

Analysis of Public Sector Efficiency in Developed Countries

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ABSTRACT – *The public sector in developed countries went through various forms of transformation in the twentieth century. The expansion of the public sector resulted in high levels of public spending in developed countries. The financial crisis of 2008 led to recessions in the economies of developed countries, the public debt growth, and actualized the issue of the public sector optimal size and efficiency. This study analysed the public sector efficiency in 19 developed countries. The analysis focuses on the relationship between the size of public expenditure and economic growth in the global financial crisis and the measures implemented. The aim of the research in this paper is a comparison of total and partial efficiency of the public sector in developed countries, in order to determine the characteristics of the public sector operations. The comparison covers the areas of the public sector operations in order to identify sources of inefficiency. Partial and overall efficiency of countries are analysed with different size and concept of the public sector, to determine the relationship between the public sector size, efficiency and welfare of citizens. The research results clearly indicate (un)justified state intervention in developed countries*

KEY WORDS: *public sector, efficiency; developed countries, socio-economic indicators, public expenditures*

Introduction

Developed market economies went through various forms of public sector transformation in the twentieth century. Any economic and political crisis led to the expansion of the public sector and the development of theoretical concepts that justified state intervention. The concept of market inefficiencies resulted in the state's growing role in the economic system and the development of the theory of public choice. The changes that affected the state's role in developed market economies are: changes in the industrial sector towards the production of more sophisticated products, a greater role for the service sector,

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globalization, changes in international relations and the creation of supranational integration, acceptance of (neo)liberal doctrine in economic policy, the emergence of information society, economic stagnation in some countries, population migration, and new ways of movement of capital, knowledge and information. The public sector transformation was influenced by the increasing competition between the private and public sectors.

Today, the economic reality of the developed countries is characterized by sophisticated and developed markets and lower degree of economy autarky, allowing for quicker and cheaper procurement of goods from developing countries. Public policy makers have become more sensitive to high levels of public spending, and they create inefficiencies in public revenue in the form of higher tax rates, and in public expenditure in the form of increased bureaucracy. From the aspect of individual users, government departments have a relatively low prices in relation to their effects (income redistribution, public health and education, etc.), which generates greater demand. Analysis of the public sector efficiency was brought into focus due to fiscal difficulties faced by most European countries - the growing deficits and high levels of public debt, which caused a crisis of public finances and the inability of some developed countries to put public expenditure under control. The level of public debt in 28 countries of the European Union reached a level of over 85% of GDP, which significantly exceeds the allowable Maastricht criteria of 60% of GDP, and classifies them as indebted countries under the World Bank criteria (Lovre, Jotić, 2011). The crisis of state finances actualizes the issue of the public sector efficiency, since the inevitable fiscal consolidation implies reforms in the structure and functioning of the public sector, if its inefficiency is confirmed. The aim is to use structural and functional reforms to increase the public sector efficiency and the scope of public services while reducing fiscal expenditure. This concept of fiscal consolidation is more successful than the implementation of the fiscal consolidation as a package for reducing state expenditure.

Literature review

Analysis of the public sector efficiency and its international comparison is not easy due to the complexity of measuring, quality of data and different definitions of public sector (Alfonso et al, 2006). Additional difficulties that occur during the measurement and comparison of public sector are: lack of a single theoretical approach that would accurately and unambiguously determine the area of state actions, differences between public sectors as a result of the size, structure and scope of the public sector, political organization (unitary or federal state), as well as demographic and geographic characteristics of a country. Different levels of government and forms of institutional and fiscal decentralization further complicate the measurement and comparison of public sectors (IMF, 2001). Any assessment that does not take into account national specificities can easily lead to erroneous conclusions.

