
The possibility of visiting attractions and having other activities on the way to and from the destination	14	4	6	10
Beautiful beaches/natural attractions	4	13	8	11
Interesting cultural attractions	1	14	11	15
Good choice of destination activities	2	17	13	9
Recreation infrastructure	3	16	12	16
The level of comfort of the hotel	18	10	5	18
Quality of services in accordance with the class of hotel / resort	17	8	2	17
The variety and quality of food and beverages in the hotel	9	6	1	14
The location of the hotel	6	7	4	13

The fourth segment (*safety seekers*) are those to whom safety and risk mitigation are substantial. They highly value destination brand and all he pre-trip information they can get before going to buy the package vacation. In this respect, they also prefer the benefits that are created through the provision of services by travel agencies, and advisory services by their sales staff. They also look for getting other important services for a hassle-free vacation, like travel insurance.

CONCLUSION

This research showed that fuzzy AHP could be used not just for understanding of tourist preferences, but also as a base for a segmentation. This is a first attempt to apply fuzzy AHP for that purpose in tourism.

This study has shown that, as Frochot & Morrison (2000) argued, benefit segmentation could be used for development or modifying of vacation packages, and is in line with previous studies (Calantone & Johar, 1984; Woodside & Jacobs, 1985). Also, segmentation

based on benefits tourists seek could help destinations coordinate activities of actors along the destination value chain, as well as to create more efficient marketing campaigns.

There are some limitations of this research, which has set the basis for future research. The choice of benefits included into AHP model is made based on deep interviews with tour operators' sales representatives. Although they are in contact with tourists and can comprehend their preferences, wishes and benefits sought, still the best way to reveal tourist benefits is to ask them directly (Chacko, 1996). Consequently, benefits and this research are related only to the pull factors. Without asking tourists, it was not possible to reveal push factors. Also, various financial, time or risk constraints were not taken into consideration (Tian, Crompton, & Witt, 1996). The study refers to the Serbian outbound summer vacation package market, and results could not be generalized.

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SEGMENTACIJA TURISTA KOJI KORISTE LETNJE PAKET ARANŽMANE ZA INOSTRANSTVO NA OSNOVU KORISTI

Ova studija daje analizu preferencija turista za koristima proisteklim iz letnjih odmora putem paket aranžmana. Svrha rada je da klasifikuje turist koji putuju na letnje odmore korišćenjem paket aranžmana, na temelju preferiranih koristi koje traže od svog putovanja. Analiza preferiranih traženih koristi je urađena korišćenjem analitlčkog hijerarhijskog procesa (AHP). Uzorak od 850 ispitanika je intervjuiran putem telefona kako bi se otkrille njihove preferencije. Da bi se utvrdilo kako se turisti grupišu u segmente prema preferiranim koristima, primenjena je dvostepena klaster analiza korišćenjem mere funkcije verodostojnosti, a broj klastera je utvrdjen korišćenjem Švarc-Bajezovog kriterijuma. Identifikovana su četiri segmenta po osnovu traženih koristi: oni koji traže raznovrsnost, oni koji traže koristi fokusirane na sam paket, oni koji traže komfor i oni koji preferiraju sigurnost. Ovo istraživanje je pokazalo da se fazi AHP može koristiti ne samo za razumevanje preferencija turista, nego i kao osnov za segmentaciju. Ovo je prvi pokušaj primene fazi AHP za tu namenu u turizmu.

Ključne reči: *koristi za turiste, segmentacija po osnovu koristi, turisti koji koriste letnje paket aranžmane*

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Review paper

INTERNATIONAL FRANCHISING IN THE HOTEL INDUSTRY

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Abstract. *International franchising in the hotel industry is still insufficiently researched theme in the literature. However, due to the fact that for the internationalization of the hotel chains it is necessary to ensure a large amount of capital, hotels increasingly decide to expand internationally through franchising. Therefore, it is necessary to devote more attention to franchising as the strategy of internationalization in the hotel industry. The greatest number of hotels which operate as franchisors comes from the U.S. On the other hand, the international franchising in hotel industry is significantly less developed in the rest of the world. Therefore, the paper focuses on the hotel franchise companies from the U.S. that have an international franchise units. The aim of the paper is to determine the impact of internal factors, the size and the age of the franchise system, on the use of franchising as a strategy of internationalization for hotel franchise company.*

Key words: *international franchising, franchisor, franchisee, hotel industry*

INTRODUCTION

The growth in service sector is evident in recent decades. The hospitality industry differs from other services in terms of complexity of logistics and supply chain, but also in terms of high investment required to start a business. With the aim of minimizing costs and risks of doing business, hotel chains usually decide to internationalize their business activities by using non-equity model of entry into the foreign markets, among which franchising has an important role. Therefore, the aim of this paper is to point out the importance of international franchising in the hotel industry sector and to determine the impact of internal factors, size and age of the hotel franchise companies, on the use of franchising as a strategy of internationalization.

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The first hypothesis is that internal factors (hotel chains' characteristics) have impact on the implementation of franchising as a strategy of internationalization. This paper tends to prove the assumption that the size of the hotel franchise company has an impact on the use of franchising in order to enter the foreign markets. The third hypothesis relates to the impact of the age of the hotel franchise company on using the franchising as a strategy of internationalization. The size of the hotel franchise company is observed through the total number of franchise units, while the age of the hotel franchise company is analyzed through the number of years in franchise business. In accordance with the above assumptions, the paper answers the following questions: Do the internal factors (hotel company's characteristics) have an impact on the implementation of franchising as a strategy of internationalization? Does the size of the hotel franchise company have an impact on the implementation of franchising as a strategy of internationalization? Does the age (and hence, experience) of hotel franchise company have an impact on the implementation of franchising as a strategy of internationalization?

In the first part of this paper we establish a theoretical framework for further empirical research that will follow in the second part of study. The empirical research will be conducted on the basis of secondary data about hotels franchising companies that are ranked on the list Top 500 Franchises 2016 published by Entrepreneur Magazine. Based on the descriptive analysis of secondary data, correlation and regression analysis, we will obtain proper empirical results. After summarizing the literature review and the empirical results, we will make relevant conclusions and recommendations for further research.

1. THEORETICAL BACKGROUND

The key drivers for the company to enter into various forms of partnership are high costs and high risks of starting a business and expansion into new markets (Guilloux, Gauzente, Kalika & Dubost, 2004; Tuunanen & Hyrsky, 2001). In recent decades, franchising is one of the forms of partnerships that has gained increasing importance (Brookes & Roper, 2012; Mason & Duquette, 2008; Rodriguez, 2002). IFA defines franchising as "a method of distributing products and services that involves a franchisor who lends their trademark and business system to a franchisee who, in return, pays a royalty for the right to use the franchisor's trademark and system in their business" (IFA, n.d.). Thus, franchisees get access to a proven franchise business concept, while franchisors gain access to franchisees' knowledge about the local market (Brookes & Altinay, 2011). Despite the aspiration to maintain a harmonious relationship between franchisors and franchisees in the franchise system, disagreements between them may occur often, primarily because the franchisors usually insist on maintaining the brand's uniformity, while franchisees want greater autonomy in business in order to respond better to local market needs (Weave & Frazer, 2007). Therefore, there is often a dilemma: standardization or adaptation of the franchise concept? In essence, it is best to ensure the standardization of basic performances, with the possibility of adjusting the peripheral components with low additional costs (Palmer, 1985).

The service sector has grown rapidly in recent decades, in both developed and developing countries. It should be noted that the hospitality industry is one of the key drivers of this rapid growth in service sector (Ketchen, Upson & Combs, 2006). Unlike

most service industries, the characteristic of hospitality industry is high capital intensity (Contractor & Kundu, 1998), while logistics and supply chains may be very complex (Chen & Dimou, 2005). Hotel chains rarely decide to internationalize using their own resources, bearing in mind that internationalization requires a large amount of capital. In this regard, hotel chains increasingly apply non-equity models of entering the international markets, with the aim of minimizing costs and risks of operations (Alon, Ni & Wang, 2012; Contractor & Kundu, 1998; Dunning, Pak & Beldona, 2007). Therefore, it is important to point out the importance of franchising as a strategy of internationalization in the hotel industry.

Given the fact that multinational franchisors, including hotel chains, actively seek opportunities for growth and expansion to the international markets, international franchising is gaining more attention in academic research (Xiao, O'Neill & Wang, 2008). In the hotel industry, franchising arises initially in the U.S., in the 1960s, as a strategy of expansion of Holiday Inn and other large hotel chains (Cruz, 1998; Pine, & Zhang Qi, 2000). By the 1980s, franchising was rarely used as a strategy of internationalization by hotel companies. Hotel chains relied more on leasing arrangements and management contracts. However, in order to provide greater flexibility and adapt to the needs of foreign customers, hotel chains usually decide to implement several different internationalization strategies simultaneously (Connell, 1997). The literature review suggests that a number of organizational and market conditions have impact on using the franchising as a strategy of internationalization by hotel chains: saturation of the domestic market, competition in the domestic market, potential in developing countries, particularly in Asia and Latin America, regional trade agreements, such as the European Union (EU) or the North American Free Trade Agreement (NAFTA) and liberalization of the former communist countries (Johnson & Vanetti, 2005).

Globally, franchising is one of the fastest growing business strategies, bearing in mind that it enables the franchisor to develop a franchise system with minimal capital investment (Cherkasky, 1996). Through franchising, the franchisor can achieve rapid expansion with limited resources, early entry into new markets and higher market share. Also, franchisor can strengthen its market position and he can share the business operations risks with franchisees. In fact, franchising offers the hotel franchise company a chance to expand with the lower level of investment and risk. Franchisor shares the expansion costs with the franchisees who typically pay start-up costs, initial fees and ongoing royalties. In return, franchisees operate under the name of well-known brand, they achieve economies of scale and acquire franchisor's managerial expertise (Alon, Ni & Wang, 2012).

Franchising offers the possibility for rapid international expansion of hotel companies and has the potential to overcome many of the cultural, linguistic, technical, legal and employment problems that are commonly associated with internationalization (Abell, 1990, p. 5; Aydin & Kacker, 1990, Alon, Ni & Wang, 2012). Thus, franchising is a bridge between the franchisor and the franchisees which enables both parties to realize an effective method of growth. The U.S. is the largest world market when it comes to franchising in the field of hotel industry, given that more than 65% of the existing hotel chains in the U.S. are franchises (Dev & Brown, 1997). In other parts of the world, franchising in the field of hotel industry is less developed, but in recent years an increasing number of hotels opt for the use of franchising as a growth strategy (Pine, & Zhang Qi, 2000).

When the hotel chain decides to expand internationally, it has two options: franchise units and company-owned units. Oxenfeldt & Kelly (1968) point out that the franchise chains have a life cycle that explains ownership redirection. The franchising is considered to be a temporary phenomenon in the life cycle of the franchise system. In fact, it is considered that the attractiveness of the franchising significantly decreases when the limitations of availability of financial, human and information resources are eliminated. In this case, the hotel decides to establish company-owned unit, rather than franchise unit. Manolis & Dahlstrom (1995) and Caves & Murphy (1976) point out that the ownership redirection is caused primarily by quality standards. If the maintenance costs of quality standards are too high for some franchise unit, the franchisor will decide to buy that particular unit. The dilemma between company-owned units or franchise units is often solved by a plural form of business, which involves the simultaneous use of the company-owned and franchise units. Therefore, company-owned units and franchise units are complementary. When there are company-owned units and franchise units in the franchise chain, franchise system can achieve appropriate benefits by overcoming disadvantages associated with each of the given business options (Botti, Briec & Cliquet, 2009).

A number of factors, in particular the organizational and market value factor, have an impact on the internationalization through franchising. The largest number of previous studies was focused on the analysis of the factors that affect the internationalization through franchising as the strategy of internationalization in the manufacturing sector (eg. Baker & Dant, 2008; Gatignon & Anderson, 1988) and in the fast food sector (Ni & Alon, 2010). However, it is necessary to devote greater attention to this issue in the hospitality sector. Huszagh, Huszagh & McIntyre (1992) found that the age of the company (number of years of franchise operations), company size (the total number of franchise units) are significant factors that influence the use of franchising as a strategy of internationalization. Before the decision to enter the foreign market, hotel chain needs to gain some experience and reach a certain size on the domestic market. Premature appearance on the global market can be very dangerous for franchise systems from the hotel industry, because internationalization in this sector often requires large costs (Alon, Ni & Wang, 2012). The higher the number of units in the franchise system, the company has a greater market power and can achieve greater economies of scale (Huszagh et al., 1992). In addition, finding international franchisee is easier for large hotel chains, due to higher brand recognition (Aydin & Kacker, 1990).

Franchising experience and size are positively related to the hotel franchise company's decision to internationalize. This is in accordance with the earlier research that indicates that the lack of franchise experience leads to high organizational uncertainty. This makes internationalization challenging and expensive, so the franchise company is reluctant to make a decision to enter the foreign markets. The international experience is important for hotel chains, because the franchising as a strategy of internationalization includes large investments and expenses for the development of franchise package (Alon, Ni & Wang, 2012). Also, the size of the hotel franchise company has a positive effect on the use of franchising as a strategy of internationalization, primarily because large companies have more resources to allocate and they have greater resistance to business failure (ibid.).

