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Prologue

In September 2015 the NEWTON College organized the 1st International Conference from the cycle European Fiscal Dialog with over 90 participants from the Czech Republic, Slovakia, United Kingdom and Croatia.

The topic of this conference was Current Issues of Fiscal Policy. The conference was held under the auspices of the Ministry of Industry and Trade of the Czech Republic. The conference was attended not only by academics but also practitioners and policy makers. Among the keynote speakers were prof. John Hudson, prof. Hrvoje Šimović, prof. Eva Zamrazilová. The conference was also attended by the Minister of Finance of the Czech Republic, Mr. Andrej Babiš.

The organizers encourage the participation of students and young economists. Competition for the best paper of the young economist up to 35 years was announced. The papers presented during the conference showed various aspects of public finances and in particular the challenges in this area.

Conference details are available at the web site of the conference at www.efid.cz.

The intention of the organizers of the first conference in the cycle European Fiscal Dialog is to create a platform for discussion not only about general issues of public finance but also about specific issues in this area in different European countries. Papers deal with a great variety of topics.

The conference was successful not only among participants but also in the national media.

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THE SIZE AND DETERMINANTS OF FISCAL MULTIPLIERS IN WESTERN BALKANS: COMPARING CROATIA, SLOVENIA AND SERBIA

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Abstract

When estimating the size of fiscal multipliers one has to take into consideration various structural characteristics of economies which, directly or indirectly, affect the transmission from government stimuli to economic activity. Thus, in this paper we use a 'bucket approach' to determination of the size of fiscal multipliers, which enables us to make presumptions on the size of fiscal multipliers, given the structural characteristics of selected Western Balkan economies – Croatia, Slovenia and Serbia. After this 'non-empirical' approach we use structural VAR framework to test our hypothesis derived from the 'bucket approach'. Our results confirmed the hypotheses on the relative size of the multipliers between these three peer countries, with Croatia having the highest spending multiplier and Slovenia the lowest one.

Keywords: fiscal multipliers, Western Balkans, bucket approach, structural VAR

JEL classification: E62, C32, H20, H30, H50

Introduction

Fiscal policy remained the main policy channel in most of the transition countries in Western Balkans. This can be understood as a result of several factors, such as the relatively big size and the role of government in these economies, various political-economical factors, but also as a result of some structural characteristics that limit the possibilities of monetary policy to play an important role in steering the economy during the boom-bust cycles.

Experience of Western Balkan countries during the recent crisis once again showed the reliance on the fiscal policy and its stabilization role, as almost all of the countries intervened in their fiscal systems on both, expenditure and the revenue side. However, economic developments in these countries varied significantly, with some of them still experiencing recession and others recording stable growth for few years already. Even though these differences cannot be attributed to fiscal policy alone, there are many policy discussions that argue how fiscal measures played an important role in (de)stimulating economic recovery from 2009 onwards.

In this paper we will analyze the effectiveness of fiscal policy (measured by the size of fiscal multipliers) in three Western Balkan countries: Croatia, Slovenia and Serbia. These countries are primarily selected because data availability for other countries is very limited. Also, it is interesting to notice that these countries have many structural similarities, but different monetary policy and exchange rate regimes, with Slovenia as a member of Eurozone, Croatia with an exchange rate as a main policy anchor and high eurisation and Serbia with inflation targeting and also high degree of eurisation. Such characteristics can also affect the effectiveness of fiscal policy.

Our analysis is conducted in two steps. In the first step we use a 'bucket approach' to the determination of the size of fiscal multipliers in order to analyse important determinants of the

fiscal multipliers in these countries and form hypotheses on the relative size of the multipliers in selected countries. In the second step we use structural VAR framework to empirically test our hypotheses. Due to the fact that selected countries are small open economies, we use extended Blanchard-Perotti (2002) model which also includes the effects of movements in external demand on selected economies.

After a literature review presented in Section 2, in Section 3 we introduce and explain a 'bucket approach' to fiscal multipliers and form our hypothesis. In Section 4 we present structural VAR model and the method of identification, followed by data explanation in Section 5. Results are discussed in Section 6, after which we conclude in Section 7.

1 RESEARCH APPROACH AND LITERATURE REVIEW

Regarding a common history and similar structure of economies, in Western Balkan countries the Keynesian concept of stimulating economic activity is often advocated and the basis for the assessment of the effectiveness of discretionary fiscal policy measures in Keynesian sense is a concept of fiscal multiplier. The fiscal multiplier measures the impact of discretionary fiscal policy i.e. variation of taxes and public spending on output (GDP).

Estimation of fiscal multipliers is complex and tricky. It is difficult to isolate the direct effects of exogenous shocks of taxes and/or public spending i.e. discretionary fiscal measures on GDP. The main problem is the two-way relationships between these variables. Because of that there is no consensus on methodology for identification of such shocks or extraction of the exogenous component from observed fiscal outcomes. Broadly speaking, the literature relies on two main methods for estimation of fiscal multipliers: model-based approaches and empirical estimations.[1]

Model based estimations are mainly advanced models which simulate fiscal shocks, like DSGE models. DSGE literature is growing as are different DSGE models like real business cycle (RBC) models and New Keynesian (NK) models (Leeper et al., 2012). On another hand, empirical estimations are based on vector autoregressive (VAR) models which can be systematized in several categories. First, in VAR literature four main identification approaches have been used: 1) narrative approach (Ramey & Shapiro, 1999), 2) calibrated elasticises (Blanchard & Perotti, 2002), 3) sign restrictions (Mountford & Uhlig, 2002 & 2009), and 4) recursive structure (Kamps & Caldara, 2006). Second, analyses of empirical results include dynamic responses to different fiscal shocks and/or calculation of impact and cumulative fiscal multipliers and frequently interpretation of historical facts. Further, current research is more focused on adopting VAR methodology to the stage of the business cycle (regime-switching models) because there are strong theoretical and empirical arguments that multipliers are higher in times of crisis (Auerbach & Gorodnichenko, 2012). That is important because underestimation of fiscal multipliers can lead to growth forecast errors (Blanchard & Liegh, 2013).

Identification process and structural characteristics of fiscal system defined by Blanchard and Perotti (2002) became a benchmark for majority of structural VAR (SVAR) and panel VAR (PVAR) approaches for estimation of fiscal multipliers.[2] In this research we will also use

[1] For pros and cons of empirical versus model-based estimates see Batini et al. (2014).

[2] For the literature review on the estimation of the size of fiscal multipliers, based on different methods and made for different countries see Spilimbergo et al. (2009), Ramey (2011), while the detailed methodology using SVAR is possible to review in Ilzetzki et al. (2013) and Caldara & Kamps (2012). For existing estimations of the fiscal multipliers estimations in emerging market and low-income economies see Batini et al. (2014).

Blanchard and Perotti (2002) identification method. The original model of Blanchard and Perotti (1999) takes only three variables: government spending, net taxes and real GDP.[3] Regarding that all Western Balkan countries are small open economies, the original identification method is extended by introducing variable that represent external (foreign) demand shocks. Such adjusted Blanchard-Perotti methodology, after it was originally presented in Ravn & Spange (2012) for Denmark, was also used in Deskar-Škrbić et al. (2014) for Croatia.

Before moving to final research approach it is necessary to emphasize some obstacles and solutions for the research problem. The main obstacle in research identification was the lack of data i.e. quarterly data are not available through a sufficient period to include more explanatory and control variables. Other option was to use monthly data but then identification assumptions would be violated and the discretionary part of fiscal policy could not be isolated. For advanced economies Perotti (2002) presents the minimal set of variables necessary for the study of the dynamic effects of fiscal policy changes, which include short-term interest rates and price levels. Regarding emerging and developing countries, other variables can be included like current account, real effective exchange rate and monetary policy interest rate (Ilzetzki et al., 2013). Because data availability limits the scope of empirical research we partially consulted a narrative 'bucket approach' developed by Batini et al. (2014). Batini et al. (2014) suggest that beside conjectural factors, six structural characteristics determine the size of fiscal multipliers: trade openness, labor market rigidity, the size of automatic stabilizers, the exchange rate regime, the debt level and the public expenditure management and revenue administration. These entire factors can be useful control variables.

In the case of the lack of quarterly data PVAR estimations are often used, especially for developing and low-income countries (Ilzetzki et al., 2013; Kraay, 2013; Gonzalez-Garcia et al., 2013; Hory, 2014), which was also an option for this study. However, because of poor existing empirical literature we decided to use SVAR estimation regarding data and model identification related problems. SVAR for single country gives better estimation of the fiscal multipliers for each observed country that common PVAR approach and enable us to compare obtained results. Because our secondary goal is to compare the effects of fiscal policy in various countries we will follow a standard comparative framework proposed by Perotti (2002) for selected OECD countries, but also in Mirdala (2009) where the analysis was conducted for Central and Eastern European (CEE) countries.

Further, generally little is known about size of the fiscal multipliers in developing and low-income economies. Similar conclusion can be driven for CEE economics[4], and even less in some Western Balkan countries where empirical literature is significantly scarce. Regarding SVAR based methodology and Blanchard and Perotti (2002) identification method there are several papers, mostly for Croatia and Slovenia, that investigate the effects of fiscal policy on economic activity and some of them even estimate the size of fiscal multipliers. Table 1 gives a brief overview of findings and fiscal multipliers estimates in mentioned papers.

Majority of papers deals with Croatia in closed economy model (Ravnik & Žilić, 2011; Šimović & Deskar-Škrbić, 2013; Grdović Gnip, 2013 and 2014). Only one study uses open economy framework and suggests that multipliers are lower in an open economy model (Deskar-Škrbić

[3] Later in Perotti (2002) this model is extended by adding short-term interest rates and price levels.

[4] Beside before mentioned Mirdala (2009) paper that studies effects of fiscal policy in six CEE countries (Czech Republic, Hungary, Poland, the Slovak Republic, Bulgaria and Romania), Crespo Cuaresma et al. (2011) studies five CEE countries (Hungary, Slovakia, Czech Republic, Poland and Slovenia). For SVAR estimates also see Baxa (2010) for Czech Republic, Mancelarri (2011) for Albania, Muir & Weber (2013) for Bulgaria and Stoian (2012) for Romania. For PVAR estimates that include CEE countries see Ilzetzki et al. (2013) and Hory (2014).

et al., 2014). Ravnik & Žilić (2011) and Grdović Gnip (2013) use a multivariate Blanchard-Perotti SVAR methodology to analyze disaggregated short-term effects of fiscal policy on economic activity, inflation, and short-term interest rates in Croatia. Šimović & Deskar-Škrbić (2013) analyze the dynamic effects of fiscal policy and estimate the size of fiscal multipliers at different levels of government, using a closed economy model. Further, Grdović Gnip (2014) developed smooth transition VAR (STVAR) to isolate the fiscal policy impact for periods of expansion and recession. Regarding methodological and data issues[5] Croatia has rather good empirical literature that in most cases support Keynesian assumptions.