The public sector efficiency is measured as a relative term, i.e. whether a particular economic entity (company, sector, country) is more efficient compared to other economic entities (OECD, 2004). The efficiency of public sector is measured as the ratio between costs and results compared to the same variables in other countries. If the results (quality of public services or public goods produced) are better, with the same or lower costs (the level of fiscal contributions), it is considered that the public sector of that country is more efficient. In

measuring the public sector efficiency, it is necessary to distinguish between products and results. The public sector product represents the scope of provided public services, while the result is the quality of provided public services (Farell, 1957). Results of the public sector do not have to be overlapping with the product of the public sector. Results in the provision of education and health are the level of students' knowledge (usually measured by their success on standardized international tests), the number of patients who were cured, while the product presents the number of students enrolled in school, the number of operations carried out or the number of patients cared for. Results of the public sector are expressed qualitatively, while the product of the public sector is expressed quantitatively (Wilson, 2005).

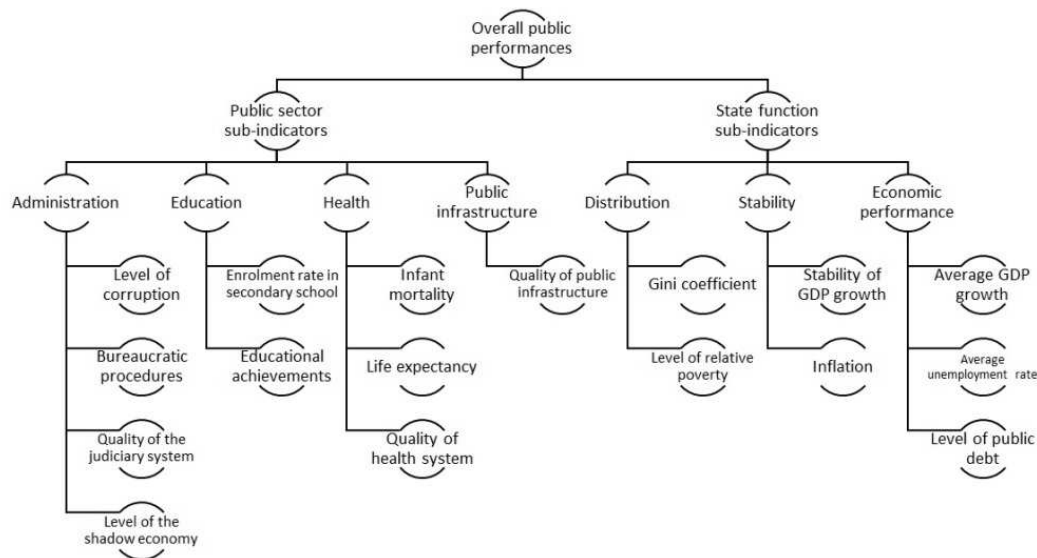
In contemporary literature the emphasis is on measuring the indirect costs of public programs and investments, while the analysis includes opportunity costs of public investments. In measuring the efficiency of specific public policies, it is necessary to take into account the socio-economic environment and lifestyle. Furthermore, implemented public policies do not achieve their effects in the short term and are partly influenced by policy makers. More than one political cycle is necessary to see the effects of implemented policies (health and education) (Mandl, U., Dierx, A., Ilzovikz F., 2008). In addition to the methodology used in this study developed by Vito Tanzi, Ludger Schuknecht and Antonio Afonso, the efficiency of public policies are measured by parametric and non-parametric methods, such as Stochastic Frontier Analysis and DEA analysis (Charnes, A., Cooper, W. and Rhodes, E., 1978). The efficiency of public sector and implemented public policies may not be measured only through monetary values (public spending), but the analysis can include non-monetary values, such as the number of employees in the public sector, the number of hours required for public activities (Hindriks, J., Myles, G., 2004). The global financial crisis of 2007 led to recession in the economies of developed countries. The global financial crisis was accompanied with a sharp increase in public debt in the developed countries and the crisis of over-indebtedness.

The austerity and rationalization measures carried out in the public sectors of developed countries actualized the issue of efficiency in the public sector. The authors of this study compared the public sector efficiency of developed countries, in order to compare the overall efficiency of the public sector. The aim of the research was to compare specific areas of the public sector in order to identify sources of inefficiency. The study covers the period from 2003 to 2013. The structure of the paper comprises three parts. The first part explains the methodology of measurement, comparison and analysis of the public sector efficiency. The issues of measuring and international comparability of public sectors are elaborated. The second part provides the comparison of the public sector efficiency in developed countries. The performances of the public sector, the overall and partial efficiency of public sector were analysed. The third part of the paper provides conclusions based on the results obtained in the study.

