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Public Finance Crisis and Sustainable Development Financing – Evidence from EU Economies

Key words: crisis, public expenditures, public revenues, sustainable development.

J E L Classification: H50, H20, H12, Q01.

Abstract: The paper aims at identifying the impact of public finance crisis on the changes in both level and structure of public spendings on sustainable development in the EU countries. The research objective is accompanied by the following research hypothesis: General Government expenditures financing sustainable social and economic development in the EU countries have been reduced due to increasing public finance imbalances.

The paper is composed of two parts. The first one discusses the problems of increasing imbalances in the public finances. The second one outlines changes in the structure of public expenditure connected with sustainable development financing. The study covers all of the EU member states. The analyses are based on Eurostat data.

Kryzys finansów publicznych a finansowanie zrównoważonego rozwoju – przykład krajów Unii Europejskiej

Słowa kluczowe: kryzys, wydatki publiczne, dochody publiczne, zrównoważony rozwój.

Klasyfikacja J E L: H50, H20, H12, Q01.

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Abstrakt: Celem artykułu jest zbadanie wpływu kryzysu finansów publicznych na zmiany poziomu i struktury finansowania zadań wspierających zrównoważony rozwój ze źródeł publicznych w krajach UE. Tak postawionemu celowi badawczemu towarzyszy następująca hipoteza badawcza: rosnąca nierównowaga sektora finansów publicznych w krajach UE spowodowała obniżenie wydatków publicznych na cele związane ze zrównoważonym rozwojem społecznym i gospodarczym.

Artykuł podzielono na dwie części. W pierwszej omówiono problematykę rosnącej nierównowagi sektora finansów publicznych. Druga część prezentuje zmiany w strukturze wydatków publicznych związanych z finansowaniem zrównoważonego rozwoju. Badaniem objęto wszystkie kraje UE. Do analiz wykorzystano dane Eurostatu.

Translated by Tomasz Uryszek

Introduction

Public finance crisis is one of the major problems of contemporary economies all over the world, including the EU member states. It is related to the increasing public finance imbalance, excessive budget deficits, very high levels of public debt and reduced credibility of particular countries (Bach 2012, 3–11; Santacana, Siles 2013, 27–41). In Europe, the problems concern not only the Eurozone countries or the member states of the so called "old" European Union (Costa Fernandes, Mota 2011, 1–36). More and more frequently they also emerge in the "new" EU member states (Sabău-Popa, Mara 2012, 778–783). These problems must be reflected in actual and planned amounts of public revenue and expenditure. The authorities face the dilemma whether they should increase budget revenue (by increasing taxes) or should they cut expenditure (Głuchowski 1995). Cuts may also hinder sustainable development financing in individual countries.

The aim of the paper is to explore the impact of public finance crisis on the size and structure of public spendings on sustainable development in the EU countries. Research objective is accompanied by the following research hypothesis: General Government expenditures financing sustainable social and economic development in the EU countries have been reduced due to increasing public finance imbalances.

Sustainable development may be understood as „a complex and multidimensional issue, which combines efficiency, equity, and intergenerational equity based on economic, social, and environmental aspects" (Ciegis, Ramanauskiene, Martinkus 2009, 28). The Rio de Janeiro declaration on Environment and Development (1992) described sustainable development as "long-term continuous development of the society aimed at satisfaction of humanity's need at present and in the future via rational usage and replenishment of natural resources, preserving the Earth for future generations". The paper, however, uses the definition of Pearce, Markandya and Barbier (1989), according to which sustainable development "includes the creation of a social and economic system that guarantees support for the following aims: increase in the real income, the improvement of the level of education, and the improvement in the populations' health and in the general quality of life".

The research methodology and the course of the research process

The above presented hypothesis was tested based on Eurostat data concerning the revenue and expenditure of all the UE member states. Only Croatia was exempted from the analysis as it joined the EU in 2013 and was not a EU member state in the period covered by the study.

In order to make the results comparable among different EU countries (including unitary and federal states) the data for the total General Government sector were used. The study covers the years between 2005–2012.