For Slovenia only Jemec et al. (2013) paper is found that uses 'small' SVAR with three variables in closed economy framework. Slovenia is included in Crespo Cuaresma et al. (2011) along with four other CEE countries (Hungary, Slovakia, Czech Republic, and Poland). Crespo Cuaresma et al. (2011) use different open economy framework, exploring the cross-border spillovers and the transmission of a foreign fiscal policy shock (assumed to be generated in Germany) to key macroeconomic variables. Both Croatia and Slovenia are included in PVAR estimations of fiscal multipliers in Ilzetzki et al. (2013) and Hory (2014). In other observed countries literature is significantly scarce. Only research results for Serbia were found in Hinić et al. (2013).

As mentioned before, empirical SVAR analysis includes: (a) dynamic responses to different fiscal shocks and/or (b) calculation of fiscal multipliers and (c) interpretation of historical facts. Regarding fiscal multipliers, cumulative multipliers are considered to be the most appropriate measure, usually larger that peek and impact multipliers, but they are rarely reported.[6] According to existing literature (Table 1), Western Balkan countries have rather high short-term (cumulative) multipliers. Compared to other developing countries they can be classified into high multiplier category (0.7-1.0) in normal times (Batini et al., 2014). We expect that open economy framework will somewhat mitigate the size of fiscal multipliers and provide more real estimates for all observed countries.

[5] Ravnik & Žilić (2011) use monthly data and proxy variable for output, and along with Grdović Gnip (2013, 2014) they use central government data for fiscal variables.

[6] For different types and measurements of fiscal multipliers see Spilimbergo et al. (2009: 2).

Table 1 – Effects of fiscal policy and fiscal multipliers in former Yugoslavian countries: overview of SVAR based research

Authors	**Sample, methodology and identification method**	**Variables**	**Short-term multipliers* and other estimates**	**Fiscal policy effects**
Croatia				
Ravnik & Žilić (2011)	2000M1-2009M12 central government data for fiscal variables VAR Blanchard & Perotti (2002)	5 variables: Base index of industrial production (output proxy), government revenues and expenditures, inflation and short-term interest rate	No estimates G – T +	Fiscal shocks have the greatest effect on the interest rate, and the weakest on the inflation rate. Shocks in the expenditures have a short-term negative effect on the industrial production, and tax shocks a positive one. Neither of results was significant. Fiscal shocks on output are not compatible with Keynesian theory.
Šimović & Deskar-Škrbić (2013)	2004Q1-2012Q4 SVAR Blanchard & Perotti (2002)	3 variables: AD of private sector (private consumption+gross fixed investment), indirect tax revenues and total expenditures	General level G 2.18 T -1.32 Central consolidated level G 1.58 T -2.15 Central level G 0.82 T -0.63 Cumulative multipliers for 4 and 8 quarters and peek multipliers provided.	Results show difference in the size of the multipliers between three levels of government consolidation, highest at general level where id higher ratio of capital expenditures. Results are compatible with Keynesian theory.
Grdović Gnip (2013)	1996Q1-2011Q4 consolidated central	5 variables: real GDP, government revenues and expenditures, inflation and short-term interest rate	G 2.45 T -2.35	Results show that output moves in line with Keynesian propositions in baseline and extended model. The negative effect of the

	government data for fiscal variables SVAR Blanchard & Perotti (2002)	(additionally model extended for private consumption and private investments, labor market variables (employment and wages), different components of expenditures (current and capital) and taxes (direct and indirect))	Cumulative multipliers for 4, 8, 12 and 16 quarters provided.	tax shock is mostly driven by indirect taxes, while the positive effect of a government spending shock is influenced by government consumption and government investment.
Grdović Gnip (2014)	1996Q1-2011Q4 consolidated central government data for fiscal variables SVAR Blanchard & Perotti (2002); STVAR Auerbach & Gorodnichenko (2010)	3 variables: real GDP , net expenditures and net revenues Alternative models: additionally model extended for private consumption or private investments and unanticipated component of the fiscal instrument as fifth variable in extended STVAR)	G + T- Short-term multipliers are not provided. For all models cumulative multipliers for 8, 12 and 20 quarters, impact and peek multipliers are provided.	Results show that during recessions fiscal multipliers in Croatia tend to be much larger and move in line with Keynesian assumptions. During recession government purchases of goods and services seems to be the most effective fiscal instrument for boosting economic activity.
Deskar-Škrbić et al. (2014)	2000Q1-2012Q2 SVAR Blanchard & Perotti (2002)	4 variables: real GDP components (AD of private sector and private consumption for alternative model) , government consumption, net indirect taxes, foreign GDP	G + T- Impact multipliers discussed in text (usually less than 1, for G peek multiplier is higher than one in both models).	Results are compatible with Keynesian theory in both models. Multipliers are lower in open economy model than in closed economy model which is also in accordance with economic theory.
Slovenia				
Crespo Cuaresma et al. (2011)**	1996Q1–2009Q4 SVAR Blanchard & Perotti (2002)	7 variables: domestic output (GDP), foreign fiscal balance, government purchases of goods and services, net taxes, nominal effective exchange rate, inflation and short-run interest rate	G 0.00 T 0.02 Cumulative multipliers for 2, 4 and 8 quarters provided.	Results show negative cross-border fiscal spillovers to a fiscal expansion in Germany. For domestic fiscal shocks non-Keynesian responses are present in Slovenia.

Jemec et al. (2013)	1995Q1–2010Q4 SVAR Blanchard & Perotti (2002)	3 variables: real GDP (private consumption and investments for alternative model), net taxes, government spending	G + T - Impact multipliers discussed in text (for G higher than 1, for T less than 1).	Results show that output moves in line with Keynesian propositions in both models in short-term. Both spending and tax effects becomes insignificant in the period following the shock.
Serbia				
Hinić et al. (2013)	Sample n.a. SVAR Blanchard & Perotti (2002)	5 variables: Gross value added without agriculture (output), net taxes, government spending, inflation, short term nominal interest rate	G 0.77 T 0.77 Impact and cumulative multipliers up to 12quaters reported.	Results suggest that an increase in public consumption increases the non-agricultural economic activity. Estimated impact of fiscal policy on interest rates suggests accommodative monetary policy conditions.

Source: authors

Note: *Short-term multipliers are cumulative multipliers that range for time of impact to one year (4 quarters) span. G stands for spending multiplier and T stands for tax multiplier; ** Only results for Slovenia are reported.

2 DETERMINANTS OF FISCAL MULTIPLIERS AND THE 'BUCKET APPROACH'

The size of fiscal multipliers is determined by various structural and conjectural characteristics of economies. Basic, theoretical, multiplier is determined by the marginal propensity to consume, marginal propensity to import and the tax burden. However, these three factors are not sufficient for explanation of differences in the effectiveness of fiscal policy in empirical analysis.

Empirical studies show that there are a lot more factors that can affect the size and a sign of fiscal multipliers and thus determine effectiveness of fiscal policy. These determinants are a basis for a 'bucket approach' for measuring the size of fiscal multipliers proposed in Batini et al. (2014) which we will use to set our hypotheses about the size of fiscal multipliers in selected Western Balkan countries (which will be empirically evaluated in the following section of the paper).

The bucket approach bunches countries into three groups that are likely to have similar impact multiplier values based on their structural and conjectural characteristics. Following Batini et al. (2014) determinants that will be analysed in this paper are presented in Table 2.

Table 2 – Determinants of the size of fiscal multipliers*

Structural	**Effect on the size**
Trade openness	High degree of economic openness reduces the size of fiscal multiplier through the 'outflow effects' of the imports
Labor market rigidities	Rigid labor markets are less responsive to economic movements and as such they are reducing the effectiveness of fiscal policy (smaller fiscal multipliers)
Automatic stabilizers	Stronger automatic stabilizers reduce the size of fiscal multipliers, because automatic response of public revenues and expenditures on economic cycles offsets part of the fiscal stimulus
Exchange rate regime	Countries that have flexible exchange rate regime have lower fiscal multipliers because effects of fiscal policy on domestic economy are limited by the effects on international flows (finance and trade)
Level of public debt	Countries with high levels of public debt have lower fiscal multipliers because additional fiscal expansion can lead to increase in risk premium and decrease private sector confidence, thus de-stimulating consumption and investment
Conjectural	
Business cycle phase	Fiscal policy is more effective in conjectures than in expansionary phase of business cycle**
Monetary policy stance	If monetary policy is constrained (by structural characteristics of transmission mechanism or ZLB) effectiveness of fiscal policy (fiscal multiplier) is higher

Source: authors, following Batini et al. (2014)

* We exclude public sector effectiveness from the analysis because most of Western Balkan countries don't have such measures; **For sources and explanation see Batini et al. (2014), pp. 10

As for the critical values and measures of some of the above determinants we assume:

1. The country is relatively closed if the ratio of imports to domestic demand is below 30 percent on average over the past five years, as in Batini et al. (2014).

2. Labour market is relatively rigid if the Labour market efficiency indicator is equal or below 4 on the scale 1-7, measured by the World Competitiveness Report.

3. Automatic stabilizers measured by the ratio of total public spending to nominal GDP are small if the ratio is below 0.40, as in Batini et al. (2014).

4. Public debt is 'stable' or 'acceptable' if the level of public debt is below 60% of GDP[7]

In Table 3 we present data on these structural characteristics in Croatia, Slovenia and Serbia.

Table 3 – Determinants of the size of fiscal multipliers in Croatia, Slovenia and Serbia

Structural	**Croatia**	**Slovenia**	**Serbia**	**Effect on the size**
Trade openness 2007-2013*	0.43	0.69	0.46	Although all three countries can be considered as 'open', share of imports in domestic demand in Slovenia is substantially higher compared to peers so we expect that its fiscal policy is mostly constrained by the openness indicator
Labor market rigidities 2007-2013	4.1	4.2	4.0	All countries have relatively rigid labor markets, but the effects of fiscal policy could be most effective in Serbia
Automatic stabilizers 2007-2013	0.46	0.48	0.47	All countries can be considered to have relatively strong automatic stabilizers and the effects of this determinant on fiscal multipliers are relatively equal
Exchange rate regime	'Fixed'	Fixed	Flexible	Given the fixed exchange rate framework, effects of fiscal policy should be more effective in Croatia and Slovenia
Level of public debt 2007-2013	0.53 (ESA 2010)	0.41 (ESA 2010)	0.42 (national methodology)	Public debt in all countries is below 60% of GDP threshold, although Croatia has the highest ratio so this observation should be taken into account
Conjectural				
Business cycle phase	38%	25%	18%	Croatia experienced the longest recessionary phase during the analyzed period so, given the above explained assumptions, we could

[7] We use Maastricht criteria as a treshold, unlike Batini et al. (2014) which use tresholds for EME's of 40% and advanced economies of 100% of GDP

(recessionary years in the whole analyzed period, %)				expect that fiscal policy should by more effective in Croatia, compared to peers
Monetary policy stance	Constrained (transmission mechanism and high eurization) no key policy rate	Constrained EA member	Constrained** (transmission mechanism and high eurization) key policy rate	Monetary policy is constrained in all analyzed countries which should positively affect the size of fiscal multiplier

Source: authors

*We use this period to capture pre-recession and recession phase of the business cycle

** Serbia had real exchange rate anchor since 2003, and informal inflation targeting through 'inflation objectives' since September 2006 (Barisitz 2004, 2007), but monetary policy is largely constrained by the high euroization of the domestic economy (Hinić et al., 2013).