Research methodology

The growth of the public sector during the twentieth century led to the fact that most of the developed countries spend between a third and half of their income on services provided by the state. The public sector efficiency was the focus of researchers and experts since the economic crisis of the 1970s of the twentieth century and the rise of New Public Management. The methodology of macroeconomic analysis in the public sector was developed by Vito Tanzi, Ludger Schuknecht and Antonio Afonso, due to the need for comparing the efficiency of public sectors (Afonso, Schuknecht, Tanzi, 2003:15). The method developed is of imperative character and analyses the relationship between the level and the growth of public expenditure and changes in socio-economic indicators. Socio-economic indicators in this model can be divided into seven separate areas (administration, education, health, infrastructure, income distribution, stability and economic performance) with 17 sub-indicators (Figure 1). All indicators in the model are normalized to the average size, but the unit value indicates the average size of performance (simple arithmetic mean), based on which the overall average performance is calculated. Most of the indicators and sub-indicators are expressed as the ten-year average, in order to analyse the structural changes. The growing impact of public spending on socio-economic indicators influences the increase of the public sector efficiency. This methodology was adopted by the European Central Bank.

Figure 1. Socio-economic indicators and sub-indicators of the public sector performance



Source: Afonso A., Schuknecht L., Tanzi V. (2003). "Public Sector Efficiency: an International Comparison", European Central Bank, Working Paper, No. 242. (adapted by authors)

Process indicators include the largest systems in the public sector. Administrative indicator consists of four sub-indicators that are measured by the assessment of the World Economic Forum in the Index of global competitiveness. Education indicator is composed of two sub-indicators - the enrolment rate in secondary schools and educational achievements

of students. Given that primary school attendance is compulsory and that many countries included in this study reached the level of development where the coverage of children regarding primary education is extremely wide, the rate of enrolment in secondary schools provides better information on the public education. Data were taken from the Index of global competitiveness by the World Economic Forum. Education outcomes were measured by students' achievement on standardized PISA tests in the field of mathematics. Mathematics is taken as an indicator of performance more often than natural sciences or reading and comprehension (the other two components of the PISA tests), because it more frequently influences the creation of formal logic, which is necessary for the acquisition of knowledge and making independent judgments.

Indicator of health is composed of three indicators. Infant mortality was measured by the number of stillborn babies per 1,000 births. Data were taken from the Index of global competitiveness by the World Economic Forum and national statistics. For life expectancy measured by the average number of years of life, the data were taken from the Index of global competitiveness by the World Economic Forum. The quality of the health care system is analysed by health system efficiency by the grade from the Index of global competitiveness of the World Economic Forum.

Quality of infrastructure is measured by data from the Index of global competitiveness by the World Economic Forum. The second group of indicators corresponds to the most important functions of the state - the allocation of resources, stability and distribution). This division of economic functions of the state was introduced by Richard Musgrave in 1939 in his paper titled "Voluntary Exchange Theory of Public Economy". This group of indicators is also called Musgrave's indicators (Afonso A., Schuknecht L., Tanzi V., 2003). Each of the indicators is trying to express the results of interaction between state and market. In this study, all economic categories are expressed in the ten-year period, in order to improve the observation of changes in economic performances and structural changes in the public sector. The distribution of income is measured by first indicator, which is composed of two sub-indicators. The level of relative poverty is measured by the percentage of the population living below the national poverty line. The data were taken from the World Development Indicators of the World Bank. The second sub-indicator is the Gini coefficient.

Second indicator measures how successful a country is in achieving the stabilization goal of economic policy. Economic stability is measured by the coefficient of variation of GDP growth and the average ten-year inflation rate. Data were taken from the database of the World Economic Outlook of the International Monetary Fund. Economic performances of the economic system consist of three sub-indicators: Economic growth is measured by the ten-year average growth in gross domestic product. Data were taken from the database of the World Economic Outlook of the International Monetary Fund. The unemployment rate is measured by the ten-year average, and the data are taken from the database of the World Economic Outlook of the International Monetary Fund. Amount of public debt is measured by the participation in the gross domestic product, and data are taken from the database of the World Economic Outlook of the International Monetary Fund.