For the needs of this paper, according to the literature review, the following areas were included into the categories of public expenditure supporting the process of sustainable development: environmental protection (Hoang 2006, 67–73), recreation, culture and religion (Gough, Accordino 2013, 851–887; Farmer, Chancellor, Gooding, Shubowitz, Bryant 2011, 11–23; Athichitskul 2011, 3–11), health and social protection (Seke, Petrovic, Jeremic, Vukmirovic, Kilibarda, Martic 2013, 1–7), and education (Koehn 2012, 274–282; Kościelniak 2014, 114–119). The amounts of the above mentioned categories of public expenditure (as percentages of GDP, nominal values and dynamics indices) were analyzed and compared with the changes in total public spendings. Correlation indices for those variables were calculated. To check the effect of value of these expenditures into the volume of public debt, the coefficient of determination (R-squared) was calculated.

Public finance crisis in the EU countries

Increasing public finance imbalances in the EU member states are manifested in raising public finance deficit and debt. That is because expenditures exceed collected revenues. Average revenue, expenditure and deficit of the General Government sector and public debt for the EU member states are presented in Table 1.

Table 1. Average revenue, expenditure and deficit of the General Government sector and public debt in the EU member stated (in % GDP)

	2005	2006	2007	2008	2009	2010	2011	2012
Expenditure	46.7	46.2	45.5	47.0	51.0	50.6	49.1	49.3
Revenue	44.2	44.7	44.6	44.6	44.1	44.1	44.6	45.4
Imbalace	-2.5	-1.5	-0.9	-2.4	-6.9	-6.5	-4.5	-3.9
Debt	62.7	61.5	58.9	62.2	74.5	80.0	82.4	85.2

Source: own calculations based on Eurostat data.

The roots of permanent public finance imbalances lie at politicians' striving to meet increasing demand of the society for public goods without increasing the tax burden (which would be a not only politically unpopular move, but would have some negative consequences as well). Public needs, however, can be unlimited (and increase continuously). They also differ among various groups of citizens and do not directly link to the revenue of the budget (De Donder, Le Breton, Peluso 2012, 462). Thus, the catalogue of tasks of public authorities, definition of public needs and their scope should be defined.

The latest economic crisis highlighted the problems of public finance sector in the EU countries. Nevertheless, we may not conclude that the crisis itself was the source of them. In order to prove it, we may use the data describing the so called structural budget balance (see e.g.: Sterks 1984, 183–203). Public finances in the clear majority of the EU member states in the years 2005–2012 recorded structural deficits (with the exception of Sweden, Finland and Luxembourg), meaning that even if we eliminate business cycle fluctuations, the budgets of the General Government sector in most EU member states would end up with deficit. That reveals the need for in-depth reforms, which should have a positive impact on economic growth in the medium- and long-term (OECD 2012, 9). However the introduction of these reforms can be very difficult due to potential citizens' opposition.

The need to balance public finances must entail the decrease of some budgetary expenditure. That is why it must be considered whether expenditures connected with sustainable development financing in the EU countries should be subject to cuts.

Public expenditure in support of sustainable development against the expenditure of the General Government sector

Public expenditures, including budgetary expenditure, are imminent need as they depend on the tasks assumed by the state. Their size and structure result from the scope of state responsibilities. (Kosikowski 2005, 107). The structure of public expenditures is closely related to the political doctrine pursued by a country and its social and economic policies (Lubińska, Franek 2005, 35). The scope of tasks of the public sector determine the demand of the central, state and local budget for financial resources (Kleer 2005, 129). Simultaneously, we should pay specific attention to the rationality and effective use of public expenditures (including budgetary expenditure) in strategic areas of public services, such as health or social welfare (Piotrowska-Marczak, Kietlińska 2001, 281–293), superannuation scheme (Adamiak, Kołosowska 2005, 201–214) or health (Fill 2005, 259–271; Nojszewska 2005, 309–316). Obviously, we should bear in mind that the expenditures of individual EU member states differ with respect to their size and forms (for more see e.g.: Ferreiro, del Valle, Gomez 2012, 633–660).

We cannot also forget about sustainable development supporting form public funds. Amounts of public spending in support of sustainable development in the EU member states are included in Table 2.