Following the 'bucket approach' we assign a value of 1 to the determinants which imply that fiscal multipliers should be high in some country and value of 0 if the determinant constrains the size of the multiplier. Following Batini et al. (2014), countries with total scores of 0 to 3 may be assumed to have 'low' multipliers; countries with total scores of 3 or 4 have 'medium' multipliers; and countries with total scores of 4 to 6 end up in the 'large' multiplier category.

Table 4 – 'Bucket approach' in Croatia, Slovenia and Serbia

	Croatia	**Slovenia**	**Serbia**
Trade openness	0	0	0
Labor market rigidities	0	0	1
Automatic stabilizers	0	0	0
Exchange rate regime	1	1	0
Level of public debt	1	1	1
TOTAL:	**2**	**2**	**2**

Source: authors

From Table 4 we can conclude that all countries should belong to the countries with low fiscal multipliers. According to Batini et al. (2014) these countries should have the size of the impact multiplier between 0.1 and 0.3, but these bounds should also be adjusted for the phase of business cycle and a monetary policy stance, such that:

- If the economy is at the lowest point of the cycle, lower and upper bound of the multipliers range should be scaled-up by 60 percent. If on the other hand, the economy is at a peak, both bounds should be decreased by 40 percent and when the output gap is zero, no adjustment should be made. In other cases the boundaries should be interpolated
- If monetary policy is at the effective lower bound and is fully constrained, both bounds of the multiplier range should be increased by 30 percent. If the monetary

policy is constrained by other considerations, it should be interpolated between 0 and 30 percent

Based on data on the phase of the business cycle, presented in Table 3, we assume that the bounds for Croatia should be scaled-up by approximately 30%, in Slovenia by 15% and in Serbia by 12%[8]. As for the monetary policy stance, we assume that we could scale-up the boundaries by 15% in all countries[9]. So, based on the bucket approach, the size of fiscal multipliers should be between: 0.15-0.45 in Croatia and 0.13-0.40 in Slovenia and Serbia.

However, although informative and innovative, bucket approach is relatively rigid. Firstly, all determinants have the same weight in the calculation process. Second, the binary division on 0 and 1 limits the manoeuvring space so, for example, although Slovenia is much more open in terms of foreign trade than Croatia and Serbia, all three countries have the share of imports in domestic demand above thresholds and thus take a value of 0 in calculation.

So in this paper we will take these limitations into the consideration and use 'narratives' presented in Table 3 to make our assumptions on the size of fiscal multipliers in a way that we assume that Croatia will have the largest multiplier, followed by Serbia and then Slovenia. Given that all countries are relatively similar in the context of labor market flexibility, automatic stabilizers, public debt and monetary policy stance, we expect that the business cycle phase, with longest recession in Croatia, and trade openness, with Slovenia with the biggest share of imports in domestic demand, will play the key role.

In the next section we present our empirical methodology that will be used to test these assumptions.

3 METHODOLOGICAL APPROACH

Given data limitations and relatively short time series, in choosing the adequate model for empirical analysis we assume that economy openness is the most important characteristic for all countries in estimating the size of fiscal multipliers.

Openness of the economy can influence fiscal policy through three channels: trade channel, real exchange rate channel and interest rate channel, and the size of the fiscal multiplier depend on the interaction between these different channels. The total impact of external expansion on domestic output is expected to be positive if the trade and exchange rate effects outweigh the negative interest rate effect. Regarding 'fixed' exchange rate regimes and rather undeveloped capital markets[10] , we believe that trade channel prevails in the most of countries when describing cross-border spill overs. That is why adjusted Blanchard-Perotti methodology for small open economies with fixed exchange rate developed by Ravn & Spange (2012) is optimal starting point this research.

The baseline model of this analysis is the reduced form VAR model:

[8] 60% bound multiplied by the % of analyzed period in which country experienced recession.

[9] Monetary policy in these countries is not on the effective zero bound, as there is some maneuvering space for monetary authorities through standard instruments like reserve and capital requirements etc.

[10] Capital markets are generally shallow, illiquid and underdeveloped. In such conditions assets are less liquid and prices more volatile. Behavior of interest rates may be difficult to explain with large number of factors which affect yield curve (Aljinović et al., 2008; Zoričić & Orsag, 2013). Further, hard pegs and high euroisation influenced that central banks interest rates where and remained non-referent. For example, in Croatia central banks' money issuing function was reduced to an instrument of foreign exchange auctions, while the open market operations as the main instrument of modern monetary policy were and are of secondary importance (Ćorić et al., 2015).

$$X_t = \alpha + \beta D_t \ + \gamma T_t \ + \sum_{i=1}^{p} A_i X_{t-i} + u_t, \tag{1.1}$$

which includes deflated and seasonally adjusted log-values of net indirect tax revenue (T_t), total general government spending (G_t), domestic demand (DD_t), foreign GDP[11] (F_t), which comprise the vector of the variables of interest$X_t = [T_t, G_t, DD_t, F_t]$. Exogenous variables included in the model are constant (α), time trend[12] ($\mathrm{T_t}$) and a 'crisis' dummy variable ($\mathrm{D_t}$), which takes a value of 1 from 1Q09-4Q09, which represents the period in which all three countries took the 'strongest hit' to GDP during the crisis. Vector $\mathrm{u_t} = [\mathrm{t, g, dd, f}]'$ represents the vector of innovations of the reduced model (RF), $\mathrm{u_t} \sim (0, \sum \mathrm{u})$. Number of time lags is set according to SIC and HQ criteria[13]. Greater number of lags isn't desirable due to the short time-series as well.

Reduced form of the model (1.1) gives information about RF innovations. RF innovations are correlated and represent linear combination of structural innovations, which prevents their precise economic interpretation. Linear combination of structural innovations (shocks) can be displayed as follows:

$$t_t = a_1 dd_t + a_2 f_t + \beta_2 e_t^G + \beta_1 e_t^t \tag{1.2}$$

$$g_t = b_1 dd_t + b_2 f_t + \beta_4 e_t^T + \beta_3 e_t^g \tag{1.3}$$

$$dd_t = c_1 t_t + c_2 g_t + c_3 f_t + \beta_5 e_t^{dd}, \tag{1.4}$$

$$f_t = d_1 t_t + d_2 g_t + d_3 dd_t + \beta_6 e_t^f, \tag{1.5}$$

where $\mathrm{e_t^t}, \mathrm{e_t^g}, \mathrm{e_t^{dd}}$ i e_t^f represent uncorrelated structural shocks of taxes, government spending, personal consumption and foreign demand.

In matrix form:

$$\begin{pmatrix} 1 & 0 & a_1 & a_2 \\ 0 & 1 & b_1 & b_2 \\ c_1 & c_2 & 1 & c_3 \\ d_1 & d_2 & d_3 & 1 \end{pmatrix} \begin{pmatrix} t_t \\ g_t \\ dd_t \\ f_t \end{pmatrix} = \begin{pmatrix} \beta_1 & \beta_2 & 0 & 0 \\ \beta_4 & \beta_3 & 0 & 0 \\ 0 & 0 & \beta_5 & 0 \\ 0 & 0 & 0 & \beta_6 \end{pmatrix} \begin{pmatrix} e_t^t \\ e_t^g \\ e_t^{dd} \\ e_t^f \end{pmatrix} \tag{1.6}$$

equation (1.2) shows that the model assumes that four factors can cause unexpected tax changes during one quarter: reactions on unexpected changes in domestic consumption, reactions on unexpected changes in foreign demand, and reactions on structural shocks in government spending or taxes. Other equations are interpreted in a similar manner.

In order to identify this system, $2K^2 - \frac{1}{2}K(K+1)$ limitations are to be set (Lutkepohl, 2005), which have to have a strong base in economic theory. As the number of endogenous k=4, 22 limitations are needed. Basic model implies 16 limitations, so 6 more are to be added.

[11] Calculated as a sum of gross domestic products of Germany, Austria and Italy as these countries are the main, or one of the main trade partners to selected economies.

[12] ADF test i Zivot-Andrews stationarity tests show that all variables are trend stationary so the inclusion of trend guarantees model stability in which the variables are included in logarithmic form; results of these tests can be delivered on request

[13] Croatia 3, Slovenia 2, Serbia 1

Quarterly data frequencies have the greatest significance in the process of identification. It is due to the assumption that economic policymakers cannot react to changes in the economic environment in one quarter. There are different informational, administrative and procedural barriers for reacting in such short period, e.g. most of the statistical reports are published with a couple of months or quarters of delay; there are procedural barriers inside of the parliament etc. Therefore the reaction of fiscal variables on changes in economic activity can only be automatic, i.e. the consequence of automatic stabilizers' activity. That fact allows setting the limitations in the model based on empirical estimation of exogenous elasticities of fiscal variables in relation to changes of certain macroeconomic aggregates. To be more precise, parameter a_1 and b_1 can be interpreted as (automatic) elasticities of tax revenue and expenditures according to aggregate demand changes.

Data on tax elasticity for Croatia is taken from Ravnik & Žilić (2011) and Šimović (2012) so we assume that $a_1 = 0.89$, for Slovenia from Jemec at al. (2013) so $a_1 = 0.87$ and Serbia from Hinić et al. (so $a_1 = 0.9$. Based on the common approach in the literature (e.g. Blanchard Perotti, 2002; Ravn & Spange, 2012) we assume that government spending cannot react to changes in the economic environment and thus we assume that $b_1 = 0$.

In order to identify other parameters of the system, Blanchard & Perotti (2002) recommend calculation of cyclically adjusted residuals, which are uncorrelated with structural shocks in GDP (and personal consumption) so they can be used as instruments for t_t and g_t in IV regression of income and personal consumption on t_t and g_t, which results in parameters c_1 and c_2.

Parameters β_2 and β_4 show the reaction of taxes on changes in government spending and vice versa. In order to identify the system, it is necessary to assume that one of these parameters is equal to 0, i.e. that there is no reciprocity. This paper assumes that tax revenues react to changes in government spending, and not vice versa, so β_4=0. Blanchard & Perotti (2002) showed that the results of the model can hold this assumption (i.e. they are robust).

The last three limitations are implied in the assumption that foreign demand affects all endogenous variables, and that there is no effect the other way around so $d_1 = d_2 = d_3 = 0$.

It is possible to estimate this model in order to get information about structural innovations which are not correlated, so that one can give an economic interpretation of the conclusion of the analysis of impulse response functions (IRF).

An analysis of model adequacy has been conducted for the model (1.1) in all countries and the results of the analysis of residuals (autocorrelation test and heteroscedasticity test) and stability tests show that the models are adequate and stable (Appendix 1).

4 DATA

Data source on the components of GDP, GDP of main trade partners and the size of general government consumption and net indirect taxes is Eurostat, with all data at constant prices and exchange rate from 2005. All variables are in millions of euro. Data series applies to 2001Q1-2014Q1 period for Croatia and Slovenia and 2003Q1-2014Q1 for Serbia. All data has been seasonally adjusted using the method ARIMA X12.