Based on these 7 indicators of the same weights and 17 sub-indicators, the overall Public Sector Performance (PSP) is obtained. All indicators are normalized to the average value, so the value of the average performance of the sample is 1. Unit value means the average



performance value (simple arithmetic mean), and overall average performances are calculated based on the average values. It is a relative indicator, since deviations from the average of the sample are measured. Economic indicators and sub-indicators are analysed as a ten-year average, as the analysis covers structural changes in the public sector but not changes on an annual basis. To get the overall efficiency of the public sector it is necessary to weigh the performances of the public sector efficiency by the corresponding public expenditure. In order to calculate indicators of the public sector efficiency, it is necessary to normalize each of the seven categories of public expenditure to the average value:

1. Total public expenditure (indicator of Administration),
2. Public expenditure on health (indicator of Health),
3. Public expenditure on education (indicator of Education),
4. Public investment (indicator of Public infrastructure),
5. Transfers and subsidies (indicator of Distribution),
6. Total public expenditure, since it is considered that the larger public sector leads to stabilization of the economy, as an indicator of Stability), and
7. Total public spending (indicator of Economic efficiency).

The model defines the public sector performance (PSP), of i countries and j fields of government as the results of public policies that depend on the values of certain indicators (I_k) (Alfonso, Schuknetcht, Tanzi, 2003:17):

$$PSP_{ij} = f(I_k) \tag{1}$$

Improving socio-economic indicators leads to the growth of public sector performance:

$$\Delta PSP_{ij} = \sum \frac{\partial f}{\partial I_k} \Delta I_k \tag{2}$$

Public sector efficiency (PSE) of a country is measured as the ratio between public sector performance (PSP) and public expenditure (PEX) (Alfonso, Schuknetcht, Tanzi, 2003:17):

$$PSE_i = \frac{PSP_i}{PEX_i} \tag{3}$$

Each performance indicator is weighted by the relevant category of public expenditure:

$$\frac{PSP_i}{PEX_i} = \sum_{j=1}^n \frac{PSP_{ij}}{PEX_{ij}} \tag{4}$$

In applying this analysis, it is not easy to identify the effects of public spending on the results of the public sector and differentiate the impact of public spending from others, exogenous impacts. Measurement in this analysis should be interpreted with caution, since the public sector and public finance system differ from country to country. In some countries, the transfer payments are taxed, and public expenditures are higher than in the countries in which these forms of public spending are not taxed. Correlation analysis in this paper was done in Microsoft Excel 2013, with the certainty of 95%.

Table 1. Public sector performance (PSP) in developed countries

Country	Administration	Education	Health	Public infrastructure	Distribution	Stability	Economic performance	Total performance
Australia	1.10505	1.17697	1.12726	1.01651	1.08305	0.97414	1.097652	1.06468
Austria	1.34756	0.97483	1.20326	1.23576	1.70057	1.33039	1.395668	1.31922
Belgium	1.11089	1.05229	1.06997	1.15603	1.02824	1.32885	1.124536	1.13603
Denmark	1.19204	1.17282	1.15420	1.15603	1.00242	1.57510	1.204659	1.21815
Finland	1.29673	1.06803	1.42884	1.27562	1.02996	1.51229	1.252696	1.27129
France	1.29327	1.04312	1.19693	1.21583	1.48267	1.57664	1.325392	1.32975
Greece	1.28143	0.99085	1.11559	0.91685	0.93237	1.82205	1.336710	1.17117
Netherlands	1.23178	1.16967	1.13018	1.25569	1.30914	1.51117	1.265656	1.29086
Ireland	1.36885	1.09471	1.23014	1.01651	1.92123	1.40719	1.415095	1.35884
Italy	1.28174	0.98931	1.23559	0.91685	0.81509	1.84052	1.297127	1.17003
Japan	1.37471	1.04754	1.43868	1.23576	0.98911	1.95487	1.353388	1.35197
Canada	1.15232	1.03658	0.91366	1.11617	1.36012	1.33892	1.231875	1.17420
Germany	1.19283	1.00258	1.15667	1.19590	1.00051	1.59762	1.204886	1.20795
New Zealand	0.96288	1.09560	0.99226	1.01651	0.96075	1.10123	0.953085	1.03003
Portugal	1.26043	1.05026	1.13731	1.19590	1.33144	1.81558	1.301476	1.33545
Spain	0.96264	1.13402	1.00094	1.17596	0.92773	1.26414	0.949877	1.10252
Sweden	1.42155	0.97094	1.41376	1.13610	1.43523	1.68116	1.424147	1.35304
USA	0.99965	0.95137	0.92727	1.15603	1.18009	1.13385	1.023785	1.086374
G. Britain	1.08704	0.97307	1.11608	1.05637	0.92989	1.24581	1.077359	1.06937