2. METHODOLOGY

The subject of the study is international franchising in the hotel industry. The purpose of the research is to determine the influence of internal factors from the domain of the size and age of the hotel franchise company on implementation of franchising as a strategy of internationalization. This paper attempts to answer the following research questions: Do the internal factors have an impact on the implementation of franchising as a strategy of internationalization by the hotel franchise company? Does the size of the hotel franchise company, measured by the total number of franchise units, influence the decision to implement franchising as a strategy for entering the foreign markets? Does the age or experience of hotel franchise company, measured by the number of years in franchise business, have an impact on the implementation of franchising as a strategy of internationalization? Based on these research questions, the following hypotheses are defined:

H1: Internal factors from the domain of the characteristics of the hotel franchise company have an impact on the implementation of franchising as a strategy of internationalization

H2: The size of hotel franchise company has an impact on the implementation of franchising as a strategy of internationalization.

H3: The age of hotel franchise company has an impact on the implementation of franchising as a strategy of internationalization.

Considering that the academic community still insufficiently writes about international franchising in the hotel industry, especially about the factors that influence the choice of franchising as a strategy of internationalization, we recognize the need to devote special attention to this topic. The subjects of research are hotel franchise companies which are ranked on Entrepreneur magazine's list 2016 Top 500 Franchises. There are 26 hotel franchisors on this list. The proposed hypotheses are confirmed based on the analysis of secondary data about a given hotel franchisors, using the software package SPSS. The number of international franchise units (i.e. franchise units outside the U.S.) of each hotel chain from the sample is used as the dependent variable. The independent variables are internal factors from the domain of the size and age of the hotel franchise company. The hotel franchise company's size is observed through the total number of franchise units, while the hotel franchise company's age (i.e. experience) is determined by the number of years in franchise business.

In accordance with the defined object and purpose of survey, proper theoretical and empirical research methods were used in the paper. Descriptive analysis was used for the understanding the state of activity of hotel chains that implement franchising as a strategy of internationalization. Statistical analysis of secondary data was performed using the SPSS software package. Statistical techniques for the investigation of connections and relationships between variables: correlation analysis and simple and multiple linear regression were used to verify the hypotheses.

3. RESULTS

The fact that there are 26 franchises from the hotel industry on the list 2016 Top 500 Franchises, indicates the importance of this sector in the field of franchising. It is important to mention that the second company on this list is franchise company Hampton

by Hilton, which has over 2.000 franchise units all over the world. In addition, there are six hotel chains in the top 100 companies on the list of Top 500 Franchises: Hampton by Hilton (Hilton Worldwide), Days Inn (Wyndham Hotel Group), InterContinental Hotels Group (Holiday Corporation), Super 8 (Wyndham Hotel Group) Motel 6 (G6 Hospitality), Hilton Garden In (Hilton Worldwide) (Table 1).

Table 1 The ranking of hotel franchise companies on the list 2016 Top 500 Franchises

Rank	Company
2	Hampton by Hilton
32	Days Inn
38	InterContinental Hotels Group
52	Super 8
56	Motel 6
85	Hilton Garden In
129	Homewood Suites by Hilton
136	Doubletree by Hilton
138	Knights Inn
141	Baymont Inn &v Suites
164	Red Roof Franchising LLC
176	Microtel Inn & Suites
180	Country Inns & Suites
189	Embassy Suites
210	Ramada Worldwide
273	Wyndhams Hotels & Resorts
278	Hilton Hotels and Resorts
290	Travelodge
306	Hawthorn Suites
331	Studio 6
339	WoodSpring Suites
349	Howard Johnson
372	Hospitality Int'l. Inc.
374	Home2 Suites
470	Wintage
478	Radisson

The oldest franchise hotel chain on the list 2016 Top 500 franchises is Hilton Hotels and Resorts, which was founded in 1919, while the youngest franchise system in the hotel industry from this list started the business 8 years ago (Home2 Suites). Observed by the number of years in franchise business, companies Howard Johnson and IHG (InterContinental Hotels Group) have used franchise business model since 1954, i.e. for 62 years. Right behind them is the company Hilton Hotels and Resorts, which started with franchise business in 1965. The youngest company in terms of franchise business is Home2 Suites, which has used franchise business model for only 7 years (Table 2).

The total number of franchise units ranges from 82 in the case of company Home2 Suites to even 5.032 franchise units, in case of hotel chain IHG (InterContinental Hotels Group). The average number of franchise units in hotel chains that are on the list 2016 Top 500 Franchise is 783 franchise units. There are five largest hotel franchise systems

that have over 1,000 franchise units: Motel 6 (1.235 franchise units), Days Inn (1.791 franchise units), Hampton by Hilton (2.123 franchise units), Super 8 (2.665 franchise units) and IHG (5.032 franchise units). All companies from the sample, except one (Woodspring Suites) have international franchise units (i.e. franchise units outside the U.S.). The number of international franchise units ranges from 0 to 1.644 (in the case of company IHG). Even 10 of the 26 hotel chains (38,5%) have more than 100 international franchise units, while two hotel chains (Super 8 and IHG) have over 1.000 franchise units outside the United States (Table 2).

The initial investment required to start a business within one of the hotel chains that are on the list 2016 Top 500 Franchises ranges from 1.367.800$ (Hospitality Int'l. Inc.) to 76.558.687$ (Hilton Hotels and Resorts). The average initial investment required to start a business within one of the famous hotel franchise company is 14.462.795$. The initial franchise fee ranges between 7.000$ (Knights Inn) and 95.000$ (Hilton Hotels and Resorts). The average initial franchise fee is 47.192$. The ongoing fee (royalty) ranges from 3.25% (Hospitality Int'l. Inc.) to 6% (Microtel Inn & Suites and Hampton by Hilton). Almost half of franchise companies in the hotel sector (44%) have an ongoing fee of 5% (Table 2).

Table 2 Descriptive analysis of hotel franchise companies

	Minimum	Maximum	Average
Number of years in business	8	97	43
Number of years in franchise business	7	62	31
Total number of franchise units	82	5.032	783
Number of international franchise units (franchise units outside U.S.)	0	1.644	185
Initial investition	1.367.800	76.558.687	14.462.795
Initial franchisee fee	7.000	95.000	47.192
Ongoing royalty fee	3,25	6	5

In accordance with the defined aim of the study, we will observe the impact of the internal factors (hotel franchise company's size and age) on the implementation of franchising as a strategy of internationalization. First of all, simple linear regression will be conducted in order to examine the impact of each of these internal factors on the implementation of franchising as a strategy of internationalization. Then, common impact of the hotel franchise company's size and age on the implementation of franchising as a strategy of internationalization will be examined by using multiple linear regression. Pearson's correlation coefficient indicates that there is a strong positive correlation between the size of the hotel franchise company and the implementation of franchising as a strategy of internationalization, r=0,900. This result is statistically significant, p=0,000.

We can conclude that there is a statistically significant strong positive correlation between the hotel franchise company's size (total number of franchise units) and implementation of franchising as a strategy of internationalization (number of international franchise units), r=0,900, p<0,005. The coefficient of determination in this case is R2=0,809, so the size of the hotel franchise company explains 80.9% of variance in the answers relating to the use of franchising as a strategy of internationalization. This regression model reaches statistical significance (F=101,746, p=0,000) (Table 3).

Table 3 Results of simple linear regression - the impact of the hotel franchise company's size on the implementation of franchising as a strategy of internationalization

Correlations

		Number of international franchise units	Total number of franchise units
Pearson correlation	Number of international franchise units	1,000	0,900
	Total number of franchise units	0,900	1,000
Sig.	Number of international franchise units	,	0,000
	Total number of franchise units	0,000	,

Model Summary

Model	R	R Square	Adjusted R Square
1	0,900	0,809	0,801

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	2746518,679	1	2746518,679	101,746	0,000
Residual	647855,975	24	26993,999		
Total	3394374,654	25			

Coefficients

Model	B	Std. Error	Beta	t	Sig.
(Constant)	-55,458	40,088		-1,383	0,179
Total number of franchise units	0,307	0,030	0,900	10,087	0,000

Simple linear regression will be conducted in order to determine the effect of the hotel franchise company's age on the implementation of franchising as a strategy of internationalization. Pearson's correlation coefficient indicates that there is a strong positive correlation between the age of the hotel franchise company and the implementation of franchising as a strategy of internationalization, r=0,555. This result is statistically significant, p=0,002. The conclusion is that there is a statistically significant strong positive correlation between the hotel franchise company's age (number of years in franchise business) and implementation of franchising as a strategy of internationalization (number of international franchise units), r=0,555, p<0,005. The coefficient of determination in this case is R2=0,308, so the age of the hotel franchise company explains 30,8% of variance in the answers relating to the use of franchising as a strategy of internationalization. This regression model reaches statistical significance (F=10,685, p=0,002) (Table 4).

For the purpose of conducting the multiple linear regression, we tested whether there is multicollinearity between independent variables. Given that the correlation coefficient between the hotel franchise company's size and age is less than 0.7, we will analyze both variables. The value Tolerance is greater than 0,10, while the value VIF is less than 10, which confirms the absence of multicollinearity. In the regression model which includes the hotel franchise company's size and age, coefficient of determination is R2=0,818. This indicates that the model explains 81.8% of variance in the answers concerning the implementation of franchising as a strategy of internationalization.

Table 4 Results of simple linear regression - the impact of the hotel franchise company's age on the implementation of franchising as a strategy of internationalization

Correlations

		Number of international franchise units	Number of years in franchise business
Pearson correlation	Number of international franchise units	1,000	0,555
	Number of years in franchise business	0,555	1,000
Sig.	Number of international franchise units	,	0,002
	Number of years in franchise business	0,002	,

Model Summary

Model	R	R Square	Adjusted R Square
1	0,555	0,308	0,279

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	1045643,095	1	1045643,095	10,685	0,003
Residual	2348731,559	24	97863,815		
Total	3394374,654	25			

Coefficients

Model	B	Std. Error	Beta	t	Sig.
(Constant)	-266,833	151,264		-1,764	0,090
Total number of franchise units	14,688	4,494	0,555	3,269	0,003

The regression model that includes internal factors from the domain of hotel franchise company's size and age reaches statistical significance (F=51,812, p=0,000). Beta coefficient is higher for variable total number of franchise units (Beta=0,840), so the size of the hotel franchise company contribute more to the explanation of the dependent variable, while the contribution of the hotel franchise company's age is smaller (Beta=0,113). Also, part correlation coefficient is higher for variable total number of franchise units (Part=0,714). This means that the size of the hotel franchise company uniquely explains about 51% of the variance in the dependent variable values. The hotel franchise company's size provides a significant unique contribution to the prediction of the dependent variable (p=0,000). The age of hotel franchise company uniquely explains only about 1% of the variance in the values of the dependent variable (Part=0,096), but it does not give a significant unique contribution to the prediction of the dependent variable (p=0,291) (Table 5).

Based on a comprehensive analysis, it can be concluded that there is statistically significant strong positive correlation between the hotel franchise company's size and the implementation of franchising as a strategy of internationalization. The regression model that explains the impact of the hotel franchise company's size on the implementation of franchising as a strategy of internationalization reaches statistical significance. Therefore, we confirm the hypothesis that the size of the hotel franchise companies has an impact on the implementation of franchising as a strategy of internationalization. Also, there is a statistically significant strong positive correlation between the age of the hotel franchise companies and the use of franchising for international expansion. The regression model that explains the impact of the hotel franchise company's age on the implementation of the franchising as a strategy of internationalization reaches statistical significance. Therefore, we confirm the assumption that the age of the hotel franchise company has an

Table 5 Results of multiple linear regression - the impact of the hotel franchise company's size and age on the implementation of franchising as a strategy of internationalization

Model Summary

Model	R	R Square	Adjusted R Square
1	0,905	0,818	0,803

ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	2777821,649	2	1388910,824	51,812	0,000
Residual	616553,005	23	26806,652		
Total	3394374,654	25			

Coefficients

Model	B	Std. Error	Beta	t	Sig.	Correlations			Collinearity statistics	
						Zero-order	Partial	Part	Tollerance	VIF
(Constant)	-131,523	80,937		-1,625	0,118					
Total number of franchise units	0,287	0,036	0,840	8,039	0,000	0,900	0,859	0,714	0,723	1,383
Number of years in franchise business	2,989	2,766	0,113	1,081	0,291	0,555	0,220	0,096	0,723	1,383

impact on the implementation of franchising as a strategy of internationalization. The regression model that includes internal factors from the domain of the hotel franchise company's size and age explains 81.8% of variance in the answers concerning the implementation of franchising as a strategy of internationalization and this model reaches statistical significance (F=51,812, p=0,000). The hypothesis that the internal factors from the domain of hotel franchise company's characteristics have an impact on the implementation of franchising as a strategy of internationalization is confirmed.