Aggregate demand of the private sector is calculated as sum of personal consumption and investment, as in Giordano et al. (2005). This indicator gives information on the effect of

fiscal variables on the private sector, thus eliminating possible correlation between fiscal shocks and GDP components related to government spending, high correlation between GDP and the component of GDP government spending (G) and high correlation of net exports and foreign demand variable, which could significantly violate some important econometric assumptions. Also, total GDP includes components such as inventory and import level, which domestic fiscal shocks cannot directly affect. These components are affected by the changes in determinants of personal consumption. Mechanism of the instantaneous effect of fiscal shocks of consumption and indirect taxes on export has not been elaborated in economic literature.

In our analysis we use indirect taxes for three reasons: (i) as it has been mentioned in the introduction, the goal of the paper is to analyze effects of fiscal policy on aggregate demand. In theory, personal income tax and profit tax mostly affect aggregate supply, modelling the behaviour of workers and companies; (ii) SVAR models are more suitable for the analysis of aggregate demand shocks (Ravn & Spange, 2012; Blanchard-Perotti, 2002). Due to complexity of the mechanism of the effect of taxes on aggregate supply, broader methodological framework of DSGE model is required to analyze their effects; (iii) tax systems in Croatia, Slovenia and Serbia are mainly consumption-oriented and the most of discretionary changes since the beginning of the crisis were related to indirect taxes so we want to try to estimate the consequences of those changes.

5 RESULTS

Based on SVAR analysis we derive impulse response functions, which can be recalculated to fiscal multipliers to show the effects of a one unit change of fiscal variables to the domestic demand, expressed in units (see for example Jemec et al. (2013) and Hinić et al. (2013)).

Following Splimbergo at al. (2011) in this section we present the results for three types of multipliers:

Impact multiplier

$$M = \frac{\Delta Y(t)}{\Delta G(t)}$$

Cumulative multiplier

$$M = \frac{\sum_{j=0}^{N} \Delta Y(t+j)}{\sum_{j=0}^{N} \Delta G(t+j)}$$

Peak multiplier

$$M = \max_{N} \frac{\Delta Y(t+N)}{\Delta G(t)}$$

The results are presented in Table 5 and we analyse the responses of domestic demand in 12 quarters after the initial shocks.

Table 5 – Fiscal multipliers in Croatia, Slovenia and Serbia

	Government spending		
	Croatia	Slovenia	Serbia
Impact multiplier	0.3*	-0.1	-0.1
Cumulative multiplier	1.0	-0.3	0.1

(stat. siginificant at 95% level)	(1st-3rd quarter)		
Peak multiplier	0.6	0.0	0.4
(quarter with max effect)	(2nd quarter)	(7th quarter)	(2nd quarter)

	Net taxes		
	Croatia	Slovenia	Serbia
Impact multiplier	-0.2	-0.3*	-1.5*
Cumulative multiplier	-0.2	-3.1	1.3
(stat. siginificant at 95% level)	(1st-2nd quarter)	(1st-9th quarter)	(1st-3rd quarter)
Peak multiplier	-0.2	-0.8*	-1.5*
(quarter with max effect)	(1st quarter)	(3rd quarter)	(1st quarter)

Source: authors

*statistically significant at 95% level of confidence

Results presented in Table 5 are in line with the assumptions based on the 'bucket approach' and our 'narrative' presented in Table 3.

Impact government spending multipliers are showed to be relatively small, between -0.1 and 0.3, while net tax multipliers are also relatively small, besides in case of Serbia where the multiplier is greater than 1. As for the cumulative multipliers of government spending, our assumption of the effectiveness of fiscal policy in Croatia is confirmed, as the total effects of fiscal stimuli are greatest in Croatia. On the other hand, net tax multipliers are bigger in Slovenia, where the effect of the rise in indirect taxes is substantially larger than in Croatia. In Serbia cumulative response of domestic demand on shocks in net taxes is positive, which is counterintuitive, but such results are not uncommon in CESEE countries (see for example Mirdala et al. (2009) or Hinić et al. (2013)).

Before conclusion it is important to emphasize some methodological issues related to the results. First of all, the analysis was conducted on relatively short time series which can affect the results of the SVAR model which requires long time series, given its autoregressive and dynamic nature. Secondly, in this paper we used elasticities derived from other research which were calculated for periods which aren't in accordance with the analysed period in this paper. This is important because the choice of elasticities can significantly change the results and elasticities are one of the main determinants of differences in multiplier's sizes in different countries. Also, very important assumption which affects the multiplier's size is the assumption of government spending elasticity on changes in cycles. In this, as in most of the papers using Blanchard-Perotti methodology, this elasticity is assumed to be 0, but it would be appropriate to directly estimate the reactions of government expenditures on economic activity. Thirdly, the most common method for checking the robustness of SVAR models is the breakpoint test, where the series is divided into two parts. Due to the small number of observations this test couldn't be applied in this paper.

Also, it is important to notice that that there are several already entrenched criticism of Blanchard-Perotti methodology: (i) as already mentioned, Caldara & Kamps (2012) emphasize the sensitivity of results on the assumptions on the size of elasticities; (ii) in the

current debate on the effects of fiscal consolidation it is pointed out it is of great importance to include the feedback between the level of public debt and growth in the analysis of the effects of fiscal policy on economic growth; (iii) it is very important to explicitly model the effects of monetary policy in the fiscal SVAR analysis because the effectiveness of fiscal policy in large extent depends on the monetary policy stance; (iv) according to the results of switching regime models (eg. Auerbach and Gorodnichenko, 2012) the size of fiscal multipliers strongly depends on the stage of the business cycle; (v) recent research has shown that the size of fiscal multipliers strongly depends on economic environment (eg. Corsetti et al., 2012) so, for the robustness of the results, it is important to directly include structural characteristics of the economies such as level of debt, exchange rate regime, health of financial system etc.

In this paper it was impossible to include such 'control' variables due to a very limited length of all relevant time series. If we introduced a number of control variables, which are certainly very important, the OLS assumptions would be seriously violated (CLT) and the results would further lose on quality.

Conclusions

In the period from the beginning of 2000s to 2014, Croatia, Slovenia and Serbia can be described as small, open economies, with relatively rigid labour markets, strong automatic stabilizers, acceptable level of public debt and constrained monetary policy, which experienced a boom and bust cycle. Such structural characteristics are very important determinants of the effectiveness of fiscal policy in those countries and should be taken into the consideration in various policy discussions.

In this paper we used 'bucket approach' to determination of the size of fiscal multipliers to include all of these characteristics and based on the results of that approach we concluded that fiscal multipliers in these countries should be relatively small. However, although structurally similar, Croatia, Slovenia and Serbia have some specificities that allowed us to make assumptions on the differences of the size of fiscal multipliers between them. Thus our main hypotheses were that Croatia has the highest spending multiplier, followed by Serbia and Slovenia.

Our empirical results, based on SVAR methodology, confirmed our hypotheses on the relative size of the multipliers between these three peer countries, with Croatia having the highest spending multiplier and Slovenia the lowest one. Such results can be explained by the fact that Croatia recorded full six years of conjecture and empirical results in various papers show that fiscal policy is more effective in recession periods. On the other hand, Slovenia is the most open economy in this group, so the 'outflows' from the domestic economy are strongest.

Even though this research has several methodological limitations, explained above, these results can be used as a benchmark for discussions about the differences in the effectiveness of fiscal policy in these countries. Also, one of its contributions is that this is the first paper that uses 'bucket approach' to fiscal multipliers, after it was initially introduced in Batini et al. (2014).

Acknowledgement

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Appendix 1: Stability and model adequacy tests

VAR Stability Check

Croatia	
Root	**Modul**
0.141723 - 0.899262i	0.910361
0.141723 + 0.899262i	0.910361
-0.600313 - 0.648507i	0.883707
-0.600313 + 0.648507i	0.883707
-0.117479 - 0.699563i	0.709359
-0.117479 + 0.699563i	0.709359
0.611134 - 0.276192i	0.670647
0.611134 + 0.276192i	0.670647
-0.561397 - 0.245452i	0.61271
-0.561397 + 0.245452i	0.61271
0.376118 - 0.281800i	0.469975
0.376118 + 0.281800i	0.469975

Slovenia	
Root	**Modul**
0.968733	0.968733
0.775573 - 0.198030i	0.800456
0.775573 + 0.198030i	0.800456
0.592958	0.592958
-0.137523 - 0.317440i	0.345949
-0.137523 + 0.317440i	0.345949
-0.217495	0.217495
0.101383	0.101383

Serbia	
Root	**Modul**
0.911161	0.911161
0.771840 - 0.1	0.804764
0.771840 + 0.	0.804764
0.551078	0.551078

VAR Residual Serial Corelation Test

	Croatia	
	LM-test	**Prob**
1	13.27796	0.6523
2	21.13447	0.1734
3	25.03253	0.0693
4	12.47861	0.7104
5	18.68398	0.2854
6	12.65239	0.698
7	22.55614	0.1261
8	25.95724	0.0546
9	10.04066	0.8645
10	7.007351	0.9731

	Slovenia	
	LM-test	**Prob**
1	15.11049	0.5166
2	12.45825	0.7119
3	21.35742	0.1652
4	27.41979	0.037
5	14.88092	0.5334
6	13.13172	0.6631
7	20.43666	0.2012
8	38.68605	0.0012
9	11.32961	0.7887
10	30.21328	0.0169

	Serbia	
	LM-test	**Prob**
1	19.22014	0.2574
2	10.58721	0.8342
3	9.116896	0.9085
4	19.30896	0.253
5	18.45963	0.2977
6	14.73992	0.5438
7	13.87437	0.6081
8	14.58748	0.555
9	13.07763	0.6671
10	14.96319	0.5273

VAR Residual Heteroskedasticity Test

Croatia		
Joint test:		
Chi-sq	**df**	**Prob.**
195.3837	190	0.3791

Slovenia		
Joint test:		
Chi-sq	**df**	**Prob.**
204.213	180	0.1042

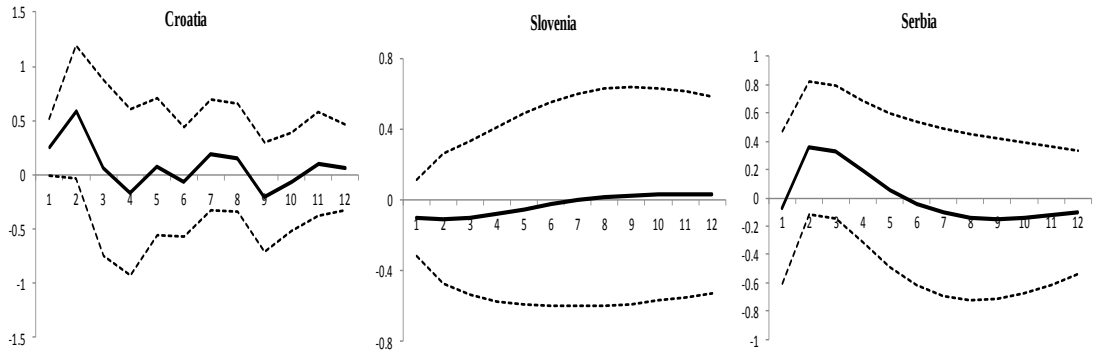
Serbia		
Joint test:		
Chi-sq	**df**	**Prob.**
93.04629	80	0.151