Source: Authors

Public sector efficiency

Research of efficiency phenomenon in the public sector was carried out on a sample of 19 countries. In all countries, a high negative correlation ($r = -0.74$) is observed between the share of public expenditure in GDP and rate of economic growth in the ten-year period (2003-2013), i.e. there is a tendency that economic growth is accompanied with the reduction of the share of public expenditure in GDP.

In a sample of developed countries¹ (Table 1) we can see that the countries that adopted the concept of New Public Management² (N. Zealand, G. Britain and USA) have lower estimated performance than other developed countries.

Table 2. Size of the public sector, PSP and PSE developed countries³

Country	Public sector size	Overall performance	Overall efficiency
Australia	35.8	1.064681	1.050160
Austria	50.5	1.319225	1.519899
Belgium	53.5	1.136032	1.380953
Denmark	57.6	1.218151	1.321588
Finland	55.1	1.271296	1.401854
France	56.1	1.329754	1.573040
Greece	51.9	1.171175	1.313467
The Netherlands	49.8	1.290869	1.532231
Ireland	48.1	1.358842	1.343016
Italy	49.8	1.170031	1.250109
Japan	42.0	1.351977	0.989559
Canada	41.9	1.174203	1.002264
Germany	45.4	1.207951	1.201807
New Zealand	47.5	1.030034	1.140064
Portugal	49.4	1.335458	1.387175
Spain	45.2	1.102520	0.986911
Sweden	51.2	1.353041	1.425285
USA	22.0	1.086374	1.289343
G.Britan	41.6	1.069377	0.898541

Source: Authors

¹ Indicators of performance and efficiency of the public sector of Greece should be taken literally, since Greece is providing unrealistic statistical data to international organizations. During the research, federal expenditures were used in the analysis of the public sector size of the United States.

² New Public Management is the common name for a series of public sector reforms, which were carried out since the beginning of the eighties in most OECD countries. New Public Management aims to transform the rigid, hierarchical, bureaucratic, traditional model of public administration into a more flexible and more market-oriented public sector. The emphasis is on privatization and cooperation between the public and private sectors. In the concept of new public management that is based on the supremacy of the neoliberal market mechanism and criticism of the welfare state, a citizen is reduced to a customer or service client.

³ The table presents data on the size of the public sectors (measured as the share of public expenditure in GDP in%) of developed countries, the overall performance of the public sectors and their overall efficiency. The values of overall performance and efficiency were normalized to the average value (the average of the sample is 1) for their comparability.