CONCLUSION

The world famous hotel chains continuously look for expansion opportunities in the international markets. Therefore, the international franchising in hotel industry gains growing importance. The largest number of hotels that operate in franchise business come from the United States. In the rest of the world, franchising in the hotel industry is less developed. However, benefits that are achieved through franchising in the domestic and foreign markets are promoted more intensively in recent years. Previous analysis about the impact of hotel franchise company's size and age on the implementation of franchising as a strategy of internationalization indicate that larger and older hotel franchise companies more often decide to spread their business activities in foreign markets through franchising. Some of the reasons for this are as follows: greater market strength of larger and older franchise systems, greater brand recognition, lower operating costs per franchise unit and easier obtaining of the necessary resources for international expansion.

The paper analyzes hotel franchise companies that are ranked on the list 2016 Top 500 Franchises. Based on the conducted statistical analysis, it is found that there is a statistically

significant strong positive correlation between the size of hotel franchise system (total number of franchise units) and the implementation of the franchising as a strategy for internationalization (number of international franchise units), as well as statistically significant strong positive correlation between the age of hotel franchise system (number of years in franchise business) and internationalization by using franchising. The limitation of the study is that the focus is only on the impact of internal factors on the implementation of franchising as a strategy of internationalization by the hotel franchise companies. The future studies should, in addition to internal factors, include the analysis of external factors, primarily cultural and geographic distance. This study refers to hotel franchise companies from the U.S., so future studies might deal with the analysis of international franchising in the European hotel industry and comparative analysis in a several different countries.

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INTERNACIONALNI FRANŠIZING U SEKTORU HOTELIJERSTVA

Internacionalni franšizing u sektoru hotelijerstva je još uvek nedovoljno istražena tema u literaturi. Ipak, s obzirom na to da je za internacionalizaciju poslovanja hotelskog lanca neophodno obezbediti veliki kapital, hoteli se sve češće odlučuju da se šire internacionalno putem franšizinga. Iz tog razloga je potrebno veću pažnju posvetiti temi franšizinga kao strategije internacionalizacije u sektoru hotelijerstva. Najveći broj hotela koji posluju po sistemu franšizinga potiče iz SAD-a, dok je u ostatku sveta internacionalni franšizing u sektoru hotelijerstva znatno manje razvijen. Stoga se rad fokusira na davaoce franšize iz sektora hotelijerstva iz SAD-a koja imaju internacionalne franšizne jedinice. Cilj rada je da se sagleda uticaj internih faktora, veličine i starosti franšiznog sistema, na primenu franšizinga kao strategije internacionalizacije od strane hotela davaoca franšize.

Ključne reči: internacionalni franšizing, korisnik franšize, davalac franšize, hotelijerstvo

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ECONOMIC EFFECTS AND REGULATORY LIMITS IN IMPLEMENTATION OF ENVIRONMENTAL TAXES

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Abstract. *Environmental protection presents one of the main goals of every social-responsible economy. Environmental taxes based on the principle "the polluter pays", within the system of fiscal measures, present the basic instruments of environmental protection. The member states of the European Union (EU) belong to a group of the leading countries in the implementation of environmental taxes. Since the aim of the Republic of Serbia is to join EU, it is quite clear that in the future it will have to harmonize its normative acts with the EU legislation in the field of environmental protection. In the field of environmental protection in Serbia, we still have the implementation of more regulatory-normative measures in relation to the implementation of economic measures. Therefore, the comprehensive environmental tax reform is imminent. In the future, making the traditional tax rates green, presents the inevitability both in the system of regulatory and the system of institutional changes as well. In this paper, a brief review of the types of environmental taxes, which have already been implemented in EU has been given, as well as the current state in Serbia concerning the implementation of valid regulations in this field. When the importance of revenue from taxes and compensations for the environmental protection are taken into account, then a more responsible approach is necessary in statistic monitoring, recording, as well as in the process of purposeful spending of collected funds. When these conditions have been fulfilled, we can talk about a serious analysis of the state and efficient implementation of environmental taxes in the field of environmental protection.*

Key words: *environmental taxes, internalization of external effects, environmental protection, the Republic of Serbia.*

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INTRODUCTION

The interaction between a human and nature presents a dynamic process which is being changed in accordance with the civilization development. The biological existence of a human depends on healthy environment, so the existence of the ever-lasting tendency for his survival is quite clear. However, in accordance with economic, social, and global growth and the development of the society, the human requires, day by day, more natural and energetic resources, which leads firstly towards the excessive exploitation of natural resources, then secondly towards large-scale pollution and thirdly towards the destruction of the people's health. For that reason, higher rationalization in terms of exploiting natural resources is needed. There is a great need to define more effective measures and instruments within the field of environmental protection, of course, in order to protect it from further deterioration.

In the countries of EU, these environmental taxes have a very important role in the environmental protection. What is more, it is thought that it presents the only possible way for solving the problem of mass pollution and excessive exploitation of natural resources. As for these issues, the EU member-states are the leading ones, since it has always been known that the pollution of the environment has not only a national frame but it has become the international problem as well.

Environmental taxes present the instrument of internalization of the external effects. The basic goal of their implementation is the influence on the changes of economies entities behavior, that is, polluters. The implementation of taxes makes it possible to achieve the environmental goals in such a way that it eliminates the difference between the social and private costs. "The tax for each unit of emitted pollution must be equal to the marginal amount of the damage on the optimal level of pollution" (Pesic, 2012, p. 104). The polluter is now forced to analyze not only their private costs, but also the total social costs (of the social damage) caused by their business activity. "The goal of optimizing the allocation of resources means linking the externality costs by internalization to the ones which cause them to a great extend. Although the amount of externality costs can neither be exactly and precisely determined, nor all the causes, and since it is perfectly impossible to charge the externality costs of all found out causes, it is still possible the for the forces, which are alike the market ones, to engage in the service of environmental protection" (Radukic, Popovic, 2012, p. 51).

In the positive effects of applying the environmental taxes could also be included the achievement of the so-called "double dividends". It occurs as a result of applying the environmental taxes, as there is a possibility to decrease the tax liability of the labor force and to increase the taxation of "dirty" technologies. In that sense, the environmental tax reform has the positive effect not only in the field of environmental protection but it has a great economic importance. The EU member-states achieve their environmental goals by combining economic and regulatory measures and then, without any doubt the importance and significance of economic instruments must be emphasized.

In order for Serbia's accession to the European Union, the situational factors are being analyzed, the potentials, requirements which must be fulfilled in this field, as well as there is the necessity to carry out the tax reforms. In the paper, the types of environmental taxes in the EU member-states have been briefly described, their potential and efficiency, and then a short review of the existing situation in the Republic of Serbia is given.

1. TYPES OF ENVIRONMENTAL TAXES IN THE EUROPEAN UNION

In the practice of the EU member-states, the commonly used instruments in this field are: environmental taxes, transferrable permits and subventions. The system of transferrable permits enables a certain degree of pollution up to the determined level, and the price of the permits is being determined on the base of the assessment of the future damage by the pollution. The polluters, which do less pollution than the level determined by permits, could sell their permits to the polluters that emit higher pollution than is the level determined by permits. This flexibility, which appears on the permits market, will make it possible for the companies to achieve the financial assets by selling their permits and then to invest them into purchase of some ecological and more efficient technologies. However, "the system of transferrable permits is not suitable for use in case of pollution emissions, which are not uniformly distributed in the space. It means that the selling permits by the polluters that are dealing in the rural area (or poorly populated settlements) to polluters that are dealing in the urban area will cause significantly higher damages" (Pesic, 2012, p. 112).

By the subvention policy, the state tries to decrease pollution, so that "subvention should be equal to the difference between the marginal social benefit from the decreased pollution and the marginal private benefit of the company which causes pollution" (Mojasevic, 2009, p. 205). "By the subvention policy, the allocative efficiency could be easily destroyed, as the total marginal social costs of production now include also the costs of subventions, and the company-polluter does not take into account the costs of subventions. The application of subventions does not lead to the decrease of economic activity. The consequence of all this, is the excessive production, that is, the excessive pollution" (Mojasevic, 2009, p. 205).

By strengthening the environmental consciousness in the seventies of the last century, the members-states of EU implemented the environmental taxes as the result of the defined principle "the polluter pays". This principle, besides the other two - the precautionary principle and the principle of including environmental policy into other polices of EU, was the foundation of the international environmental policy. The original implementation of these taxes, unfortunately, did not give the expected results because of the fact that their implementation in the beginning was considered to be the proper compensation for the pollution, that is, the permission for the pollution. However, with the increase of environmental tax rates and the definition of the responsibilities within the criminal-legal norm, these taxes become very important, especially in the Scandinavian countries.

The implementation of environmental taxes, as an instrument of environmental policy, requires the complementarity with the goals of other national policies (industry, agriculture, transport, employment, etc.). Taxes, first of all, should have incentive, but not a conflict character. At the same time, the accomplishment of environmental and economic goals presents the basic condition while choosing the appropriate economic instrument in the field of environmental protection.

Although the environmental pollution has got a global character and it implies a broader international consensus within the Union, the environmental taxes have got pronouncedly national feature and they are defined by the appropriate Directions (for example, the Direction on energy taxes). There are no supranational taxes within the Union. Although in the past there were these kinds of initiatives, primarily in the field of decreasing the emission of CO_2 and energy consumption, there are still no taxes that would have such a feature. However, when it is taken into account that the environmental

protection and pollution overcome the national borders and occur as global problems, a necessary definition of this kind of a tax in near future could be expected.

Within the European Union, there are the following environmental taxes (Eurostat):

- taxes on energy products, that are taxes on mineral oils, motor fuels, gasoline, diesel, heating oil, kerosene, petroleum, gas, electricity and taxes on gases that cause the greenhouse effect ;
- taxes on transportation, that is, the tax on the registration and usage of motor vehicles, the tax on import and selling motor vehicles, car insurance, the tax on using roads – road toll, the tax on using other transportation means;
- taxes on pollution referring to the air pollution (CO_2, NO_x, SO_2), taxes on pesticide and artificial fertilizers, tax on waste that endanger the environment (bacteria, rubber, plastic bags);
- taxes on the resources including water treatment, usage of biological resources, exploitation of mineral raw materials (ores, oil, gas), exploitation of forests.

In the European Union, Sweden represents the country which is the leading one in introducing and implementing environmental taxes. Among the top leading countries today, besides Sweden and Denmark, are Germany, Finland, Great Britain, and the Netherlands. The European Union adopted in 2010 the Strategy "Europe 2020", by which it defined the priorities and goals in the field of market economy which is to be accomplished in the forthcoming period. One of the stated goals in the field of sustainable development is the efficient usage of resources and environmental protection. Within it, this strategy suggests the decrease of wage taxes, which would be compensated by higher taxes on dirty technologies, that is, by higher taxes on pollution. This is very important in the periods of high unemployment; this transfer of the tax burden from the labor force to the pollution would make it possible to achieve the so-called "double dividend", which would lead, on the one hand, to the decreased pollution, and on the other hand , to the increase of the employment. The decrease of the tax burden of the labor would make it possible to open additional jobs as well as the additional employment.

According to the latest announced data of European Commission (Environmental taxes in the EU, 2016) for the EU member-states the totally realized revenues on the base of environmental taxes, amounted to 343.6 billion euros in 2014. It is the increase of totally realized revenues according to this base, in relation to 2004, when it amounted to 282 billion euros. In the total environmental taxes, 76,5% goes to the revenue on the base of taxes on energy, then 19,9% goes to the revenue on the base of taxes on transportation and only 3,6% goes to the revenues on the base of the taxes on pollution and resources.

The share of environmental taxes in the total revenues from taxes and contributions is different in each of these member-states of EU. In the totally realized revenues from the environmental taxes, the predominant position belongs to the energy taxes in most of member-states of EU. For example, in Lithuania, Czech Republic, and Luxemburg, the energy taxes in 2014 amounted to over 90% out of the totally paid environmental taxes. The revenues from the taxes on the base of transportation in 2014, had a significant share in the totally paid environmental taxes (about 40%) in Ireland, Denmark, Malta, Belgium, and Austria, while the revenues from the taxes on pollution and resources in 2014, with the share of over 10% out of the totally paid environmental taxes, were realized in Croatia, Holland, Estonia and Slovenia.

However, besides that total increase of fiscal revenues on the base of environmental taxes, their share in the total tax revenues was decreased from 6,8% in 2004 to 6,3% in

2014 (Table 1). If we look at the period from 2004 to 2014, we can see that the share of these revenues was decreasing successively up to 2008, when it achieved the lowest level in the observed period (6,03%). The reasons for this kind of movement of this category of revenues are: the occurrence of economic crisis, decreased scope of production, transfer to the more advanced and cleaner technologies, rationalization of using the resources with the tendency to use the renewable resources. Also, the share of these revenues in the total revenues is the indicator of the realization of the initiative for Europe, which spends resources efficiently (European Commission, Europe 2020). The basic goal of this Strategy is that the share of these taxes in the total share achieves at least 10% up to 2020.