Source: authors' calculations

Appendix 2: Dynamic multipliers – graphical presentation

Fig 1: Dynamic multipliers

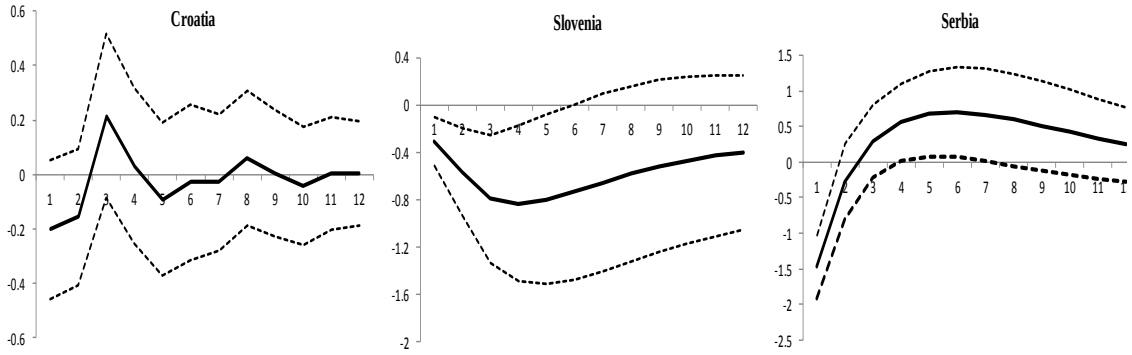
Spending multipliers



*dashed lines represent 95% level of confidence

Source: authors' calculations

Tax multipliers



*dashed lines represent 95% level of confidence

Source: authors' calculations

PUBLIC FINANCE IN THE CZECH REPUBLIC AFTER 25 YEARS: QUO VADIS?

Bojka Hamerníková, Jan Kubát

Abstract

What has taken place in the area of government finance, what significant periods can we define in the 25-year history of the public finance in the Czech Republic, what developments have there been in the area of public finance, taxes, government budget balance, and public debt – by answering these questions, we can get an idea about the existing development of public finance in the Czech Republic as well as the future direction of this area; Quo vadis public finance? To find and test the significance of a change point, the CUSUM method and bootstrapping were used. The above mentioned method was used on several fiscal variables of the Czech Republic. The annual time series starts at 1993 and ends in 2014, with bootstrapping featuring 1000 samples.

Keywords: public finance, government expenditure, taxes, government budget balance, public debt, CUSUM method (Cumulative Sum Control Chart)

JEL Classification: E62, H60

Introduction

25 years is a very long period, during which major changes may occur in any area of the life of individuals and/or society. This is well documented by the economic development in the Czech Republic after 1990. In the light of radical political changeovers, there has been even more radical transformation of the economic system and its key elements.

What has taken place in the area of government finance, what significant periods can we define in the 25-year history of the public finance in the Czech Republic, what developments have there been in the area of public finance, taxes, government budget balance, and public debt – by answering these questions, we can get an idea about the existing development of public finance in the Czech Republic as well as the future direction of this area; Quo vadis public finance?

1 Development of public finance and its elements (1990-2015)

What factors have affected the 25-year development of public finance and its key elements? We can distinguish factors of autonomous nature in terms of the prior development of public finance and the present situation in the area of expenditure, taxes, balance, and debt (their amount, structure, proportion, and effectiveness), and external factors that comprise political developments, economic goals and intentions, and particularly budgetary and fiscal policies, development of the domestic economy, development of the global economy, obligations arising from the membership of the Czech Republic in various international organizations and alliances.

From the analytical perspective, the 25-year period in question may be divided into the following spells:

- From 1990 to 1992;
- From 1993 to 2003;
- From 2004 to 2008;
- From 2009 to 2012;
- From 2013 to date.

The duration of individual periods varies; however, some important events occurred during each of them, for example the formation of the independent Czech Republic (1993), accession of the Czech Republic to the EU (2004), onset of the global systemic crisis (2008), or 2013 as the first year of the return to "normal state of affairs".

The key public finance elements the developments of which indicate prevailing trends and/or risks are as follows: government expenditure, government revenue and taxes in particular, budget balance, and debt. How did these elements evolved in the period under review and what main factors affected them?

In the first period under review, i.e. from 1990 to 1992, the public finance and its key elements were strongly affected by the previous development of the national economy with centrally planned economy and by the imperative of economic policy – to perform fundamental changes on the road to a market model.

The analysis of the government budget development for the federation as well as both republics and the period of 1970–1989 carried out by the federal Ministry of Finance pointed out the main problems in the area of public finance:

- Increasing share of government expenditure relative to national income;
- Irrationality of government subsidy policy in respect of inefficient economic entities and the price system support (particularly retail prices);
- Disproportion between the federal and the state budgets as well as budgets of people's (national) committees.

The original 1990 draft budget (already adopted by the Government in November 1989) was rejected by the new Government of National Understanding, with a provisional budget being approved. A new draft that would reflect the new economic policy and strategy should have been prepared by March 1990. It was the first post-November budget for the first stage of the economic reform, i.e. in the course of the preparation of its process. The budget was prepared as a restrictive and anti-inflationary one.

In 1990, the so-called negative sales (turnover) tax was annulled in respect of food; however, the measure was compensated by the provision of the so-called government compensatory allowance. A new budgetary rules and procedures law was adopted, superseding the old law of 1989 that was only in force for a year. The new law, which came into force in 1991, reflected changes that had taken place within the Czech and Slovak Federative Republic and the Czech Republic and the Slovak Republic, with a view to promote the republics' competences. The new budgetary rules and procedures mainly newly defined the federal budget revenue and expenditure, as well as the redistribution proportions within the

government budget system. These rules also significantly affected the budget for the subsequent period. In the area of taxes, sales (turnover) tax rates were consolidated – from around 1,500 rates to just four - the rate of the tax on profit declined, and a new import surcharge was introduced following the currency depreciation. Many changes took place in 1990, such as price adjustments prior to the planned price liberalization as well as three currency depreciations. Furthermore, there were some complications regarding economic (business) relations with the former USSR and other post-socialist states. Czechoslovakia reentered the IMF and the World Bank. Experts of the aforementioned institutions were also involved in preparing the 1991 budget, with the country receiving the first tranches of loans from these institutions.

However, compared to 1990, when budgets ended up with a surplus, the 1991 budget resulted in a deficit, mainly due to the developments on the expenditure side. The 1992 federal budget ended on a similar note, in spite of being drafted as a balanced one. Owing to lower expenditure, the budget of the Czech Republic fared better compared to the deficit of the Slovak budget. This was caused by various effects mainly associated with the progressing economic reform. Also important is the fact that government bonds were issued in both states for the first time in 1992. Furthermore, direct funding of the budget by the central bank was prevented as the Act on the Czechoslovak National Bank came into force (Kameníčková, V., Horčicová, M., Vašková, D., 1993).

To start off the second period under review, i.e. from 1993 to 2003, the formation of the independent Czech Republic took place in 1993, following the dissolution of the federation. This year made its mark in the history of public finance as the beginning of independent Czech budget management and by a number of other significant events. It included, for example: implementation of a new tax system of the Czech Republic linked to the general health insurance premium system, social security insurance premium system, and contribution to the state employment policy in the area of income taxes; reform of the budget management of local authorities, etc. Each of these events deserves to be analyzed and objectively assessed with the benefit of hindsight.

With regard to the implementation of a new tax system of the Czech Republic, it should be emphasized that this was one of the major steps in the public finance transformation. The new tax system was to become one of its pillars. It was a downright revolutionary step that was to overcome the unsatisfactory state from the period of socialist finance and implement a modern, transparent, and efficient system in the area of taxation in the Czech Republic.

Concerning the budget management of local authorities, the year 1993 was a crucial year for the transformation of the status and role of local budgets, with mainly the stabilization of their revenue taking place. Furthermore, there were changes in the area of the government subsidy (funding) policy to these budgets. The impact of the aforementioned changes may be described as follows:

- Splitting of the federation and independent budget management of the Czech Republic resulted in a significantly higher revenue of the government budget;
- Implementation of a new tax system led to modified structure of the budget revenue;
- Increase of the share of indirect taxes in total revenue;
- Higher self-sufficiency of local budgets;
- Budget resulted in a surplus (Havel, M., 1994).

This is the year when the European Union Association Agreement with the Czech Republic was ratified (by the European Parliament and the Parliament of the Czech Republic), also resulting in various requirements and obligations in the area of public finance. One of the most important requirements was to "overcome" the 1-year perspective and establish a medium-term strategy for the budget policy. The priority of the strategy for the foreseeable future was to reduce the share of public expenditure in GDP, lower the tax burden and reduce the tax quota, balance of revenue and expenditure, and debt stability (Havel, M., 1994). The establishment of the National Property Fund was important, together with the establishment of financial (tax/revenue) authorities and financial administration.

In 2000, the 1990 budgetary rules and procedures were updated with an adoption of a new law (effective from 2001). Higher efficiency of public finance management was to be mainly ensured by the preparation of the so-called medium-term outlook for the government budget, fully in compliance with the Czech Republic's integration in the EU. In 2001, the Act on the Czech Consolidation Agency (transformed from the Consolidation Bank) was also adopted.

In early 2003, a document entitled "Budget Forecast for 2003-2006: Concept of Public Budgets Reform in the Czech Republic" was prepared. The objective was to propose fiscal reform measures that would mainly lead to lower public budgets' deficit. It was stated that the deficits had contributed to accelerated increase in public debt, this being the greatest risk to healthy economic development of the country (Budget Forecast for 2003-2006: Concept of Public Budgets Reform in the Czech Republic, 2003). It was one of the biggest obstacles in the course of preparations for the country's accession to the EU.

In the third period under review – i.e. from 2004 to 2008 – another important event took place, specifically the accession of the Czech Republic to the EU in 2004. Together with other countries, the Czech Republic became a full-fledged member of the EU.

The Czech Republic's accession to the EU has resulted in the modernization, improvement, and tightening of budget and fiscal policy processes. In 1999, the Stability and Growth Pact was established, resulting, inter alia, in the introduction of the excessive deficit procedure in the area of the budget supervision.

In June 2010, the EU adopted its new ten-year economic strategy - Europe 2020. Moreover, a reform of the supervision and coordination framework took place. At the end of 2011, the so-called six-pack was adopted, followed by the so-called two-pack in May. As of January 2013, the Treaty on Stability, Coordination and Governance in the Economic and Monetary Union (Fiscal Compact) entered into force. In 2011, the European Semester was introduced, as an instrument of the integrated fiscal and macroeconomic supervision.

In addition to the excessive deficit procedure, the reformed supervision and coordination framework also introduced the so-called excessive imbalance procedure in the area of macroeconomic supervision.