Correlation analysis between the public sector performance and the public sector size measured as a share of public expenditure in GDP (Figure 2), leads to the conclusion that there is a weak positive correlation ($r = 0.42$). The analysis of indicators of administration of developed countries below average values appear in all Anglo-Saxon countries except Australia. Anglo-Saxon countries have below-average or average values for indicators of public infrastructure, distribution and economic performance. Spain indicates low performance and is the lowest ranked country, which is mostly influenced by indicators of unemployment, relative poverty, public infrastructure, stability of GDP growth and the public debt, resulting from the lag in economic growth. If we compare countries with small public sectors (public sector < 40% of GDP) and medium-sized public sectors (public sector < 45% of GDP) with countries with large public sectors (public sector > 45% of GDP), we can observe the following trends:

1. Countries with large public sector show above-average performance in most indicators compared to countries with small and medium-sized public sector.
2. Countries with small and medium-sized public sectors show above-average performance in the indicator of stability and economic performance and below-average value of the indicator of distribution, which indicates greater income inequality and a higher level of relative poverty.
3. Countries with large public sectors show better performance in the indicator of distribution, which indicates a lower income inequality, poverty and unemployment.

Indicators of Scandinavian countries are slightly above-average and average values, indicating that they have the best public sector. Analysis of the indicators points to a better performance of welfare countries than countries that adopted the concept of New Public Management. Countries that introduced New Public Management show better economic performance, greater stability of economic growth, while the welfare states have better indicators in education, health, public infrastructure and distribution indicating that the emphasis in the countries of neoliberal capitalism is on efficiency and stability of the economic system, while in welfare states greater emphasis is on the income equality, quality of public services and quality of life in general.

In a sample of 19 developed countries, we can see that the greater efficiency of the public sector is achieved by the welfare stated in comparison to the countries of neoliberal capitalism that generate above-average levels of total public sector efficiency (Table 2). Correlation analysis between the size of the public sector (measured by the share of public expenditure in GDP) and overall efficiency of the public sector leads to the conclusion that there is a medium-high positive correlation ($r = 0.74$).

Table 3. *Public sector efficiency (PSE) in developed countries*

Country	Public sector size	Overall performance	Overall efficiency
Australia	0.80766	1.16826	1.19509
Austria	1.50960	1.18264	1.44508
Belgium	1.38236	1.16056	1.45117
Denmark	1.30833	1.32582	1.86654
Finland	1.39498	0.97177	2.00003
France	1.72944	1.29425	1.40774
Greece	1.77150	1.09279	0.89397
The Netherlands	1.49863	1.51576	1.38774
Ireland	1.59551	1.08661	1.56652
Italy	1.49397	0.98198	1.15130
Japan	0.68071	1.03978	1.12605
Canada	0.58579	1.20039	1.02160
Germany	1.02727	1.27159	1.21668
New Zealand	1.10241	1.08749	1.51631
Portugal	1.51430	1.18727	0.93704
Spain	0.77543	1.21942	0.63991
Sweden	1.32496	0.99052	2.04331
USA	1.21581	1.88866	1.00802
G. Britan	0.71631	1.01952	1.27568

Source: Authors

The results lead to conclusion that countries with large public sectors have higher total and partial efficiency of the public sector. Indicators of economic performance and stability are higher in countries with large public sectors, which clearly indicate that a large public sector stabilizes the economy and justifies state intervention in the economy of developed countries. Quality of life and welfare of citizens is higher in countries with large public sectors, which have a more efficient administration, the health system and education. Countries with large public sectors have a better management of public investment. Distribution is the only indicator where countries with large public sectors achieve below-average efficiency, which clearly points to inefficient spending and lack of selectivity in spending funds from the program for poverty reduction.

Conclusions

Comparing the public sector performance of developed countries, we can conclude that countries with large public sectors achieve better performance than countries with small public sector. Countries that introduced the concept of New Public Management showed better performance only in the stability of economic growth and economic performance, while other indicators are lagging behind. The welfare states have higher quality of public sector with lower income inequality, higher quality of public services and greater welfare of their citizens. The best performance of the public sector is delivered by the Scandinavian countries that adopted the concept of the welfare state and have large public sectors.