Table 1 Share of environmental taxes in the total tax revenues (in %)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
EU (28 countries)	6.86	6.82	6.64	6.38	6.18	6.03	6.35	6.37	6.37	6.35	6.33	6.35
Belgium	5.47	5.66	5.64	5.24	5.17	4.91	5.11	5.13	5.15	4.79	4.52	4.53
Bulgaria	9.51	9.76	9.58	9.46	10.11	10.69	10.49	10.6	10.59	10.1	10.03	9.84
Check Republic	6.9	7.05	7.24	7.05	6.74	6.85	7.19	7.03	6.99	6.56	6.15	6.22
Denmark	10.54	10.75	10.25	10.07	10.21	9.32	8.88	8.92	8.92	8.67	8.92	8.18
Germany	6.88	6.72	6.53	6.29	5.81	5.68	5.95	5.81	5.83	5.59	5.38	5.24
Estonia	6.11	6.73	7.58	7.17	7	7.37	8.42	8.82	8.65	8.61	8.09	8.28
Ireland	7.86	8.28	8.35	7.7	7.94	7.93	8.06	8.79	8.74	8.38	8.5	8.17
Greece	6.75	6.9	6.52	6.34	6.35	6.01	6.32	7.93	8.25	8.91	10	10.24
Spain	6.04	5.73	5.4	5.08	4.86	5.06	5.39	5.22	5.05	4.87	5.77	5.5
France	4.69	4.91	4.68	4.53	4.4	4.33	4.45	4.48	4.45	4.41	4.47	4.47
Croatia	11.12	10.95	10.62	10.23	9.95	9.34	9.26	10.11	9.38	8.87	9.58	10.51
Italy	7.51	7.25	7.44	7.14	6.57	6.22	6.7	6.74	7.36	8.04	7.89	8.28
Cyprus	12.01	12.32	10.58	9.63	8.7	8.69	8.76	8.67	8.68	8.13	8.63	9.01
Latvia	8.31	8.93	9.07	7.79	6.86	6.67	8.48	8.75	8.9	8.59	8.6	9.26
Lithuania	9.68	9.3	7.85	5.97	5.82	5.34	6.68	6.46	6.2	6.09	6.04	6.13
Luxembourg	7.29	8.19	7.84	7.36	7.1	7.05	6.58	6.38	6.36	6.15	5.65	5.23
Hungary	7.41	7.68	7.48	7.62	7	6.76	6.7	7.36	7.17	7.04	6.8	6.79
Malta	10.72	9.44	9.74	9.99	10.85	10.18	9.78	9.32	9.53	8.81	8.26	8.51
Holland	9.51	9.83	10.06	9.96	9.44	9.56	9.93	9.79	9.64	9.12	9.04	8.96
Austria	6.36	6.37	6.31	6.03	5.86	5.7	5.76	5.72	5.91	5.78	5.63	5.63
Poland	7.72	8.54	8.11	7.89	7.9	7.74	8.05	8.22	7.95	7.82	7.5	7.82
Portugal	9.4	9.76	9.37	8.9	8.62	7.82	8.15	7.96	7.16	6.8	6.48	6.59
Romania	8.4	8.59	7.15	6.76	7.05	6.32	7.1	8	6.88	7.08	7.47	8.76
Slovenia	8.65	8.67	8.29	7.86	7.97	8.06	9.57	9.75	9.43	10.32	10.74	10.61
Slovakia	7.36	7.77	7.48	7.64	7.11	6.91	6.67	6.52	6.36	6.12	5.72	5.76
Finland	7.28	7.47	7.06	6.91	6.41	6.3	6.19	6.57	7.18	6.98	6.71	6.57
Sweden	6.05	5.88	5.84	5.68	5.59	5.83	6.08	6	5.66	5.65	5.51	5.18
Great Britain	7.65	7.4	6.93	6.54	6.79	6.49	7.5	7.47	7.25	7.39	7.47	7.54

Source: Eurostat, Shares of environmental and labour taxes
in total rax revenues from taxes and social contributions.

This level of collecting environmental taxes is considered to be insufficient so that there are constant initiatives that the existing tax system should be more stimulating in terms of the standpoint of the goals of environment protection as well as the economy growth and opening new jobs. The improvement of the environmental tax system implies the following: abolishing the distorting taxes and subventions; the change of the existing tax structure and the introduction of new environmental taxes.

Distorting taxes and subventions are especially present in the field of transport where some definite tax reliefs are given for using cars, which leads to the increase of traffic, that is, to the increase of pollution. Here are also the subventions for air-companies, coal mines, etc.

The change of the existing tax structure implies the fact that in the price of particular products is included the amount of environmental taxes with the tendency to extend it to all the products which pollute the environment. One more thing is true, too: the differentiation of taxation enables the implementation of lower tax rates on the products which are less harmful for the environment.

The introduction of new environmental taxes should enable the redistribution of the tax burden between the labor and natural resources so that it presents the basic measure in accomplishing the goals of environmental policy. This measure should encourage the polluters to decrease the emitted pollution (Ilic-Popov, 2000).

Environmental protection presents one of key values in the European Union, where its members have defined the clear policy and ambitious goals which should be fulfilled in terms of energy saving, decreased gas emission of the greenhouse and using the renewable energy sources up to 2020. However, besides all these efforts, the statistics shows that "the level of gas emission of the greenhouse is increasing so that in the period from 2010 to 2020, the existing projects point to the fact that it will reach the emission gas level of more than 2% than it was in 2005, that is, it will be only 6% lower than the emission of the level in 1990" (Kosonen and Nicodeme, 2009, p. 1). Therefore, it is quite clear that the member-states could achieve the given goals in the field of environmental protection only by strong state intervention and commitment. It, first of all, refers to the changes of tax rates, the extent of the tax scope so that it would be possible to include in the tax base as many emitters of pollution as possible, but at the same time, enables the longer transiting period in order to help industry, that is economy, to adjust to the new system of taxation.

2. ECONOMIC INSTRUMENTS OF ENVIRONMENTAL PROTECTION IN THE REPUBLIC OF SERBIA

Taking into consideration the process of joining of the Republic of Serbia to the European Union, it is clear that Serbia will have to adjust its national legislation in this field to the legislation of the European Union. Although Serbia, in the previous period of time, did important shifts in relation to the last period of time, in the coming years, a very intensive process of adjusting and adopting new laws will engage Serbia, as well as in building up the necessary infrastructure in this field. Up to the end of 2016 the opening of the negotiating Chapter 27 "Environment and Climatic Changes" with the European Union is expected (Government of the Republic of Serbia)

Financing environmental protection is one of the key issues in the process of adjusting the national legislation to the regulations of the European Union. The introduction of the stable and effective system of financing is the basic pre-condition for preserving and improving of the environment. In Serbia, a decentralized system of environmental financing has been developed, which implies the following: the budgetary resources funds; the budget of the autonomous province and units of local self-government ; the financial resources of some other international organizations, institutions and bodies; the local and foreign legal and physical persons; the funds of the European Union; donations; grants; supports, etc. The environmental financing has been provided by the legally defined

principles "the user pays", "the polluter pays", as well as the principle of responsibility. The fact that presents the chief characteristic of the environmental financing is the insufficiency of financial resources.

In addition to all these things, when we talk about the implementation of the economic instruments in the environmental protection, the revenues that have been collected from their implementation are often insignificantly small although there is a high degree of environmental pollution and degradation. The causes are manifold, but the common are stated as the inconsistency in implementing these instruments and high degree of tolerance when the matter is about polluters, that is, big companies, which have been in difficult economic position for years, that is, in the process of restructuring.

Economic instruments in the field of environmental protection are aimed at not only the collection of some public revenues but also at achieving a positive influence on the behavior of legal and physical persons on the whole, in terms of decreasing, that is, preventing pollution. The purpose of their implementation is the change of society behavior on the whole and making people aware of the consequences caused by pollution. Therefore, the clear and efficient environmental policy requires good and clearly defined economic instruments.

In Serbia, the economic instruments in the field of environmental protection were introduced in 2004 on the base of the Law on Environmental Protection. By a series of by-laws, their implementation has been defined. The economic instruments, which have been implemented, include the compensations and incentives.

When we talk about compensations, there are several types (Law on budget system and particular non-fiscal laws):

- compensation for using natural resources,
- compensation for environmental pollution,
- compensation for environmental pollution in the regions of special state interest and
- local self-government units compensation for protection and improvement of environment.

The compensation for using natural resources is to be paid by the users of natural resources and they are to bear all the expenses for rehabilitation and recultivation of the degraded areas in accordance with the Law. These compensations are obligatory for using mineral raw materials, water, forests, soil, hunting and fishing. The user of natural resources is obliged to pay this compensation.

The compensation for environmental pollution is paid by the polluter and it is determined on the basis of the type of polluting for: the emissions from the particular sources of polluting, the emissions of the produced or dumped waste, as well as for the harmful substances contained in the raw materials, intermediate goods or a product. The Government of the Republic of Serbia, by the Direction on types of polluters, the standards for calculating the compensation for polluting the environment as well as obligors, on the base of the height and way for calculating and paying the compensation (2005), determines the criteria for the calculation of the compensation for polluting, the obligors, and finally, the height and way of calculating and paying the compensation. The assets obtained by collecting these compensations in the amount of 60% present the revenue of the budget of the Republic of Serbia and 40% presents the revenue of the units of local self-government.

Compensation for the produced or dumped waste is also determined on the annual level and depends on the type, quantity and features of the waste. The paying obligor is the producer, i.e. disposer of waste from the plant for which it has been issued the integrated permits. It is calculated per ton of waste annually.

Liable to pay the **compensation for substances which damage the ozone layer**, are the importers of these substances. This compensation is calculated per kilogram of the imported substance.

Compensation for environmental pollution in the areas of particular state interest declared by the Government of the Republic of Serbia also presents the revenue of Republic budget in the amount of 80% while 20% goes to the budgets of local self-governments. By the Law on Protecting Nature (2009), nature is defined as the benefit of common interest and its protection has been arranged. By the Law, there have been also defined the basic elements for calculating this compensation, and by the Direction on closer criteria, the way of calculating and the procedure of paying the compensation for using the protected area (2010), are being given in the details of the elements and the way of calculating. The assets collected from the paid compensations are used especially for the improvement and development of the protected areas. Responsible for paying these fees, is an entity who undertakes one of the following activities in the protected area (Law on Protecting Nature, 2009):

- mining, trading, hospitality, industry, civil engineering, traffic, transport, crafts, offering services;
- using vehicles in the protected area;
- using non-commercial facilities for holidays in these areas;
- using services, facilities and other structures, as well as names, and logotype signs of the protected area;
- visiting the protected areas, as well as visiting the structures on these areas.

Compensation for protecting and improving of environment is the compensation which the local self-government can prescribe within its jurisdiction on the base of: using the habitable and business premises, using the soil for performing activities, then for the activities that have an influence on environment, and the ones which are determined by the Government, transportation of oil, oil derivatives and other dangerous substances on the territory of the unit of local self-government with the status of endangered environment. Criteria for calculating and the highest amounts for these compensations are determined by the Direction on Criteria for Determining the Compensation for the Protection and Improvement of the Environment and the Highest Amount of the Compensation (2009). This compensation presents the source revenue of the units of local self-government. In 2014, the revenues from the compensation for the environmental protection amounted to 0,27% of the totally achieved GDP, that is, 10.610,52 million dinars and they were increased in relation to 2013, when they amounted to 7.962 million dinars (Environmental Protection Agency 2015).

The Fund for Environmental Protection was founded by the Law on Fund for Environmental Protection (2009). The basic role of the Fund was to provide the financial assets for stimulating and improving the environment, then the purposeful investment in the projects for environmental protection, as well as managing and mediating in the projects of energetic efficiency with the aim of sustained development and using renewable sources of energy. The revenue structure was also determined, which belonged to the Fund and the units of local self-government depending on the type of the compensation. The basic economic instruments for providing the financial assets were: the compensation for environmental pollution, and the compensation for transportation of wild flora and fauna. The Fund started working in 2009, and it ceased existing in September 2012, with the

explanation that there was no transparency in spending collected assets. When the Fund stopped operating, all revenues, based on this principle, became the revenues of the Fund of the Republic of Serbia. The foundation of a new budget, "green" one is anticipated by the changes of the Law on Environmental Protection, precisely, till the end of 2016.

3. Identified Problems and Weaknesses of the Compensation System for Environmental Protection in the Republic of Serbia

The compensations, defined on the basis of the national level by the Law on Environmental Protection, are various and it can be said, with a double character. One group of compensations has got the character of classical compensations, when it is about using and exploiting natural resources, while the second group of compensations consists of compensations which have got the character of taxes (Bisic, 2011). These corrective taxes present the additional tribute (tax) to the economic units, which, by their economic activities, cause the environmental pollution. The implementation of these instruments should provide a more rational exploitation of natural resources, the decreasing of activities and operations which cause the environmental pollution and purposeful usage of collected assets on this ground (Bisic, 2011). Compensations would primarily have the function of regulating the external effects and only then they are the function of budget revenues. This is of particular importance when we talk about negative external effects, when the producer does not bear the full production costs, but completely takes the revenue. In case that there is no adequate and efficient regulation, the scope of production is bigger from the socially-optimal level and with long-lasting consequences, such as the exhaustion of natural resources, excessive pollution, etc. Accordingly, compensation as a price of use of a natural resource or service should ensure that the user bears the full costs of the use of these resources.