However, in terms of public finance, the country's accession resulted in an immediate imposition of the excessive deficit procedure due to its high deficit. The balance development was worsening in the previous years (approximately from 2000). The conceptual material entitled "Budget Forecast for 2003-2006: Concept of Public Budgets Reform" (in 2003) was prepared in reaction to this trend, with a view to reverse the unsatisfactory situation and permanently lower deficit under 3% of GDP by 2008. In 2004 and 2005, even lower numbers were achieved compared to those set down in the Convergence Program (Convergence Program of the Czech Republic, 1995).

Another public finance reform, in 2007-2009, relied on the objective to reduce deficit, ensure higher effectiveness in the area of expenditure, reduce burden in the area of taxes, and prevent further public debt increase. The measures planned by the reform were reflected in the Act on the Public Budgets Stabilization (Act no. 261/2007 Coll.). Healthcare and social affairs were to become the key areas of the reform. In 2008, the excessive deficit procedure (implemented in 2004) was discontinued. The global systemic crisis also affected the Czech Republic from about the mid-2008, impacting the area of public finance as well.

In the fourth period under review, i.e. from 2009 to 2012, there were many changes in the area of public finance, mainly in the light of the globally prevailing economic situation.

In reaction to the effects of the global crisis, the National Counter-Crisis Plan (National Counter-Crisis Plan, 2009) was formed. It was a set of procedures that were to cope with the aforementioned effects.

The caretaker government of J. Fišer (appointed in 2009) adopted an act on the support of economic and social growth, adopting restricting fiscal policy. Various changes took place in the area of social affairs and taxes, whereas the so-called "Janota Package" (named after the Minister of Finance at the time, E. Janota) found some support in another important act that amended other acts and in connection with the Act on State Budget for 2010.

In 2009, the Government's National Economic Council (NERV) was formed, acting as an advisory body. The Council stated in its final report that the problem of public finance consists in its long-term sustainability, parameters of social and healthcare system, incorrect government policies in the area of public finance during more prosperous periods (e.g. in 2002-2008) etc.

The global economy underwent recession in 2009, also affecting the Czech economy – economic performance declined after three years of high economic growth. It was also reflected in the area of public finance. The revenue declined, which – combined with effects of adopted counter-crisis measures – led to the balance impairment. In 2009, the excessive deficit procedure was reintroduced. The situation in the subsequent years started to gradually improve – in the light of the economic recovery on the global level and in the Czech Republic.

In 2011, another reform program came into existence: the National Reform Program of the Czech Republic (of the new Cabinet of P. Nečas). It was the objective of both the government and the program to carry out a public finance reform in order to achieve the balance of public/government budgets in 2016 (National Reform Program of the Czech Republic of the new Cabinet of P. Nečas).

Another period under review, i.e. from 2013 to date, has brought some hope regarding the global economic development. In 2013, the global economy has not only stabilized, but also recovered to some extent. Even the national economy overcame the 2nd recession wave, with fiscal consolidation continuing in terms of public finance. The new government (of B. Sobotka) prepared a 2014 draft budget within the intentions of its program priorities for the entire term of office. The following were approved: Convergence Program of the Czech Republic for the period of 2014-2017 and the National Reform Program of the Czech Republic.

In June 2014, the Council of the EU decided to discontinue the excessive deficit procedure. The excessive deficit was overcome through strong fiscal efforts (Fiscal Outlook – November 2014). In June 2014, the balance of the government budget was actually better than planned. However, according to the macroeconomic prognosis of the Ministry of

Finance of the Czech Republic, the budget balance may worsen in 2015 compared to the previous year, mainly due to the intention of the current government to promote economic growth; nevertheless, the deficit should remain under 3% of GDP. The government sector debt, in relative terms, should continue to decline (Macroeconomic Prediction – January 2015).

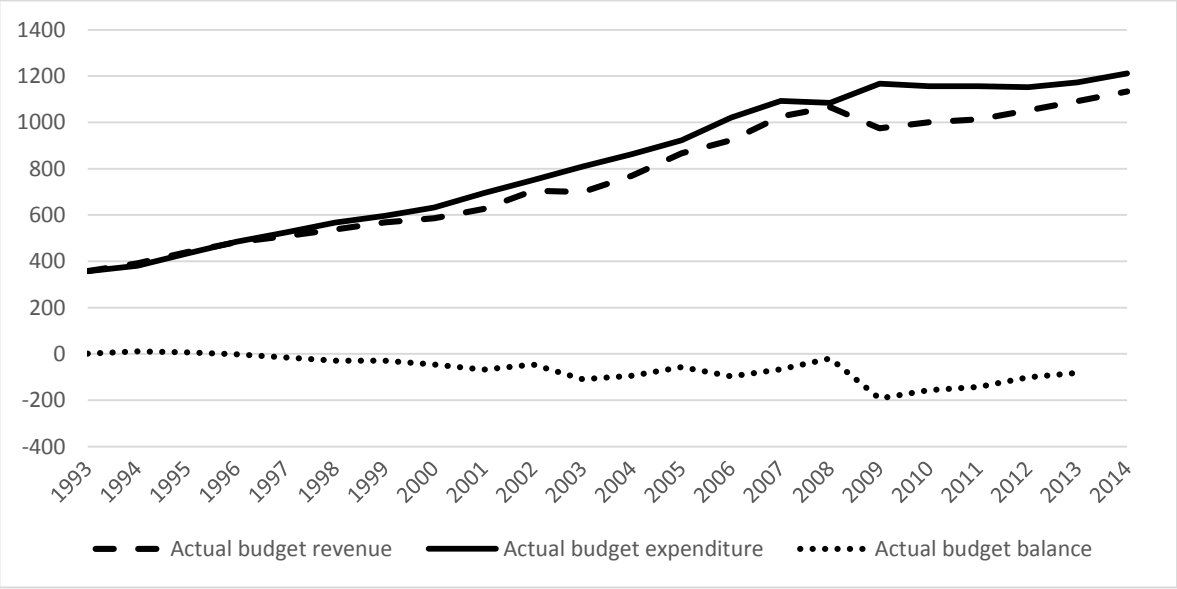
2 Trends and perspectives

What trends have emerged during the 25-year period in question in the area of public finance? And how will these trends affect the future development of public finance? These are challenging questions open to discussion. Possible answers should reflect the overall development of the Czech society since 1989 and rely on the international political and economic development.

As shown in the previous analysis, mainly important legislative processes and administrative changes in all areas of public finance (expenditure, taxes, and budget procedure) took place during the period. These changes resulted in the formation and stabilization of a standard framework, within which all public finance processes and transactions normally take place today. It is a set of legislative, administrative, and procedural terms and conditions characteristic for standard market environment.

The analysis of the budget balance and its share in GDP indicates its deficit nature since 1996:

Figure 1 – Development of the government budget revenue and expenditure in the Czech Republic (bil. CZK)

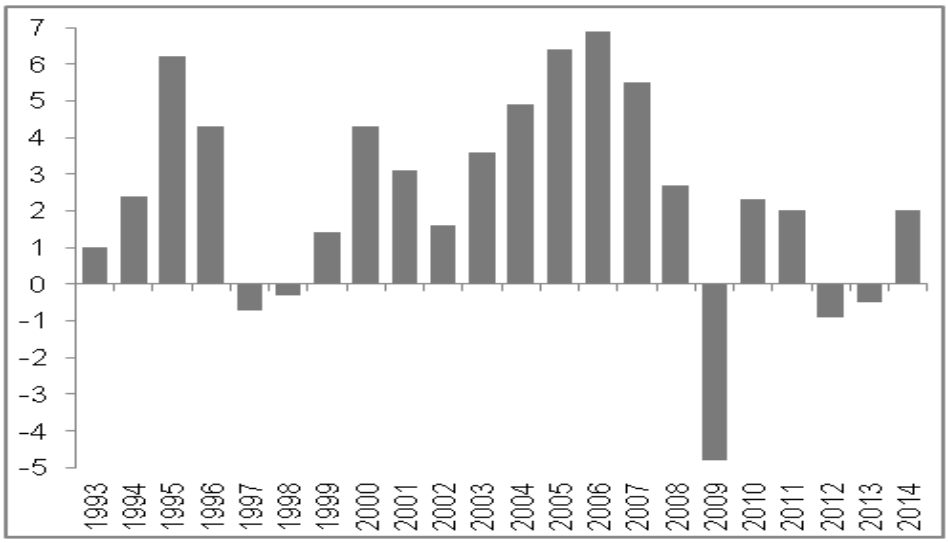


Source: Ministry of Finance of the Czech Republic

Higher deficits resulted in two excessive deficit procedures of the European Commission for the Czech Republic – specifically in 2004-2008 and in 2009-2013. In other words, the ten-year EU membership of the Czech Republic has been marked by an excessive deficit procedure. The reasons for increasing deficit mainly include the development of public expenditure; however, it is also necessary to consider the development of public revenue as a result of various factors.

It is also necessary to consider the economic performance during the period under review:

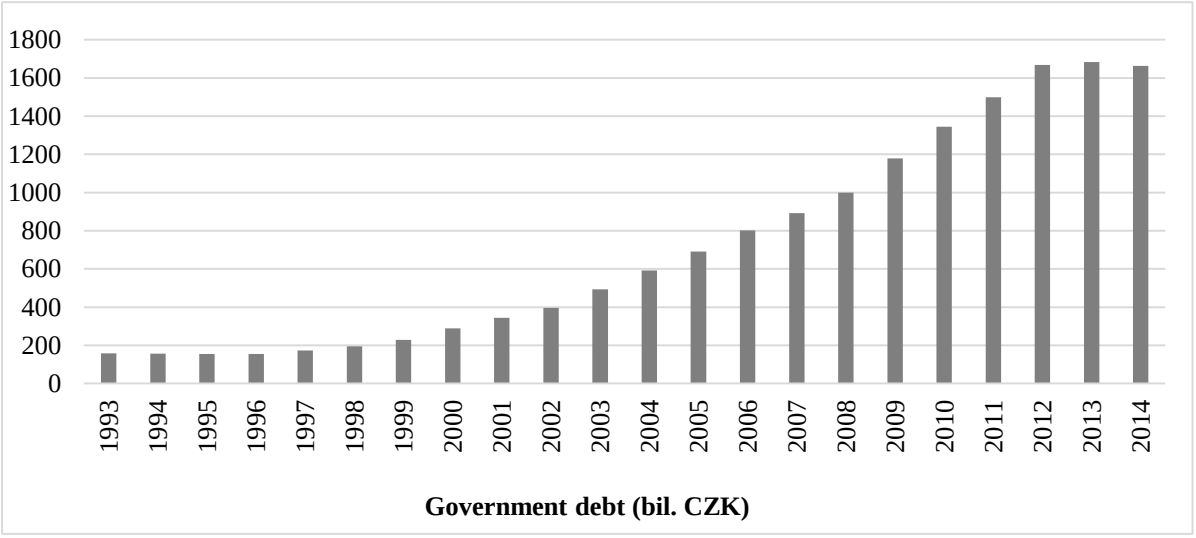
Figure 2 – Growth in real GDP of the Czech Republic (%)



Source: Czech Statistical Office

The budget management results as well as effects of other off-budget factors have translated into an increasing public debt:

Figure 3 – Public debt (in bn. CZK)



Source: Ministry of Finance of the Czech Republic

How has the public debt to GDP ratio progressed?