Comparing the efficiency of countries with small public sectors (public sector < 40% of GDP) and medium-sized public sectors (public sector < 45% of GDP) with countries with large public sectors (public sector > 45% of GDP), we can observe the following trends:

- Countries with small public sectors show below-average efficiency of the public sector in relation to the countries with medium and large public sector.
- Countries with large public sectors have above-average values of the overall efficiency of the public sector in comparison with countries with small and medium-sized public sector.
- Countries with large public sectors have above-average values of the indicator of administration in comparison with countries with small and medium-sized public sector.
- Countries that adopted the concept of New Public Management have lower efficiency of health than other countries.
- Countries with large public sectors showed greater efficiency of public infrastructure in comparison with countries with small and medium-sized public sector.
- Greater efficiency in distribution is indicated by countries with small and medium-sized public sector, which implies the inefficiency of redistribution programs for countries with higher allocations.
- Higher values of indicator of stability are showed by countries with large public sectors in comparison with countries with small and medium-sized public sector.
- Higher values of indicator of economic performance are showed by countries with large public sectors in comparison with countries with small and medium-sized public sector.

The analysis of indicators of the overall efficiency of the public sector indicates that countries that accepted the concept of new public management are less efficient than other models of the public sector. Countries with traditionally large sectors (France, Germany) achieve greater efficiency than the Anglo-Saxon countries that adopted the concept of New Public Management (GB, New Zealand, USA, Canada, Australia). The highest efficiency of the public sector is achieved by the Scandinavian countries. The only indicator in which the countries of new public management are more efficient as compared to other countries is distribution, which indicates the inefficiency and lack of selectivity in the fight against poverty. This research clearly shows that developed countries should not accept the concept of New Public Management imposed by international financial institutions (IMF, World Bank). From the aspect of the public sector efficiency, state intervention is justified in developed countries.

References

- Afonso A., Romero, A., Monslave, E.** 2013. "Public Sector Efficiency: Evidence for Latin America." Inter-American Development Bank Discussion Paper IDB-DP-279.
- Afonso A., Schuknecht L., Tanzi V.** 2003. "Public Sector Efficiency: an International Comparison." European Central Bank, Working Paper, 242.



- Afonso A., Schuknecht L., Tanzi V.** 2006. "Public Sector Efficiency: Evidence for New EU Member States and Emerging Markets." European Central Bank Working Paper, No. 581.
- Afonso, A., Gaspar, V.** 2007. "Dupuit, Pigou and the Cost of Inefficiency in Public Services Provision." *Public Choice*, 132.
- Charnes, A., Cooper, W. and Rhodes, E.** 1978. "Measuring the Efficiency of Decision Making Units." *European Journal of Operational Research*, No. 2.
- Farrell, J.** 1957. "The Measurement of productive efficiency." *Journal of the Royal Statistical Society*, Part III Vol. 120.
- Global Competitiveness Report data retrieved from <http://reports.weforum.org/>
- Government Finance Statistics Manual.** 2001. IMF, Washington.
- Hindriks, J., Myles, G.** 2004. *Intermediate Public Economics*. Cambridge: The MIT Press.
- Lovre, I., Jotić J.** 2012. "Uticaj svetske ekonomske krize na javni dug Srbije", zbornik radova sa Trećeg naučnog skupa sa međunarodnim učešćem Univerzitet Educons, Sremska Kamenica.
- Mandl, U., Dierx A., Ilzovikz F.** 2008 "The Effectiveness and Efficiency of Public Spending." *European Economic Papers* 301, European Commission: Brussels.
- OECD.** 2004. "Enhancing the Effectiveness of Public Spending: Experience in OECD countries." *Economic Department Working Papers* No 380.
- Sigma.** 2009. "Sustainability of Civil Service Reforms in Central and Eastern Europe Five Years after EU accession." *Sigma paper no.44*, OECD, Paris.
- Stiglic, E. Dž.** 2008. *Ekonomija javnog sektora*. Beograd: Ekonomski fakultet.
- Tanzi, V.** 2005. "The Economic Role of the State in XXI century." *Cato Journals*, No. 3.
- Walker, R., Boyne, G., Brewer.** 2010 *Public Management and Performance*. Cambridge: Cambridge University Press.
- Wilson, P.W.** 2005. "Efficiency in Education Production among PISA Countries, with Emphasis on Transitioning Economies", Department of Economics, University of Texas.
- World Economic Outlook.** Databases data retrieved from <http://www.imf.org/>

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