Table 2. Sustainable development financing in the EU member states (in EUR bn and in % GDP)

Year	Measure	Environment protection	Health	Recreation, culture and religion	Education	Social protection
2005	EUR bn	84.7	743.4	120.7	577.2	2 018.8
	% GDP	0.8	6.7	1.1	5.2	18.2
2006	EUR bn	95.3	794.3	130.1	603.1	2 098.3
	% GDP	0.8	6.8	1.1	5.1	17.9
2007	EUR bn	100.4	832.9	138.4	629.5	2 180.6
	% GDP	0.8	6.7	1.1	5.1	17.5
2008	EUR bn	101.3	866.1	143.9	643.3	2 249.8
	% GDP	0.8	6.9	1.2	5.1	18

Year	Measure	Environment protection	Health	Recreation, culture and religion	Education	Social protection
2009	EUR bn	108.6	890.9	141.2	652.1	2 349.7
	% GDP	0.9	7.6	1.2	5.5	20
2010	EUR bn	109.2	915.4	143.7	672.3	2 442.1
	% GDP	0.9	7.4	1.2	5.5	19.9
2011	EUR bn	108.7	926.7	139.1	674.5	2 480.6
	% GDP	0.9	7.3	1.1	5.3	19.6

S o u r c e : own calculations based on Eurostat data.

In-depth analyses were conducted for single-based dynamics indices in all the EU member states. It was because the nominal values could not be used for international comparison. There were significant fluctuations in GDP values in individual countries caused by economic slowdown and the crisis hence values expressed in GDP % may also be distorted. As data are usually published in delay, the latest data available when the paper was completed dated back to 2011. Data relating to changes in amounts spent as public finances in support of sustainable development are presented in Table 3.

Table 3. Total public spending in support of sustainable development

Area/Country	Spending	2005	2006	2007	2008	2009	2010	2011
EU	Total (2005=100)	100.0	104.5	109.3	113.5	115.9	120.0	120.0
	Sus. Dev.*) (2005=100)	100.0	105.0	109.5	113.0	116.9	120.8	122.1
	Sus. Dev in total (in %)**)	68.5	68.8	68.6	68.2	69.0	68.9	69.7
EU-15	Total (2005=100)	100.0	104.1	108.2	111.5	114.6	118.4	118.2
	Sus. Dev.*) (2005=100)	100.0	104.6	108.7	111.2	115.7	119.3	120.5
	Sus. Dev in total (in %)	68.8	69.1	69.1	68.6	69.4	69.3	70.1
Eurozone	Total (2005=100)	100.0	103.6	108.0	113.4	119.6	122.4	122.2
	Sus. Dev.*) (2005=100)	100.0	104.3	108.6	113.9	121.0	123.2	124.7
	Sus. Dev in total (in %)	68.4	68.8	68.7	68.6	69.2	68.8	69.7
Belgium	Total (2005=100)	100.0	98.2	102.9	109.6	116.2	118.8	125.2
	Sus. Dev.*) (2005=100)	100.0	103.6	107.6	115.1	122.7	125.8	132.6

Area/Country	Spending	2005	2006	2007	2008	2009	2010	2011
Bulgaria	Total (2005=100)	100.0	105.0	139.1	156.9	167.0	155.7	158.3
	Sus. Dev.*) (2005=100)	100.0	109.0	126.6	151.6	167.6	168.7	174.0
Czech Republic	Total (2005=100)	100.0	105.0	112.2	118.2	125.3	124.0	123.4
	Sus. Dev.*) (2005=100)	100.0	108.5	117.4	123.1	131.1	133.5	136.6
Denmark	Total (2005=100)	100.0	103.2	105.6	110.7	118.6	124.6	126.8
	Sus. Dev.*) (2005=100)	100.0	103.1	105.2	110.5	119.0	125.1	126.0
Germany	Total (2005=100)	100.0	100.6	101.3	104.5	109.7	114.1	112.6
	Sus. Dev.*) (2005=100)	100.0	100.9	101.4	103.6	110.1	111.9	112.6
Estonia	Total (2005=100)	100.0	119.8	145.3	171.4	166.6	155.1	162.6
	Sus. Dev.*) (2005=100)	100.0	116.8	139.7	169.6	171.3	158.8	162.3
Ireland	Total (2005=100)	100.0	110.7	126.0	139.6	142.3	187.4	138.7
	Sus. Dev.*) (2005=100)	100.0	109.9	124.3	136.2	141.4	135.1	133.3
Greece	Total (2005=100)	100.0	109.7	123.1	137.0	144.8	132.8	125.4
	Sus. Dev.*) (2005=100)	100.0	110.2	121.6	136.6	144.5	137.5	130.7
Spain	Total (2005=100)	100.0	108.1	118.2	129.0	138.7	138.9	137.4
	Sus. Dev.*) (2005=100)	100.0	108.9	118.4	130.1	141.8	143.4	141.6
France	Total (2005=100)	100.0	103.5	107.9	111.9	116.3	119.0	121.6
	Sus. Dev.*) (2005=100)	100.0	105.8	109.7	114.2	119.1	122.6	126.1
Italy	Total (2005=100)	100.0	105.1	107.6	111.2	114.5	113.6	114.5
	Sus. Dev.*) (2005=100)	100.0	103.7	107.5	111.9	116.3	117.7	117.5
Cyprus	Total (2005=100)	100.0	106.3	113.2	125.1	134.9	139.1	143.5
	Sus. Dev.*) (2005=100)	100.0	106.0	111.1	125.7	135.0	144.8	150.7
Latvia	Total (2005=100)	100.0	132.2	164.1	194.9	177.1	172.1	170.0
	Sus. Dev.*) (2005=100)	100.0	129.5	160.4	193.2	183.2	168.5	176.4
Lithuania	Total (2005=100)	100.0	115.7	142.8	173.3	167.2	161.7	165.3
	Sus. Dev.*) (2005=100)	100.0	113.7	142.7	178.4	185.0	172.0	173.6
Luxembourg	Total (2005=100)	100.0	104.1	108.1	116.3	127.9	136.0	142.2
	Sus. Dev.*) (2005=100)	100.0	102.6	108.3	116.9	128.8	135.7	141.4
Hungary	Total (2005=100)	100.0	112.0	114.8	118.5	119.5	120.1	125.4
	Sus. Dev.*) (2005=100)	100.0	110.2	111.8	118.8	117.8	121.4	123.3