Table 1 – Public debt to GDP (%)

Rok	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**
Podíl na HDP	15,57	13,30	10,53	9,22	9,56	9,75	10,98	13,22	14,67	16,07	19,14

Rok	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Podíl na HDP	21,07	23,17	24,91	25,24	27,10	34,21	38,37	41,41	46,15	46,04	39,00

Source: Ministry of Finance of the Czech Republic

In the next part of the paper, we will focus on a purely statistical assessment of significant changes in time series of fiscal indicators, later confronting them with significant systemic and legislative changes.

3 Detection of change points

To find and test the significance of a change point the CUSUM method and bootstrapping were used [10]. The CUSUM method calculates cumulative sum of differences from average. Let X_i represents i-th value observation then S_i are values of the CUSUM chart.

1. First calculate the arithmetical average X_{mean}
2. Start at $S_0 = 0$.
3. Set $S_i = S_{i-1} + X_i - X_{mean}$

The CUSUM method plots the chart of S_i and supposes that a change point is between points i and i+1 where the absolute value of S_i is maximal. Such points can be found where the slope of the CUSUM chart changes.

To test the significance of the change point the bootstrapping method was used.

1. Calculate $S_{diff}(O) = Max(S_i) – Min(S_i)$
2. Then k times randomly reorder the original observations and calculate $S_{diff}(j)$ for each "strap", where $j = 1, 2, \dots , k$
3. Let N is the number of straps where $Sd_{iff}(j) > S_{diff}(O)$
4. Calculate confidence level as N/k

The method assumes the mean-shift model, i.e. X_i is given as $X_i = \mu_i + \varepsilon_i$.

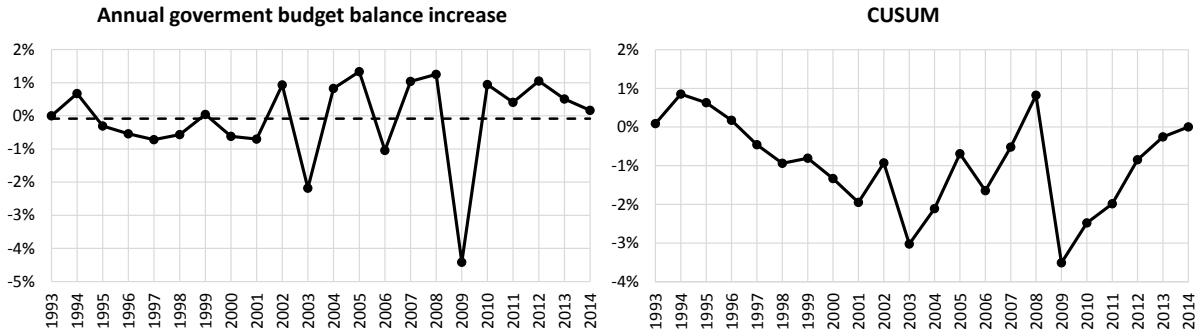
Where μ_i is the average at time i. Generally $\mu_i = \mu_{i-1}$ except for a small number of values of i called the change-points. ε_i is the random error associated with the i-th value. It is assumed that the ε_i are independent with means of zero. It means that the method is not usable for time series with trend. So for variables that clearly contains a trend one has to subtract it before applying the CUSUM method.

The above mentioned method was used on several fiscal variables of the Czech Republic. The annual time series starts at 1993 and ends in 2014, with bootstrapping featuring 1000 samples. The variables were tested on autocorrelation and several of them has Durbin-Watson d statistics bellow 1 which indicates positive autocorrelation and may affect the CUSUM results. For such variables, the authors first calculate differences and then apply on them the CUSUM method. The meaning of such variables changes – the change point now represents a change in a trend not in an absolute value / mean of the original variable.

Government budget balance per GDP

The variable showed a positive autocorrelation measured by D-W statistics (D-W d=0.78). To remove it the authors first used differences and thus analyzed the variable government budget balance per GDP annual growth. The analyses did not find a significant change point of such variable.

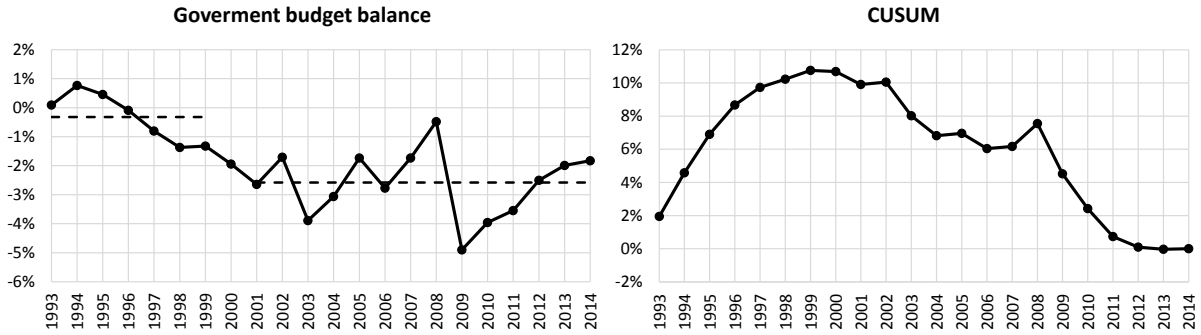
Figure 4



Source: authors

If one ignore the autocorrelation and apply the CUSUM on the original variable, it would result in the significant change point between years 1999 and 2000, i.e. one year after annual debt increase.

Figure 5

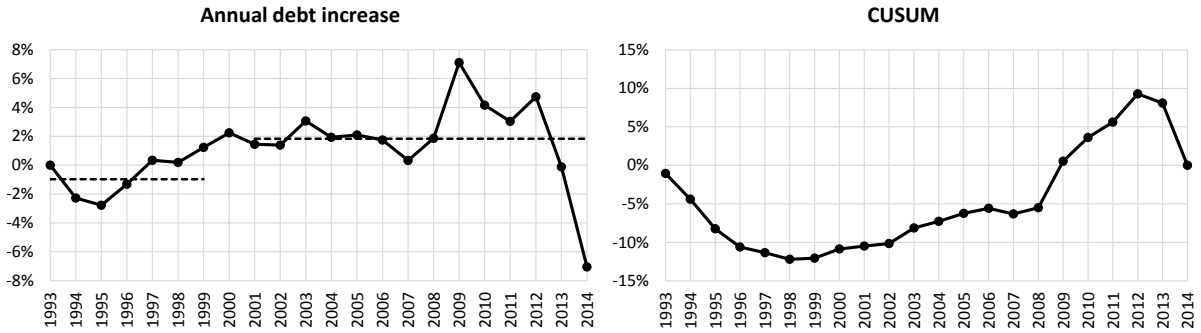


Source: authors

Annual government debt increase per GDP

The method detected a significant change point between years 1998 and 1999. There is also a possible change point between years 2012 and 2013, but the time series ends soon after it, so we will see in the future whether also this can be significant change point.

Figure 6



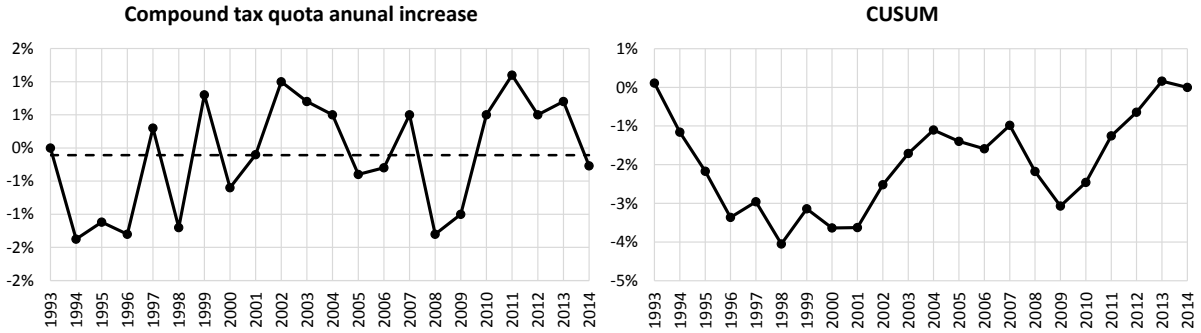
Source: authors

The left chart shows the variable development in time with its mean. If the change point is significant the mean changes. The right chart is the CUSUM chart of the same variable.

Compound tax quota

The method indicates an insignificant change point between years 1995 and 1996. The bootstrap confidence level was 96%. But there might exists the positive autocorrelation, because the D-W < 1, so the results of the method can't be trusted. If one analyses the annual increase in the compound tax quota, the autocorrelation is insignificant (according D-W) and the CUSUM analyses can be performed. However, this variable doesn't have a significant change point.

Figure 7



Source: authors

The purely statistical analysis has not indicated any significant and direct impact of individual systemic/legislative changes on the fiscal indicators we review or their impact was shifted in time, as appropriate. The analysis has revealed a trend change in terms of the growth dynamics of the public debt to GDP.

The change took place between the years 1998 and 1999. In 1998 there was an accumulation of the various factors effects. For example it was economic growth slowdown, dealing with the consequences of the floods that occurred in 1997 and then in 1998, an increase in the state contribution for health insurance, pensions valorization, compensation for the loss of the Consolidation Bank, the guarantee of the state to the Czech Savings Bank. Budget situation also affected the development in the area of public debt.

The average growth of debt to GDP amounted to -1% during the period of 1993 through 1998, compared to 1.8% in 1999 through 2014.

Conclusions

The brief analysis of the developments that have taken place over the period of 25 years indicates the complexity associated with the transition from a centrally planned economy to a market economy. In spite of the undeniably positive impact of legislative, procedural, and administrative measures on the sector of public finance and its elements, we cannot claim the development of this area in the past 25 years has been trouble-free, sustainable, stable, or efficient. The transition to market economy was the most significant sector, together with the need for a fundamental overhaul of all principles, goals, and procedures of budget and fiscal policy. Without any doubt, the area of public finance has been affected by the economic development in the Czech Republic, in the EU and globally. Various effects of the systemic crisis will echo for years to come.

However, we should not ignore the impact of political developments, particularly the focus of individual governments and their different approach to both economic and social policy.

With the benefit of hindsight, the assessment of the effectiveness of various measures taken by the political representation in the area the economic, budget, and fiscal policy is not clear. The views of analysts vary; however, it remains true that the transformation took place, even if at a price, that the most radical changes possible have taken place in the area of public finance since 1948, and that the key elements of public finance (expenditure, taxes, balance, and debt) currently develop within a significantly different legislative framework compared to the period prior to 1990, comparable to other developed countries. For eleven years now, the Czech Republic has been a full-fledged member of the EU, with resulting benefits as well as competences and obligations.