The compensation for the pollution represents a typical environmental tax, but, on the other hand, the compensation for the promotion and protection of the environment is neither the compensation nor the tax. Funds raised on this basis have exclusive fiscal nature and they are frequently used for undesignated purposes. Income from compensation based on the exploitation of mineral resources for years has experienced an exceptionally small share of total revenue. The consequence of this situation is, above all, difficult economic situation of companies in the mining sector, which have been in the process of restructuring. Therefore, when it is the matter of this type of compensation, it is not certain whether it is justified to apply it as a percentage of net revenue of the smelter (5%) or, to take it as an absolute outcome per ton of exploited mineral raw materials.

Therefore, well based and defined set of economic instruments has a great importance. Onthe one hand, they should be defined in such a way so that they can affect the change of economic entity's behavior, and on the other hand, to define them on such a level that will not affect its competitiveness. The basic aim of their implementation is, first of all, the change of social behavior of the entity in terms of decreasing pollution and not only being the source of fiscal revenues. It is clear that it is the matter of a very complex procedure for defining the height, criteria, basis, the obligor who pays, etc.

However, the system of instruments should not be based only on compensations, taxes and penalties. It could be and must be considered through the introduction of economic incentives, such as the exemption from paying the compensation or the tax relief for those economic entities which invest in the decrease of pollution, that is, those which invest in

cleaner technologies. In that sense, in the USA, since the middle of the twentieth century, the tax investment loans have been used as an instrument of the economic policy for raising the competitiveness of American economy. In other words, the incentive is given to the economic entities so that, for the given percentage of investing costs at the moment of purchasing the new equipment, they decrease the tax rate, and in that way obtain the subvention for investment.

The definition of an obligor who pays the compensation and eco-taxes has a great importance. It is necessary to make a complete register of polluters, that is, the obligors who pay compensations, and not only to point out the existence of the obligation to pay compensations by big economic systems with integrated permits, who, because of a very difficult economic position, most commonly perform their responsibilities on this basis in an undisciplined manner.

It is also true that the system of financing the environmental protection in Serbia presents one of the basic problems in implementing environmental reforms. It is, in fact, a decentralized system, which relies, to a great extent, on the budget assets, the international financing support and subventions. The existing system of financing must be upgraded as the higher financial potential is a pre-condition of attaining the environmental goals. Even such insufficient assets are mostly used inappropriately, that is, they are not used for the decrease of pollution. The lack of coordination and monitoring activities is present not only when it is the question of needs in this field, but also the determination of the occurred damages caused by pollution, then the lack of legal and institutional regulations (for example, foundation and then the termination of the eco-fund) etc. The fact is, we can hardly realize the real financing needs in the field of environmental protection, and that we are unable to determine the range of destroyed environment of both current and the pollution occurred in the previous period.

4. The Suggestion of Measures for Improving the Compensation System in the Field of Environmental Protection in the Republic of Serbia

The success in managing the policy of environmental protection implies clearly defined instruments for environmental protection. The ultimate solution could be the adoption of the Law on Environmental Taxes which would include the current compensations, as the essential taxes, and in that way perform the more objective categorization (Bisic, 2011). The combination of fiscal and non-fiscal instruments would present a good set of economic measures. Measures and instruments of environmental policy cannot be separated from economic policy.

Every approach in solving the problem of externalities, no matter if it is the matter of private agreement or a state regulation and the policy of incentives (especially with the industrial pollution), has got its positive and negative characteristics. The effective system presents the combination of these two ways in solving this problem.

When there is a large-scale industrial pollution, the systems with integrated permits, which are mostly the obligors of payment of compensations, usually do not perform their responsibilities due to the economic situation in which they are. This must be changed in terms of more disciplined and responsible paying of these compensations and taxes along with the implementation of the appropriate penalty system. The extension of the list of obligors, that is, the identification of all obligors no matter if they are legal or physical

persons who are the polluters of the environment, is the pre-condition for running good policy of environmental protection. The implementation of economic instruments should lead to the socially acceptable behavior of all entities and not have as its main goal the collection of budget assets. Therefore, the growth of assets of eco-funds is not the goal by itself, but on the contrary, as a means of decreasing the pollution. A good set of economic instruments implies neither too high nor too low compensations and taxes, determined on the base of the most objective parameters of pollution (soil, water, air, human health, flora and fauna).

CONCLUSION

The harmonization of Serbian legislation with the EU regulations in the field of environmental protection is inevitable. In the forthcoming period, this process of adjustment will require a complete analysis of both positive and negative effects of environmental taxes. By the tax, the polluter is forced to internalize the negative external effects not only because of the respect of the principals of equity, but because of the principals of efficiency and proper allocation of resources. The implementation of these taxes should lead to the changes of behavior of all entities, and not be the basis for collecting budget assets. The existence and the growth of eco-funds are not goals in themselves, but the basic goal is the decrease of pollution when a long-term period of time is taken into consideration. The introduction of cleaner technologies is financially more required, especially for less developed countries and that is why their progress in developing the environmental reforms is slow.

In order to make an objective assessment of the pollution range, as well as the needs in the field of environmental protection, it is necessary to develop a good system of registration of polluters, monitoring the damages caused by pollution, recording the statistical and financial records of the effects of polluting and the benefits from the investment in environmental infrastructure projects. The ecological-ethical principle implies the rational expenditure and management of the resources nowadays so that it would be possible to provide the principle of sustainable development in the future. This principle implies that today's generations, by satisfying their own needs, by using the resources and environment, must not endanger that same right because of future generations. Finally, the consistent and legal implementation of eco-taxes and other economic instruments in this field is the only way to achieve sustainable development in the future.

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EKONOMSKI EFEKTI I REGULATORNA OGRANIČENJA U PRIMENI EKOLOŠKIH POREZA

Zaštita životne sredine predstavlja jedan od ključnih ciljeva svake društveno-odgovorne ekonomije. Ekološki porezi po principu "zagađivač plaća", u sistemu fiskalnih mera predstavljaju osnovne instrumente zaštite životne sredine. Zemlje članice Evropske unije (EU) pripadaju grupi vodećih zemalja kada je u pitanju primena ekoloških poreza. S obzirom da Republika Srbija ima za cilj priključenje EU, jasno je da će u budućnosti morati da usaglasi svoje normativne akte sa zakonodavstvom EU u oblasti zaštite životne sredine. U Srbiji u oblasti zaštite životne sredine još uvek imamo primenu više regulatorno-normativnih mera u odnosu na primenu ekonomskih instrumenata. Dakle, sveobuhvatna ekološka poreska reforma tek predstoji. U budućnosti ozelenjavanje tradicionalnih poreskih stopa predstavlja neminovnost kako u sistemu regulatornih, tako i u sistemu institucionalnih promena. U radu je dat kratak osvrt na vrste ekoloških poreza koji su u primeni u EU, kao i trenutno stanje u Srbiji kada je reč o primeni važećih propisa u ovoj oblasti. S obzirom na značaj prihoda od taksi i naknada za zaštitu životne sredine, potreban je odgovorniji pristup u statističkom praćenju, izveštavanju, kao i u procesu namenskog trošenja prikupljenih sredstava. Tek nakon ispunjenja ovih uslova možemo govoriti o ozbiljnijoj analizi stanja i efekata primene ekoloških poreza u oblasti zaštite životne sredine.

Ključne reči: *ekološki porezi, naknade za zagađenje, internalizacija eksternih efekata, zaštita životne sredine, Republika Srbija.*

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PERSONAL INCOME TAXES - DUAL TAXATION

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Abstract. *Personal income tax is one of the most important tax forms in the tax systems of modern countries, very generous and flexible. Personal income taxation can be organized as regular, synthetic or mixed taxing. In modern tax legislation there are alternative ways of personal income taxing, such as the double taxation system, proportional tax on income and negative income tax. Fiscal reforms performed in Serbia were often delayed due to numerous, sometimes non-economic reasons. The seriousness and necessity of a dynamic approach to the process of the tax system reforms in our country is still topical. In this respect, the aim of this paper is to highlight the advantages and disadvantages of the double tax system, as well as to point out the need to reform the personal income taxation in Serbia.*

Key words: *double taxation, income tax, tax elements, fiscal reforms, standard and non-standard gains, horizontal and vertical taxing equity.*

INTRODUCTION

Historically, the introduction of personal income tax (PIT) was preceded by specific tax forms, in which the human personality alone was the basis for the introduction of tax obligation. The transition from personal taxes, through individual income taxing, to a synthetic income tax, as its most perfect form, was long and not easy at all. Namely, the tax system in one country does not occur as a result of a predefined plan, based on scientific principles. It is the result of a compromise of different political forces, conditioned by the socio-economic system, the level of economic development, the degree of openness of the economy, historical development and tradition, the need to find new sources for financing public expenditure, tax administration performance, the level of tax ethics and so on. Research on the practices of many countries showed that in taxing personal incomes in the world there is a great diversity of solutions which has significantly increased in recent years, and

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that the real economic and social effects of the application of certain forms of taxation differ significantly from the predictions offered by economic theory. It is therefore necessary, before making decisions on the choice of a particular form of personal income taxation, to analyze in detail the advantages and disadvantages of each of them and to take into consideration not only theoretically expected implications of applying a specific tax form, but also the practical experience of countries that have implemented that model of taxation.

The effects of income taxation are numerous and have to be observed in the light of defined objectives of fiscal policy. Specifically, the following results of introducing the personal income tax are mentioned: the income effect, the substitution effect, the effects of stimulation, stabilization and redistribution. However, the introduction of personal income tax provokes many reactions of the taxpayer as, for example, the effort to avoid or reduce the imposed tax burden. Bearing these facts in mind, it stands to reason that the pronounced trade-off relationship between generosity and efficiency is particularly emphasized in personal income taxation.

The objective of this paper is to give a reasoned estimate of economic effects of the application of the dual model of income taxing in Serbia. In this regard, the study will start with the theoretical approaches to the institute of income taxation arrangements, then the comparative analysis of the effects of using alternative models of personal income taxing will be made, the economic implications of their application will be determined, the existing personal income tax system in Serbia will be analyzed and, finally, some recommendations will be suggested. Pursuant to the objective, the structure of the paper was set.

1. The Position of Personal Income Tax in the Tax Systems of Modern States and the Assessment Criteria of Efficiency

Personal income tax occupies a significant place in the structure of modern tax systems, given that it collects more than 25% of public revenue on the average. In specific terms, this tax has gained in importance with the tax reforms of the 1960s. Its share in the total revenues ranged slightly above 30% in many countries during the 80s of the XX century, but ten years later its participation percentage was again reduced to 25% to 27%. Observed by individual countries, the share of this tax in total tax revenues exceeds 20% in countries such as Italy, Germany and Norway, it is over 30% in Australia, Belgium, Canada and Iceland, while the absolute record holders are New Zealand with 42% and Denmark with almost 53% (Howell, 2005, p.43). Some countries, like Canada and New Zealand, had significant fluctuations during the year regarding the share of personal income tax in public revenues. This share changed from 22.6% in 1965 to 40.8% in 1990, or 34.6% in 2003 in Canada, while the amplitudes were even more pronounced in New Zealand, ranging from 39.4% in 1965 to 61.6% in 1980. The growth of the importance of personal income tax is the result of: changes in attitude toward indirect taxes, reduction of tax rates on personal income tax which caused positive reactions from the public, widening of the tax base, reducing the number of tax tranches and the abolition of many tax exemptions.

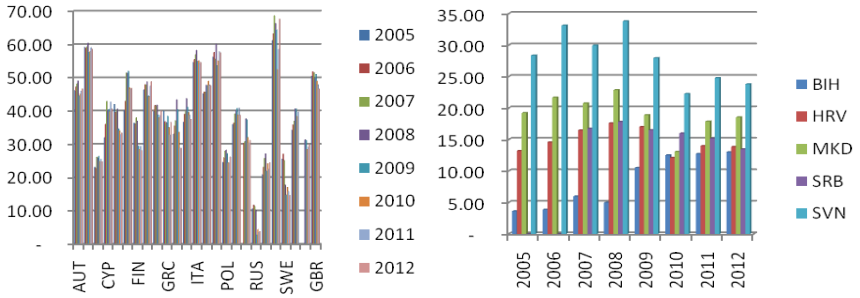
At the beginning of the XXI century, the practice of developed market economies has still contained tax pluralism, which involves the use of a large number of tax forms as a rational combination of various taxes and other public revenues suitable for the achievement of fiscal and extra-fiscal targets (Raičević, 2004, p.164). In this connection, it is easy to understand that the place and role of individual tax forms in an industrially developed country differ from the

taxation systems in developing countries. Thus, when we observe the share of taxes on personal income, corporate profits and capital gains in total tax revenues of Austria, Denmark, France and Germany in the period 2005-2012, we may note that it oscillated between 39% to 50% of total tax revenues, while in Belgium, Norway, Spain and England it ranged from 50% to 60% of total tax revenues (Table 1 and Chart 1). In Moldova, the participation of these taxes in total tax revenue was symbolic and ranged from 1.65% in 2010 to 5.87% of total tax revenue in 2007. In some countries in the Balkans (Bosnia and Herzegovina, Serbia) it was within the interval from 3.6% to 17%. Even in Croatia, as the last country that joined the European Union, the percentage share of these taxes is not much higher as it amounted to 12.10% in 2010 and 17.6% of total tax revenues in 2008.