Area/Country	Spending	2005	2006	2007	2008	2009	2010	2011
Malta	Total (2005=100)	100.0	104.4	108.3	119.4	117.8	123.2	127.9
	Sus. Dev.*) (2005=100)	100.0	105.4	110.7	115.4	121.5	131.1	134.6
Netherlands	Total (2005=100)	100.0	107.0	112.6	119.5	128.2	131.0	130.4
	Sus. Dev.*) (2005=100)	100.0	108.7	114.2	120.5	129.3	133.1	135.5
Austria	Total (2005=100)	100.0	103.8	108.6	113.8	118.6	122.8	123.9
	Sus. Dev.*) (2005=100)	100.0	104.1	108.8	114.1	120.4	124.3	125.7
Poland	Total (2005=100)	100.0	108.9	116.2	129.1	140.4	150.6	155.4
	Sus. Dev.*) (2005=100)	100.0	108.1	113.1	126.0	136.9	146.3	149.9
Portugal	Total (2005=100)	100.0	101.3	104.6	107.3	116.7	123.9	117.5
	Sus. Dev.*) (2005=100)	100.0	102.6	105.3	109.1	119.0	121.3	118.1
Romania	Total (2005=100)	100.0	126.2	163.9	208.3	212.2	216.4	225.8
	Sus. Dev.*) (2005=100)	100.0	124.7	155.1	211.0	228.5	233.8	248.4
Slovenia	Total (2005=100)	100.0	106.4	112.8	126.9	134.2	137.5	141.0
	Sus. Dev.*) (2005=100)	100.0	105.4	110.6	124.2	132.8	136.4	138.7
Slovakia	Total (2005=100)	100.0	107.2	112.2	124.6	139.2	140.6	140.8
	Sus. Dev.*) (2005=100)	100.0	110.4	116.4	126.6	140.6	142.0	142.3
Finland	Total (2005=100)	100.0	102.9	107.5	115.3	122.0	125.8	131.5
	Sus. Dev.*) (2005=100)	100.0	103.2	108.1	114.8	122.9	127.3	132.8
Sweden	Total (2005=100)	100.0	104.1	106.8	111.2	114.4	117.1	120.2
	Sus. Dev.*) (2005=100)	100.0	103.8	106.1	110.0	114.7	116.9	119.2
United Kingdom	Total (2005=100)	100.0	106.1	111.6	124.2	130.0	133.6	133.2
	Sus. Dev.*) (2005=100)	100.0	105.8	112.0	119.5	129.4	134.5	136.0

*) – Public spending on sustainable development

**) – share of sustainable development-related spending in total spending

S o u r c e : own calculations based on Eurostat data.