Table 1 The share of income taxes in the total tax revenues (%) in some countries

Country	code	2005	2006	2007	2008	2009	2010	2011	2012
Austria	AUT	46.12	47.22	48.16	49.00	44.63	45.12	45.99	46.64
Belgium	BEL	59.11	58.88	59.32	60.38	57.75	57.86	59.06	58.59
Czech Republic	CZE	42.01	39.61	40.40	40.61	34.65	34.07	32.94	33.40
Denmark	DNK	40.23	42.98	51.39	51.44	51.95	47.04	46.68	46.85
Finland	FIN	36.40	36.09	38.03	37.00	29 .46	28.50	29.33	28.12
France	FRA	46.40	47.91	47.90	48.78	44.61	44.31	47.55	48.83
Germany	DEU	39.84	41.74	41.58	41.80	38.82	38.03	38.62	40.11
Italy	ITA	54.62	55.52	56.93	58.27	54.88	55.08	54.19	54.57
Luxembourg	LUX	45.18	45.70	45.74	47.78	47.66	48.97	47.81	47.73
Norway	NOR	56.22	57.65	55.65	60.09	53.69	55.07	57.77	57.50
Poland	POL	24.61	26.00	27.99	28.30	27.26	24.53	24.44	26.24
Slovak Republic	SVK	20.87	23.09	25.82	27.19	21.92	24.21	22.45	24.54
Spain	ESP	61.18	63.22	68.68	66.25	64.37	52.48	58.50	67.57
Sweden	SWE	25.59	27.12	25.17	17.74	14.75	17.07	15.82	14.64
Switzerland	CHE	34.23	35.82	36.95	40.70	40.62	38.41	39.70	..
Great Britain	GBR	50.48	51.85	51.49	49.91	51.00	48.97	47.88	46.63
Moldova	MDA	4.34	4.83	5.87	2.36	1.71	1.65	1.72	4.68
Bosnia and Herz.	BIH	3.61	3.86	5.99	4.98	10.50	12.52	12.73	13.01
Croatia	HRV	13.20	14.56	16.48	17.61	17.02	12.10	13.99	13.86
Macedonia	MKD	19.22	21.67	20.75	22.86	18.89	13.05	17.87	18.54
Serbia	SRB	..	..	16.74	17.83	16.51	15.98	15.18	13.47
Slovenia	SVN	28.36	33.13	29.95	33.82	27.96	22.26	24.79	23.81

Source: http://data.worldbank.org/indicator/all



in some European countries in Balkan countries (ex-YU republics)

Chart 1 The share of (incomes taxes) in the total tax revenues in the period of 2005-2012

Positioning of personal income tax in the tax systems can be perceived not only as a participation in tax revenue, but also as its share in gross domestic product (GDP) of the country - tax revenue yield. Viewed from this perspective, personal income tax in the 1960s accounted for only 7% of GDP in the OECD countries. With the increase in the relative share of this tax form in the total tax revenue, its share in GDP increased as well. If we consider the participation of PIT in GDP by groups of countries, we may see that the largest share of this tax in GDP is in the Nordic countries (18%), North American countries have the share of about 12%, while the Asia-Pacific region is in the level of Western European countries. Regarding specific European countries (Table 2, Chart 2), we may notice that in the period of 2005 to 2012 the largest share of tax revenues in GDP was in Cyprus, followed by Denmark, Belgium, Norway, Luxembourg and the United Kingdom.

Table 2 Average % share of personal income tax in GDP in some European countries in the period 2005-2012 (Schneider & Enste, 2003)

Countries	Code	2005	2006	2007	2008	2009	2010	2011	2012
Austria	AUT	19.47	19.13	19.39	19.48	17.94	17.93	17.89	18.27
Belgium	BEL	25.36	25.04	24.37	24.73	23.32	23.89	24.01	24.86
Cyprus	CYP	45.44	47.71	54.14	51.02	25.77	25.87	25.85	25.49
Czech Republic	CZE	14.25	13.47	14.01	13.62	12.45	12.92	13.07	13.45
Denmark	DNK	31.76	30.62	34.88	33.94	33.32	32.89	32.98	33.40
Finland	FIN	21.63	21.22	20.88	20.33	18.68	18.41	19.83	20.00
France	FRA	21.73	21.86	21.22	20.99	19.30	20.68	20.60	21.39
Germany	DEU	10.46	10.67	11.12	11.17	11.49	11.06	11.39	11.52
Italy	ITA	20.34	21.80	22.10	21.60	22.12	21.88	21.63	22.37
Luxembourg	LUX	25.68	24.61	25.04	24.90	25.62	25.23	24.68	25.53
Norway	NOR	28.73	29.40	28.61	28.26	26.29	27.23	27.80	27.29
Poland	POL	16.65	17.27	18.15	18.28	16.12	16.46	16.69	15.98
Slovak Republic	SVK	14.59	13.65	13.88	13.25	12.24	12.21	12.48	12.17
Spain	ESP	12.60	13.16	13.51	10.15	8.34	11.05	9.35	7.08
Sweden	SWE	21.51	22.10	21.26	20.50	20.50	20.21	20.85	20.68
Switzerland	CHE	9.38	9.48	9.31	9.96	9.82	9.63	9.76	..
Great Britain	GBR	25.76	26.46	26.24	27.30	24.45	25.18	25.79	25.29

Source: http://data.worldbank.org/indicator/all

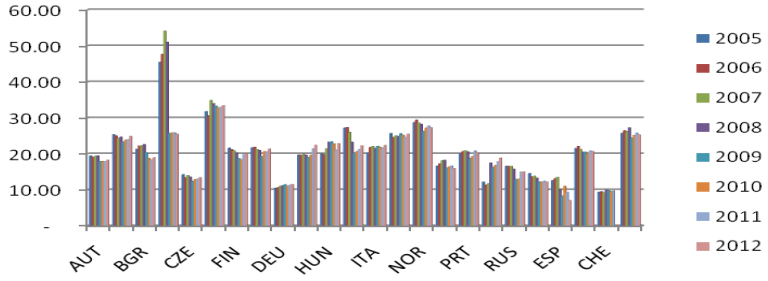


Chart 2 Average % share of personal income tax in GDP in some European countries in the period 2005-2012 [3]

By far the lowest PIT share in GDP belongs to the group of developing countries, or transition countries as they are still called, which is less than 7% of GDP. Thus, for

example, in the period 2005-2012 in the Balkan countries (of Bosnia and Herzegovina, Macedonia, Serbia) the share of tax revenues in GDP was around 20%, while in countries that joined the European Union (Croatia and Slovenia) it was under 20% (Table 3). In the same period, however, the share of personal income taxes in GDP of Serbia ranged from 1.12% in 2013 to 3.10% in 2006 (Table 4 and Chart 2).

Table 3 The share of tax revenues in GDP (%) of former Yugoslav Republics

Country	Code	2005	2006	2007	2008	2009	2010	2011	2012
Bosnia and Herz.	BIH	20.47	22.23	21.86	20.74	19.33	20.07	20.67	20.87
Croatia	HRV	19.78	19.86	19.93	20.01	19.24	19.16	18.47	19.58
Macedonia	MKD	19.26	18.92	19.49	18.67	17.29	16.99	17.16	16.71
Serbia	SRB	.	..	22.83	22.41	21.20	21.44	20.20	19.72
Slovenia	SVN	20.19	20.66	19.32	19.58	17.64	16.75	17.33	17.54

Source: http://data.worldbank.org/indicator/all

Table 4 Personal income tax share in the total income, tax revenue and gross domestic product in Serbia

Year	Total income	Tax revenue	Gross domestic product
2005	11.32%	12.96%	2.89%
2006	12.88%	14.56%	3.10%
2007	10.83%	12.27%	2.66%
2008	11.47%	12.81%	2.72%
2009	10.87%	12.41%	2.48%
2010	10.55%	12.19%	2.45%
2011	9.44%	10.87%	2.06%
2012	5.89%	6.76%	1.30%
2013	5.34%	6.00%	1.12%
2014	5.09%	5.81%	1.16%

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the Ministry of Finance of the Republic of Serbia

As most of the revenues from personal income tax makes the tax on wages (about 76%), its movement predominantly influences the total revenue from personal income tax. The movement of tax revenue on earnings depends on changes in earnings and employment trends

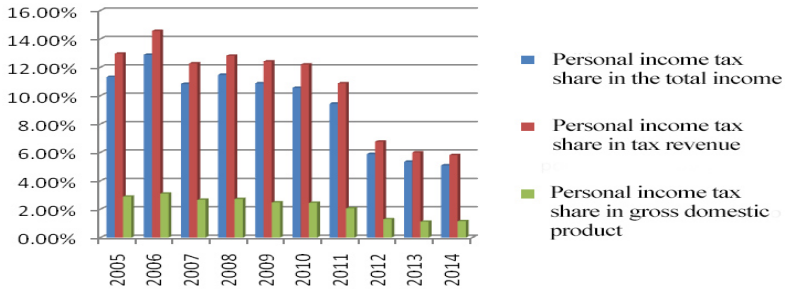

Chart 2 Personal income tax share in some income categories in the Republic of Serbia in the period of 2005-2014

On the lower revenues after 2011. Income tax earnings was mostly influenced by the growth of unemployment, low levels of earnings and changes to tax laws adopted at the end of May 2012, which, among other things, the non-taxable portion (census) raised to 11,000.0 dinars and the rate of tax on profits was reduced from 12% to 10%.

It is widely accepted opinion that the employment rate is the most important macroeconomic factor affecting the yield of personal income taxation, while the influence of the value of property generating taxable income on the revenue yield is smaller. The list of factors affecting the revenue yield of personal income taxation is not exhausted by this. Consequently, it is not possible to neglect the impacts of tax parameters such as: the height of tax rates, the level on which progression starts and the intensity of progression (if any), the level of non-taxable income, the number and extent of tax exemptions, etc. This is, also, the meaning of basic messages of the Laffer curve (Schneider & Enste, 2003):

There is one tax rate that maximizes the amount of tax revenue,

Any lower level of tax revenues can be achieved by using two different tax rates,

High tax rates create a large tax wedge which discourages working efforts and savings, and hence investment.

Research conducted in Sweden in 1981 showed that "revenue"-optimizing income tax rate amounts to 81%, while in the US it is in the range of 32.67% to 35.21%. [Fullerton, (1980) & Hsing, 1996) The research conducted in twelve countries of the OECD showed that eleven of the countries are located in the "normal" segment of the Laffer curve when it comes to the income tax rate. In other words, the current marginal income tax rate in these countries is much lower (on average by 17 percentage points) than the revenue-optimal rate that is 57%, which suggests that the increase in tax revenues can be achieved by increasing the marginal tax rate. According to the same research, only Sweden had the current marginal income tax rate higher by 7 percentage points compared to revenue-optimal tax rate [Heijman & Van Ophem 2005). Also, in certain studies the shape of the Laffer curve and the amount of optimal income tax rate are defined as the function of the willingness of taxpayers to pay taxes, i.e. their tax ethics (Heijman & Van Ophem 2005, p. 717). In this respect, the tax rate that provides maximum tax revenue can be represented by the following equation

$$\tau = \left(\frac{1}{1+\alpha} \right)^{\frac{1}{\alpha}} \tag{1}$$

τ - tax rate that rejects maximum tax revenue;
α – willingness of the taxpayer to pay the tax, i.e. the level of tax ethics

The validity of these results is limited by the assumptions on which the research has been conceived.

Equally important criteria for evaluating the income tax system are horizontal and vertical equity, economic efficiency, implementation costs, and international competitiveness. Horizontal equity implies that all citizens who earn the same income during the year, regardless of the source of its origin, pay the same taxes, and it can be achieved when the effective tax rates on all forms of income are equal. Vertical equity means that citizens earning higher incomes allocate a higher percentage of their income to pay taxes, which is achieved by applying progressive rates in personal income taxation. But the number of tax rates that are

applied in a number of countries is extremely high. According to available data of the World Bank, in the period 2005-2014 Bosnia and Herzegovina applied 40 to 55 different tax rates, Albania had 34 to 45, Romania 14 to 113. The smallest number of tax rates in the same period was recorded in Norway - 4, Sweden had 6, Spain and Portugal applied 8 rates. Way back in the 1990s, the World Bank argued in its recommendations that a good income taxing is based on a small number of taxation classes, no more than three (Kesner&Škreb, 2004, p. 142). Nevertheless, there is a relatively high level of agreement on the horizontal fairness of personal income tax system, while the accordance about the vertical equity is much lower.

A system of taxation is efficient if the introduction or increase of taxes does not lead to a decrease in the overall social welfare. Therefore, it may be stated that the tax fulfills the prerequisite of economic efficiency if it does not change relative prices in the economy. Otherwise, by causing changes in relative prices, it induces changes in the behavior of taxpayers (willingness of people to work, save, invest and take risks). In other words, the taxes in this way lead to a situation where limited resources are used less productively, that is, by affecting the amount of net income of natural persons or the amount of the total cost of the production factor unit involvement, the income tax influences the supply of production factors and their demand, causing a sub-optimal allocation of resources. Moreover, the existence of different effective tax rates for different types of personal income means that taxes affect the profitability of different activities aimed at income generation. Economists argue that taxes should be allocatively neutral as much as possible.

The implementation of any taxation results in the emergence of costs related to the tax administration, as well as to taxpayers. The rule is that the costs of applying a tax are higher as the tax form is more complicated (complexity is a function of the application of a larger number of tax rates and the existence of numerous exemptions and deductions). Therefore, when choosing between different variants of taxation, advantage should be given to the form whose application costs are lower.

In the conditions of high international capital mobility, tax competition leads to a gradual convergence of tax rates and to the need to conduct harmonization of tax rules. However, there is no substantiated analysis of the actual effects of tax competition on capital inflows. Some empirical studies have even shown that there is no strong correlation between public spending, taxation and capital mobility (Ranđelović S., (2012) *Analiza alternativnih modela poreza na dohodak fizičkih lica-efekti primene u Srbiji.* Ph.D. Thesis, Ekonomski fakultet, Beograd). In addition, efforts to harmonize income taxation, even within the European Union, have proved to be an "impossible mission", because income taxing impinges upon national sovereignty. Therefore, a proposal for a directive which would apply only to the harmonization of taxes on personal income was submitted to the European Community Council at the end of 1979, and the same was withdrawn in 1980. The Commission tried again in 1993/94 to undertake certain steps in this field, but the agreement was reduced to three principles and recommendations on tax treatment of non-residents. (Ilić & Popov, 2004, p. 118, p. 142-143).

The consequence of the existence of a significant number of criteria by which financial system, and thereby personal income tax as well, are evaluated reflects in the absence of one form of taxation that is "superior", i.e. Pareto optimal (better from all the others by at least one criterion, while not being worse under any of the criteria). The lack of a "superior" form of personal income taxation has resulted in a relatively high diversity of ways of taxing that income, from country to country, and in their continuous challenging and questioning, which has led to occasional, more or less radical changes in the method of personal income taxation.

2. Comparative Presentation of Alternative Approaches to Taxing Personal Incomes and The Significance of Double Taxation

Modern tax legal theory distinguishes between three concepts of personal income taxation. However, an unmitigated theoretical model can rarely be found in practice. A system dominated by the features of one model is the most frequent. The emergence of alternative approaches to the personal income taxation may be explained in this sense (dual income tax, flat tax on income and negative income tax).

Dual income tax was created in order to mitigate the distortive impact of synthetic income taxing on savings and investment, to improve economic efficiency and retain the positive effects of taxation on income redistribution. The characteristics of dual income tax are disaggregation of the total income of a natural person to labor income and income from capital and their different tax treatment. The taxpayer realizes capital gain, as a funded income, on the basis of investing capital in certain funds or profitable ventures, while not actively participating in their creation and developments. It is, in fact, a special type of income to which taxpayers come by investing their capital in various forms of savings, through business activities of third persons without their work engagement, or by leasing. These revenues include interest, dividends, other forms of participation in the corporate capital gains and others. Labor income, which taxpayers realize through their work efforts without the involvement of their own capital, as an income realized in cash and kind from employment, part of the revenue from self-employment, is unfunded income. The tax treatment of these revenues has been long debated in financial theory and practice. The view that funded income should be taxed more sharply than unfunded income has resulted from the mentioned characteristics. Under the influence of the economics of supply, the tax laws of most countries equalized these two types of income and gave them the same tax treatment. In contemporary conditions, the attitude about funded and unfunded revenues was again changed, so that legislations today provide privileged tax treatment to funded income. Thus, for example, Denmark, Sweden, Finland, Norway, Germany, France, the USA, Hungary, Austria, Slovenia, Belgium and other countries have introduced certain elements of proportional in their synthetic income taxation. In particular, capital gains are taxed at a single proportional rate, which is in some cases equal to the lowest marginal tax rate on labor income or equal to the profit tax rate. Income from employment is taxed at progressive rates. The tax on funded income is paid after deduction, and the final tax liability is determined in the end. However, from the aspect of horizontal equity, all sources of income should be equal and have the same tax rate.

Scandinavian countries were the first to carry out the dualization of personal income tax system in the late eighties and early nineties of the twentieth century. However, available data suggest that even in these countries this theoretical model is not fully implemented in practice. Norway, as a country that was closest to this model, already exhibits certain deviations. Finland and Sweden, ignoring relatively minor differences between rates (caused by differences in local taxes), more or less conform to the basic requirements of the model, as shown in the Table 5 (Blažić, 2006 & Blažić, 2010).

Contrary to the pro-dualization arguments, the opponents of this concept state critical arguments - disadvantages, such as: lack of horizontal equity, allocative bias and stimulating impact on other types of tax arbitrage, lack of a pure form of dual taxation in any country, the problem of dividing the income of self-employed and the income of active owners of small corporations to the component of capital gain and the component of labor income.

Table 5 Dual income taxation in Scandinavian countries in 2010

Elements	Norway	Finland	Sweden
Income tax %:			
Capital gain	28	28	30
Labor income	28-40	22,55-27,5)–(46,25-51)	31,52.56,52
Profit tax rate	28	26	26,3
Alleviation/abolition of double taxation of dividends	abolition for the normal % of profit	quoted companies - alleviation; unquoted - mainly abolition	NO classical structure
Alleviation/abolition of double taxation of capital gains from shares	abolition for the normal % of profit	NO	NO
Non-standard deductions of income tax	extensive	extensive	limited

The negative impact of high, rising marginal tax rates on economic efficiency, as well as the increasing mobility of the workforce and the growing inclination of taxpayers toward tax evasion in the conditions of sharp direct progression in taxing, brought about the creation of a system of income taxation with a unique tax rate (so-called flat income tax). In particular, the idea of a flat tax on income emerged in the tax theory primarily in order to reduce/ eliminate the double taxation of capital income. It is, in fact, the concept of expenditure tax, which occurs in two forms - standard and alternative. The standard model of the expenditure concept implies taxing of only that part of income that is spent, allowing income tax to become equivalent to the consumption tax, and the alternative model of the expenditure concept includes only exemptions from capital income taxation. The standard model of the expenditure concept of income tax is not applied in any country, but many countries apply as an alternative some kind of consumption tax parallel to the income tax. Therefore, in modern tax theory the flat income tax implies some form of an alternative expenditure concept. In this matter, there are large numbers of different models of taxation that are called flat tax, and that have two common denominators - the application of a unique marginal tax rate and the elimination of almost all the deductions and tax credits other than personal deduction and possibly the deduction for dependent family members.

Advocates of the flat income tax point out, as the advantage of this model, its simplicity that is derived from the definitions of income, elimination of (non) standard deductions and proportional tax scale. In addition, it is considered that the flat income tax reduces the incentive for tax evasion and enhances the economic efficiency, given that the expansion of the tax base offers scope for lowering the tax rate. On the other hand, opponents of the flat income tax emphasize the lack of vertical equity as an important disadvantage of this model of taxation. However, from the very characteristics the flat income tax model, it may be concluded that the advantages and disadvantages cannot be universally related to each variant, but that the performances of the flat income tax depend on its design.

The experiment with flat taxation started in 1994, when Estonia introduced a flat tax rate on the incomes of natural persons and corporations. All incomes were taxed at a uniform rate of 26%, whereas progressive tax rates had been previously used, having ranged from 16-33% for the taxation of income of natural persons, and 35% for legal persons.

The idea of a negative income tax was developed by Milton Friedman. The aim of negative taxation is to increase the income of an individual to the poverty line. Namely, the amount of funds that an individual receives from the state by way of negative taxation depends only on the level of the individual's income. Therefore, a person whose earnings fall below a defined level receives from the state a certain amount of money that should provide

at least the minimum resources necessary to meet basic existential needs. Therefore, the negative tax may be viewed as a tax credit, although it is essentially a kind of tax expense because the funds intended for the budget do not flow into it. It may happen that in communities characterized by low levels of working and overall ethics people would choose to not work in order to get social assistance. Negative taxation is represented in all countries of the world, because it enables reducing poverty and resolving many social problems.

3. THE CHARACTERISTICS OF THE EXISTING SYSTEM OF PERSONAL INCOME TAXING IN SERBIA

Unlike the developed countries, developing countries have also not decided for one of the theoretically pure personal income tax models. They endeavored by modest shaping of one form of taxation to create new and healthier tax system structures that would comply with their "needs". However, the history of the development of their taxation system has shown that these reforms had their "victims" as well.

The model of personal income tax in Serbia is a kind of mixed model of taxation. It is based on a combination of *cedular* and annual personal income taxation. *Cedular* taxation is performed by applying proportional rates, while the annual tax is paid at the end of the year on the total annual income that exceeds the amount prescribed by law, at a progressive rate. Specifically, the base of the annual personal income tax is the difference between the taxable income and personal deductions, which amount to:

- for a taxpayer: 40% of the average annual salary per employee, paid in the Republic;
- for a dependent family member: 15% of the average annual salary per employee paid in the Republic, where the total amount of personal deductions cannot exceed 50% of the taxable income. If two or more family members are bound to pay annual personal income tax, only one taxpayer can realize the right to a deduction for dependents.

The rate of annual personal income tax as the second element is as follows: 10% for the taxable income amounting up to six times average annual salary and 15% for the part of income exceeding six times average annual salary. These data can lead to the conclusion that the limit for tax-free annual income is set relatively high, due to which very small numbers of taxpayers pay annual income tax in Serbia.

It is evident from the legal provisions that, within the *cedular* component of taxation, income from various sources is taxed as incurred - after deduction or upon decision by the tax authority. For this purpose, personal income is classified into six categories (Table 6), whereby each type of income is taxed separately (against separately established rules).

Table 6 Personal income tax rates in Serbia

Income	Statutory tax rate	Standardized costs/deductions
Wages and salaries	10%	11.604 RSD
Revenue from self-employment	10%	-
Revenue from copyrights, rights related to copyright and industrial property rights	20%	34%, 43%, 50%
Revenue from yield on capital	15% exc. 20%	-
Capital gains	15%	-
Other revenues	20%	20%

Source: Individual Income Tax Law, Official Gazette of RS, Nos. 24/01, 80/02, 31/09, 44/09, 18/10, 50/11, 91/11, 108/13, 57/14, 68/14

Given the fact that under the *cedular* component of taxation incomes from different sources are taxed at three different statutory rates, it can be said that the current income tax system does not provide conditions for the realization of horizontal equity in taxation. It can also be said that proportional tax rates applied in *cedular* component of taxation are relatively low, as well as the non-taxable amount of earnings. However, according to available data, 56,300 employees have not received any salary for one year or even longer, 400,000 employees in Serbia receive a minimum wage, which allows the employer to avoid paying taxes and contributions to the state, and about 200,000 employees earn less than the minimum wage. Due to all this, the distribution of earnings is skewed to the left, i.e. it is not symmetrical. Nevertheless, the tax on salaries of employees in the period 2005-2014 represented 49.02% to 87.06% of the total personal income tax in Serbia (Table 7 and Chart 3).

Table 7 The share of taxes on salaries in the tax revenue and in personal income tax in the Republic of Serbia (in MM RSD)

Year	Total tax revenue	Personal income tax	Tax on salaries of employees
2005	390,283.20	50,573.50	44,028.20
2006	437,112.40	63,644.20	54,124.00
2007	511,261.50	62,744.20	48,849.60
2008	582,893.00	74,695.40	57,191.10
2009	574,644.10	71,308.00	58,310.30
2010	616,607.70	75,174.60	59,619.50
2011	646,597.70	70,284.70	53,723.30
2012	686,828.30	46,432.40	25,568.60
2013	723,389.60	43,376.60	23,629.30
2014	770,958.10	44,820.60	21,970.20

Calculated on the basis of data from the Bulletin Public Finances No. 127 (2015), the Ministry of Finance of the Republic of Serbia

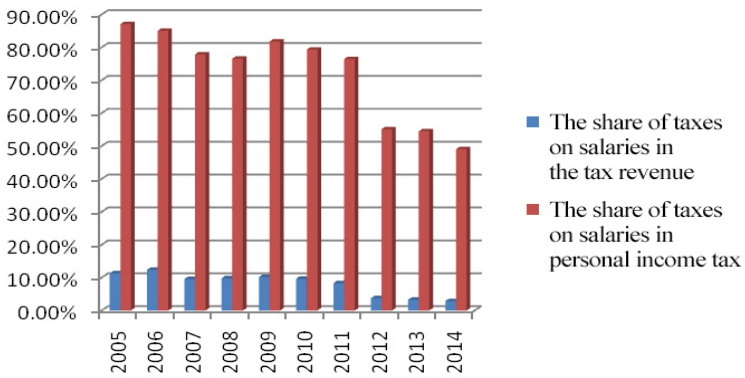

Chart 3 The share of taxes on salaries in the tax revenue and in personal income tax in the Republic of Serbia

Based on the prior statements, it may well be said that the present tax system does not provide conditions for the realization of vertical equity in taxation, either.

The high fiscal burden on labor is the result of high rates of social security contributions, for which reason the total fiscal burden on salaries has a negative impact on the demand for labor. There is an opinion that the expected state of public finances in Serbia would in due course require certain increase rather than reduction in fiscal burden. On the other hand, high unemployment (Table 8) particularly of less skilled workforce implies the existence of the grounds in the reform of income taxes to reduce the fiscal burden on earnings that are significantly below average.