The analysis of data from Table 3 lets us conclude that economic slowdown accompanied by the crisis of public finance in many EU countries have not resulted in the reduction of spending on sustainable development. On the contrary, such spending increased in the period 2005–2011. Furthermore, in 19 out of 27 member states (including Portugal, Spain, Italy and Greece – i.e. highly indebted PIGS countries) covered by the study, the rate of public expenditures connected with sustainable development financing was higher than the rate of increase in total public expenditures. Those variables are, of course, strongly correlated. The values of correlation indices in most EU countries amounted more than 99%. The only exception was Ireland, but the index was there also significant (76%).

Due to that phenomenon, the increase in sustainable development-related spendings influenced substantially the volume of public debt as well. It was proven by the values of R-squared index, which amounted to 70% in most EU countries. There were, however, a few exceptions: in 9 out of 27 countries the R-squared values were relatively low (less than 40%). It means, that the level of public debt in those countries was affected by spendings allocated for current budgetary needs and debt service rather than supporting sustainable development.

In Poland, spending relevant to sustainable development rose slower than the total General Government expenditure. It can be explained by the need to diminish the public debt as it was close to the threshold of 60% of GDP laid down in the Constitution of the Republic of Poland and the fiscal criterion of the Maastricht Treaty. The highest increase in spending was recorded in the area of environmental protection. For the EU it increased from EUR 84.7 trl in 2005 to EUR 108.7 trl in 2011, meaning that, despite the crisis, EU member states managed to allocate significant amounts in their budgets to finance this important issue. The highest spending in the EU was reported for social protection. In the period covered by the study it increased from EUR 2018.7 trl to EUR 2480.5 trl. The increase is understandable in the times of economic downturn and crisis. Health related spendings also significantly increased, by more than 24%. Financing of culture and education increased relatively little. Clearly the increases in spending alone do not have to improve the perspectives of sustainable development, which predominantly depend on how effectively the resources are spent. However, the assessment of the effectiveness involves a very difficult and complex process.

Higher increase in sustainable development related spendings in the countries of the “new” EU (which joined the EU in 2004 or later) compared to the countries of the so called “Fifteen” may result from the need to finance the needs which were met long ago in the “old” EU. Moreover, these member states are relatively less indebted, which makes it easier for them to maintain high dynamics of public spending even in the times of crisis. Besides, they strive to close the gap in economic development and in the standard of living that divides them from the "Fifteen".

Summary and research conclusions

Economic crisis and increasing public finance imbalances in the EU member states did not led to the reduction of the General Government spending in support of sustainable development. On the contrary, in the EU the spending increased on average more rapidly than the total public expenditure. That was true also for highly indebted countries. Therefore empirical analyses show that the research hypothesis should be rejected.

Nevertheless, in 8 out of 27 countries (including Poland), the increase of those spending was slower, than the raise to the whole General Government expenditures. It can be acceptable in short term, especially during crisis, but Poland as well as other countries cannot retreat form supporting sustainable development from public expenditures in the long run. These spendings can improve the quality of life in the future and increase the level of competitiveness of the economy. Rationalization of public spending and a clear definition of priorities in the path of economic growth can be the chance for Poland to develop sustainably and strengthen its position in Europe. Public spending should be used as an incentive for development rather than the main (or the only) source of its financing.

In more general terms, increasing expenditures on sustainable development under growing imbalances of General Government sector cannot be interpreted unequivocally. On one hand, it demonstrates that the authorities are aware of the indispensability of spending relating to the sustainable development of a country. That should be assessed as a positive sign. However, we should bear in mind that amounts spent on environmental protection, education, health, social security and culture represent in total ca. 68%–70% of all budgetary expenditure. Therefore, their continuous increase may result in considerable increases in total public spending and may increase budget deficits and debts in the EU member states. On top of that, rating agencies may reduce the rating of countries running excessive debts (Wiśniewski 2011, 129–152). That, in turn, will increase the risk premium expected by investors while purchasing the financial instruments (thus contributing to higher interests on T-bills and T-bonds) and will additionally increase budgetary expenditure in the future. Such situation may cause painful cuts in the future budgets and result (in some countries has already resulted) in serious economic and social consequences which, unfortunately, are very distant from the theory of sustainable development. All this together can put the idea to support sustainable development at risk. A solution could be to shift the burden of financing partly on to the private sector using the system of adequate stimuli and incentives (Marin, Dorobanțu, Codreanu, Mihaela 2012, 93–98; Lucian, Daniela, Traian, Oreste 2011, 116–123). However, it may be difficult and the private sector will not fully replace public funding (Chamala, Kepui, Shadur 1996, 111–120).

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