Table 8 Number of unemployed persons in Serbia in the period of 2005-2014

Year	Number of employed	Persons seeking employment	Actively unemployed
2005	2.068.964	990.669	895.697
2006	2.025.627	1.011.139	916.257
2007	2.002.344	850.802	785.099
2008	1.999.476	794.000	727.621
2009	1.889.085	812.350	730.372
2010	1.795.774	802.840	729.520
2011	1.746.138	833.268	745.187
2012	1.727.048	870.186	761.486
2013	1.715.164	888.359	769.546
2014	1.697.686	867.948	741.906

The Bulletin Public Finances No. 127 (2015), the Ministry of Finance of the Republic of Serbia

Although the fiscal burden on labor in Serbia is relatively high, it constitutes neither a competitive advantage nor a disadvantage. As stated in the assessment of the effects of fiscal burden on labor demand - it is estimated that in Serbia there is no scope for increasing competitiveness by reducing the fiscal burden on labor. Reduction of labor costs, aimed at improving international competitiveness, can also be achieved by the slower growth of real salaries as compared to productivity growth, by real depreciation of the national currency, and so on. In the conditions existing in Serbia, it seems that these are more suitable mechanisms of improving competitiveness than the reduction of fiscal burden could be.

The costs of applying personal income tax in Serbia have not been estimated. Based on comparisons with similar systems in the world, the conclusion may be drawn that they are moderate. The low level of costs is affected by the domination of taxes to be paid after deduction, a small number of taxpayers liable to annual taxing, modest relieves. On the other hand, a differentiated approach to different types of income and the existence of a number of exemptions from the general regime of taxation affect the growth of tax implementation costs.

The revenue yield of personal income tax in Serbia is relatively low. As already stated, the participation of income tax in Serbia's GDP is very modest. By the year 2010 it amounted to about 3%, and after 2010 it was slightly above 1%, which is far lower than in the EU member states. Low personal income tax revenue yield is the result of adverse effects of macroeconomic and taxation factors, the degree of collection, as well as the parameters of the tax itself. Still widely spread shadow economy affects the low revenue yield from personal income tax. Complete or partial unreported employment reduces the revenues from labor income taxation, while the use of various creative bookkeeping measures and similar reduces the revenue from taxation of the yield on capital. Some types of income, such as the income from renting business or residential facilities by private individuals - mostly go untaxed.

To confirm or refute the above statements, some tests have been applied. The reliability of results of empirical analysis highly depends on the performances of the model against which the results are obtained and on the starting base. In other words, any economic model is necessarily an abstraction and simplification of reality, which can make empirical results unreliable as a basis for analyzing the effects of the tax reform. According to these findings, as well as the number of selected lags, which is a critical point of Dicky-Fuller test, it was concluded that the time series used for calculating the interdependence of variables that allow to draw conclusions about the Serbian tax system were stationary (Table 9). The author is aware of the fact that the application of other tests (KPSS, PP, ERS and M tests) shows different results for the same variables. The difference is also the consequence of the fact that two series do not have to be correlated in order to be cointegrated. (Krstić et al., 2007 & Mladenović & Nojković, 2012)

Table 9 Dicky-Fuller stationarity test

Variable	Differen-tiation	Coeffici-ent	Coefficient critical value	Significance level (p-value)	Conclusion
Ln(TTR)	0	-4.986	-0.774	0.000	The series is stationary
Ln(TTR)	1	-7.386	-0.744	< 0,0001	The series is stationary
Ln(PIT)	0	-2.281	-0.774	0.421	The series is non-stationary
Ln(PIT)	1	-4.395	-0.744	0.003	The series is stationary
Ln(TW)	0	-2.296	-0.774	0.412	The series is non-stationary
Ln(TW)	1	-3.870	-0.744	0.015	The series is stationary
Ln(PT)	0	-4.187	-0.774	0.006	The series is stationary
Ln(PT)	1	-6.112	-0.744	< 0,0001	The series is stationary
Ln(CIT)	0	-4.085	-0.774	0.008	The series is stationary
Ln(CIT)	1	-6.256	-0.744	< 0,0001	The series is stationary
Ln(ANW)	0	-1.660	-0.774	0.744	The series is non-stationary
Ln(ANW)	1	-8.059	-0.744	< 0,0001	The series is stationary
Ln(PS)	0	-0.927	-0.774	0.932	The series is non-stationary
Ln(PS)	1	-3.729	-0.744	0.021	The series is stationary
Ln(NoE)	0	-0.567	-0.774	0.967	The series is non-stationary
Ln(NoE)	1	-4.957	-0.744	0.000	The series is stationary
Ln(NoU)	0	-4.659	-0.774	0.001	The series is stationary
Ln(NoU)	1	-5.819	-0.744	< 0,0001	The series is stationary

According to this test, the interdependencies of parameters characterizing personal income taxation in Serbia were determined and presented in Table 10 with appropriate conclusions. Similar results were obtained by using Excel functions, too.

Table 10 Interdependence of some categories indicating the state of the tax system of Serbia

PIT-TTR: Personal income tax & Total tax revenue				
Optimal Lag		Granger causality		
		F-test	p-value	conclusion
AIC	12	1.0939	0.374700	Change of PIT causes no change of TTR
SC	2	8.9959	0.000203	Change of PIT causes change of TTR
PIT-TW: Personal income tax & Tax on wages				
Optimal Lag		Granger causality		
		F-test	p-value	conclusion
AIC	12	0.6463	0.7973	Change of PIT causes no change of TW
SC	1	10.1872	0.001706	Change of PIT causes change of TW
PT-CIT: Profit tax & Corporate income tax				
Optimal Lag		Granger causality		
		F-test	p-value	conclusion
AIC	11	0.8044	0.6354	Change of CIT causes no change of PT
SC	2	4.6469	0.01099	Change of CIT causes change of PT
PIT -PT: Personal income tax & Profit tax				
Optimal Lag		Granger causality		
		F-test	p-value	conclusion
AIC	11	1.3796	0.1946	Change of PIT causes no change of PT
SC	2	18.7701	5.19E-05	Change of PIT causes change of PT
PIT -NoE: Personal income tax & Number of employed				
Optimal Lag		Granger causality		
		F-test	p-value	conclusion
AIC SC	2 2	7.4236	0.000839	Change of PIT affects NoE
PIT -NoU: Personal income tax & Number of unemployed				
Optimal Lag		Granger causality		
		F-test	p-value	conclusion
AIC	12	1.0012	0.4544	Change of PIT does not affect NoU
SC	3	1.8798	0.1356	Change of PIT does not affect NoU
ANW- NoE: Average net wage & Number of employed				
Optimal Lag		Granger causality		
		F-test	p-value	conclusion
AIC	12	2.194	0.0181	Change of ANW affects NoE
SC	3	5.5707	0.001202	Change of ANW affects NoE
ANW - NoU: Average net wage & Number of unemployed				
Optimal Lag		Granger causality		
		F-test	p-value	conclusion
AIC	12	1.7302	0.07278	Change of ANW does not affect NoU
SC	11	2.4097	0.01077	Change of ANW affects NoU
PS- PIT: Personal savings & Personal income tax				
Optimal Lag		Granger causality		
		F-test	p-value	conclusion
AIC	2	0.33 11	0.7187	Change of PIT does not affect PS
SC	1	0.2949	0.5879	Change of PIT does not affect PS
TW- PS: Tax on wages & Personal savings				
Optimal Lag		Granger causality		
		F-test	p-value	conclusion
AIC SC	1 1	0.6432	0.4238	Change of TW does not affect PS

Pursuant to the results, we can say that the performances of the existing personal income tax system in Serbia indicate the existence of systemic deficiencies that can be remedied only by a fundamental reform of this tax form. Namely, the tax reforms implemented so far in our country were aimed at simplifying the tax system, which was proved wrong in the tax practice.

The transitional processes of the entire socio-economic system still bring "breakdowns" in morality and lifestyle, which has ultimately led to changes in values, attitudes and behavior. Money is, today more than ever, given the role of a measure of value. We have witnessed a great economic stratification in our society, as well. The gap between rich and poor keeps widening. Also, there is no dispute that many of the changes were positive and led to social progress. However, suppression of negative phenomena to acceptable limits is a condition without which the state cannot be recognized as a society governed by the rule of law.

4. Possible Directions for the Reform of Personal Income Taxation

The desired tax system should be designed to ensure undisturbed functioning of the market, fairer distribution of the tax burden in the society and lower costs of taxation, to comply with the tax structure, to create conditions for attracting foreign investments, etc. Cost-benefit ratio should normally provide an adequate solution to reach the desired model of taxation. The fact is that income tax reduces the income of the taxpayer, i.e. increases his budget constraint on factors of production, goods and services. On the other hand, the principle of fiscal strength suggests the use of horizontal and vertical equity of taxpayers. Income is the best measure of fiscal strength, but the problem remains of how to cover the worldwide income of each taxpayer. Each of the known personal income tax models provides an answer that is more or less satisfactory.

Practice has shown that the commitment of a country to a particular model of taxation does not mean that it is implemented in its pure theoretical form. The reality is that most frequently one tax model is chosen as the basis and then various elements of other models are incorporated into it. This attitude can be viewed as a consequence of the awareness that none of the theoretical models is superior with regard to the relevant criteria.

Consequently, if the personal income tax in Serbia, as mixed, is replaced by the synthetic personal income tax, it would enable the application of ability-to-pay principle and, as it avoids a qualitative differentiation of certain revenue categories, it would bring about neutrality, which the *cedular* system lacks. But it opens up a range of questions such as: taxpayer as an individual or a family, to globalize all incomes or not, which progression to apply in taxation, and so on. Also, empirical evidence from developed countries confirms that the synthetic tax does not succeed to achieve in practice its main objectives, such as the progressive taxation of the richest citizens. Implementation of the global system includes the improvement of tax administration with particular emphasis on revenue collection and control. Available data indicate that inspection services in Serbia have increased their efficiency in recent years, but there are still problems such as: insufficient IT equipment, inadequate equipment of inspectors in the field, lack of connection with other inspection services, insufficient number of employees, low salaries of inspectors, inadequate and outdated organization.

Proportional personal income taxation is suitable for countries which do not have a modern and efficient tax administration, where tax ethics are low, but which are trying to attract as much foreign investment as possible by a simple tax system. From the standpoint of economic efficiency, it is most suitable as the income tax. Namely, the existence of a single rate at which labor income is taxed introduces the smallest distortion in market prices. Also, this form of taxation is superior with respect to most economic criteria (allocative neutrality, effects on the labor market, low cost of application, etc.). The introduction of high tax-free wage threshold would ensure its moderate progressiveness.

By confronting the criteria for evaluating personal income tax with the current performances and development priorities of the Serbian economy and the performances of its tax administration, it is estimated that a satisfactory solution for Serbia at this stage of development is the proportional personal income tax, or some variant of synthetic or dual tax.

In support of previous statements, there is the structure and method of taxing personal tax revenues. Thus, the tax base for self-employment income taxation is largely underestimated and more than 50% of taxpayers from this group are taxed at a flat rate. It is necessary to significantly tighten the legally set criteria for approval of lump-sum taxation, especially when it comes to services that create considerable added value.

The income of individual farmers is for the most part covered by a tax on cadastral income, so it is necessary to carry out the innovation of the system of taxing revenues from agriculture through the introduction of a tax on the estimated income of producers.

In order to avoid double taxation of income from capital, one possible solution is subjecting dividends after deduction to the final tax, whose rate would be much lower than the current effective rate.

The level of contributions for compulsory social insurance shows that the cumulative burden on gross wages was considerably reduced in 2012. Bearing in mind the level of the deficit in the Pension and Disability Insurance Fund, but also the fact that, comparatively speaking, it is among the lowest in the region, it seems unrealistic to continue to reduce rates. The solution should be sought in the legalization of the shadow economy, the increase of the level of earnings through productivity improvement and so on.

PIT reform in Serbia is not an easy task, given that this tax is aimed at much more accomplishments.

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POREZ NA DOHODAK – DVOSTRUKO OPOREZOVANJE

Porez na dohodak je jedan od najvažnijih poreskih oblika u poreskim sistemima savremenih zemalja, veoma velikodušan i fleksibilan. Porez na dohodak građana može se organizovati kao redovno, sintetičko ili mešovito oporezivanje. U modernom poreskom zakonodavstvu postoje alternativni načini oporezivanja na dohodak fizičkih lica, kao što su dvostruko oporezivanje sistema, proporcionalno porezu na negativni porez na dohodak prihoda. Fiskalne reforme izvršene u Srbiji su često odložene zbog brojnih, ponekad ne ekonomskih razloga. Ozbiljnost i neophodnost dinamičnog pristupa u procesu reformi poreskog sistema u našoj zemlji je i dalje aktuelan. U tom smislu, cilj ovog rada je da se ukaže na prednosti i nedostatke dvostrukog poreskog sistema, kao i da se ukaže na potrebu da se reformiše porez na dohodak građana u Srbiji.

Ključne reči: *dvostruko oporezivanje, poreza na dohodak, poreski elementi, fiskalne reforme, standard i nestandardni dobici, horizontalno i vertikalno oporezivanja kapitala.*

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