To find and test the significance of a change point the CUSUM method and bootstrapping were used. The above mentioned method was used on several fiscal variables of the Czech Republic. The annual time series starts at 1993 and ends in 2014, with bootstrapping featuring 1000 samples. The CUSUM method found change points in the dynamic of government debt around the year 1998 and 1999 – by variables annual increase of state debt per GDP and similar variable government budget balance per GDP annual growth, respectively. The other tested variable, tax quota did not show a change in its trend.

Taking into account all the developments that have taken place within the society, economy, and the area of public finance in the past 25 years, has this been insufficient, overwhelming or just about right? Were individual governments that have been in power over time always able to cope with the obstacles presented by the domestic and global development and use the opportunity to execute efficient economic, budget, and fiscal policy? That is the question.

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ANALYSIS OF THE GOVERNMENT EXPENDITURE ON EDUCATION IN THE EU COUNTRIES SINCE YEAR 2008

Dominika Holubjaková, Mária Bohdalová

Abstract

In our paper we focused on analyzing of the relation between the amount of government expenditure on education and development of the basic macroeconomic indicators of GDP and public debt. Analysis was carried out by using EU countries data relating to times of economic and debt crisis. The results are then processed using cluster analysis and linear regression to predict the future values of the amount of government expenditure on education. The contribution of our paper can be observed in better understanding of the relation between the amount of government expenditure on education and development of economy in times of crisis. People interested in the subject will be enriched by an explanation of how to effectively predict future changes in the amount of government expenditure on education using special equations.

Key words: fiscal policy, the European Union, economic and debt crisis, government expenditure on education, gross domestic product, public debt

JEL Classification: E62, E65, H39, I28

Introduction

Fiscal policy is an instrument to stabilize the economy by influencing the amount of revenue and expenditure of the state budget. However, economic and debt crisis has greatly affected the economy of the EU countries. The crisis caused a slowdown in economic growth, which significantly affected the financing of certain sectors including the sector of education.

Creating of fiscal union starts to be considered as a possible solution for a crisis. Moreover, in order to stop other potential crisis, the country can be successful even with a high number of educated people who can help get out of the unwanted economic situation by their ideas and opinions. Our future depends on education. However, nowadays we often come across the articles related to insufficient funding for education from public sources. It is important to realize that education, which is not sufficiently financially supported, cannot bring desired results in the future. Therefore, we decided to focus on a specific part of fiscal policy related to education, and that is public expenditure on education.

The aim of the paper is to find out if there was any relation between the amount of government expenditure on education and development of the basic macroeconomic indicators of GDP and public debt during the economic and debt crisis in order to achieve same educational level in all EU countries in future by better comparison of government expenditure on education between EU countries in a significant advance by using data prediction models in case of confirmed correlation between the examined variables.

The paper is divided into 2 chapters. Next chapter is devoted to description of the economic background of the examined variables during times of crisis as well as the analysis of related variable - public debt amount. The second chapter focuses on comparative analysis of

examined variables and revealing correlation between them. Conclusion concludes our findings.

1 FISCAL POLICY IN TIMES OF ECONOMIC CRISIS

Fiscal policy of EU member countries has not been united until today. Each country is responsible for preparing its own fiscal policy, however they must take into account the measures and regulations resulting from the status of EU member country (The European Commission 2013). However, improvement of negative development of fiscal policy in EU caused by the crisis is extremely difficult, because member countries do not want to observe measures and regulations issued by EU. It can be seen on a number of measures issued to reduce public debt and budget deficit - the Stability and Growth Pact, Six-pack, the Fiscal Compact or Two-pack (The European Commission 2014).

In our analysis of public debt for the period 2008-2014, 16 countries exceeded the maximum allowed limit of public debt in the amount of 60% of GDP. Public debt occurs as a result of budget deficit accumulations in given period. The highest public debt was observed in countries such as Greece, Italy, Portugal, Ireland and Belgium. The best results were reported in Estonia, Luxembourg and Romania (refer to Fig.1 in paper appendices) Analysis results agree with the statement of the European Parliament about constantly growing public debt, despite the measures taken (The European Parliament 2015). The worst situation with regard to public debt was mainly in Greece, Italy or Portugal. The European Union has repeatedly tried to improve the situation in these countries by financial aid in the form of EFSF, ESM, but still without success. It is a time when it is needed to start looking at the problem from a different point. New solution for a crisis appeared in the form of creating a central fiscal policy to which we agree together with the opinion of an employee of the Ministry of Foreign and European Affairs Mr. Lajčiak (2013) and German Chancellor Ms Merkel (SITA 2011) that it can make Europe stronger in case of its adoption. The contrary opinion on national responsibility for their own finances taken by Slovak politician Mr. Sulik (2014), would lead to even greater deepening of public debt based on the fact that EU member countries would gain complete control over its fiscal policy and would not be restricted by anything.

However, the crisis can be also broken by a new form of prevention. Each EU member country may contribute to education of people who can help in the fight against crisis with their ideas and opinions.

2 GOVERNMENT EXPENDITURE ON EDUCATION AS A PART OF FISCAL POLICY

While analyzing government expenditure on education, we had to face several problems in obtaining data. The first major problem was that we decided to examine only government expenditure on education, so we excluded private expenditure on education that were a part of a number of available statistical data and it was not possible to separate them. The second major problem was the time period for which data were available. Most of data were published only till 2012 or even till 2011. Finally, there was a problem with different national methodologies of publishing data on education. Thus, when evaluating government expenditure on education from different perspectives there is a lack of data on expenditure of some EU member countries. We analyzed data for EU-27, in the worst case only data for EU-16 (regarding government expenditure per pupil/student). When analyzing government expenditure on education using comparative analysis, we analyzed total government

expenditure on education as % of GDP; a percentage of total government expenditure and then calculated per pupil/student in PPPs.

2.1 GDP amount analysis

When analyzing data on GDP we had to take into account several aspects. We analyzed GDP amount in both, nominal and constant prices, then total GDP and calculated per capita so that we could compare this factor with the amount of government expenditure on education from different perspectives. The most appropriate expression of GDP with respect to government expenditure on education was GDP per capita expressed on basis of PPS (EU-28 = 100) in order to take into account the living standards of the countries, and also eliminate price differences between regions of EU member countries. The country with the highest GDP per capita in PPS for given period was Luxembourg (due to high participation of foreign workers from Belgium, France and Germany), followed by the Netherlands and Ireland. On the other hand, the lowest GDP per capita was in Latvia, Romania and Bulgaria (only about half of the average EU-28 = 25500 PPS) - refer to Fig.2 in paper appendices. While in 2008 real GDP per capita grew mainly in Romania, Bulgaria or Slovakia, along with other 14 countries, in 2009 after the economic crisis, was positive GDP growth observed only in Poland. In 2010, after economic recovery, grew GDP amount in 21 countries. Positive GDP growth continued in 2011 in 24 countries. However, the debt crisis in 2012 weakened economy of several countries and positive GDP growth was observed only in 11 countries and in 2013 the situation remained unchanged. However, for 2014 there are prognoses of a significant increase in the number of countries with positive growth in GDP (23 countries), thanks to successful implementation of anti-crisis measures implemented in 2013. The same main findings emerge from the statistical analysis of data on GDP published annually by the European Commission (2014) on the Eurostat website (under the title *"National Accounts and GDP"*).

2.2 Government expenditure on education: amount analysis

For given period invested in education in comparison with the amount of GDP at most following countries: Denmark (7.7% of GDP), Cyprus (7.1% of GDP) and Sweden (6.9% of GDP). On the other hand, the effect of the economic crisis in the form of low government expenditure on education was observed in Slovakia (4% of GDP), Bulgaria (3.9% of GDP) and Romania (3.8%). The most significant increase in government expenditure on education was observed in Denmark in 2009 (1.1%). The largest decline in government expenditure on education was observed in 2011 in Romania (-1.1%). In 2012 there was an increase or at least no changes in the amount of government expenditure on education in up to 14 countries (Croatia, Luxembourg, Malta, Denmark, Sweden, Belgium, France, the Netherlands, Austria, Poland, Ireland, Italy and Greece). The largest amount of government expenditure on education per pupil/student was in Denmark ($ 11,462), Austria ($ 10,802) and Sweden ($ 10,459). Conversely, the lowest amount invested in education was in Hungary ($ 4,820), Poland ($ 4,647) and Slovakia ($ 4,304) (refer to Fig. 3 in work appendices) A similar trend was spotted by the European Commission in its study "Funding of Education in Europe 2000-2012" prepared by the Eurydice network, which assessed 25 EU member countries while focusing on the planned amount of expenditure on education (2014).

EU Commissioner Androulla Vassiliou drew attention to the fact that if countries do not adequately invest in the modernization of education, huge differences between EU member

countries and the rest of the world will appear, that will result in high youth unemployment (EurActiv 2012). According to our analysis really low percentage of total government expenditure is invested in education in Italy (8.7%) and Greece (7.8%), the largest part of total government expenditure in the form of investment in education was paid in Estonia (16.5%) and Cyprus (15.6%).

However, it should be pointed out that this does not mean that education of countries with low percentage of government expenditure on education of total government expenditure is under-funded. In fact, it may be significantly financed from private financial resources, on what we did not focus in our paper. The OECD (2014) has also dealed with study of the amount of government expenditure in its annual report *"Education at a Glance"*. Comparing the results regarding government expenditure on education of EU countries that are members of OECD (21), we came to similar results of their development. Differences are caused by using different source data.

2.3 Public debt: amount analysis

Carried out within Chapter 1.

After comparative analysis we focused on analyzing relationship of government expenditure on education, along with public debt and the amount of GDP.

2.4 Correlation between government expenditure on education and GDP/Public debt

National Center for Education Statistics (2015) found a strong correlation between the amount of government expenditure per pupil/student and GDP per capita when analyzing data of OECD member countries. Similarly, a high correlation was also found by Sopek (2012) when evaluating data for Croatia. Strong positive correlation was confirmed in our work for EU-16 as well. Due to high correlation coefficient of 0.905 we can argue that countries with higher amount of GDP per capita invested in education calculated per pupil/student more. At the same time, we found out that annual growth in government expenditure on education was not related to annual growth of GDP per capita. That raises the question whether member countries did not determine the amount of government expenditure on education rather based on the results of last year's GDP amount instead of planned GDP per capita for following year. Positive correlation (correlation coefficient of 0.760) was also confirmed in relation of percentage of government expenditure on education of GDP and total government expenditure while analyzing data for EU-27. Thus, we can state that if government expenditure on education represented higher percentage of GDP they automatically represented higher percentage of total government expenditure. When analyzing relation of the amount of government expenditure on education with public debt, we did not confirm the hypothesis of their correlation. We only found a weak negative correlation (-0.132) of analyzed variables, which represents a cut in expenditure on education in the context of high public debt. However, in most countries, the amount of government expenditure on education developed irrespective of the amount of public debt. Neither was confirmed our hypothesis that with increasing public debt invested member countries in education more, in order to actively join the fight against the crisis by training of educated citizens. A weak negative correlation (-0.181) explains that with increasing public debt some countries invest in education even less money. However, in most countries, the rate of government expenditure on education developed independently from public debt development.

2.5 Application of the confirmed correlation between the examined variables

Confirmed positive correlation between government expenditure on education per pupil/student and GDP per capita or the amount of the total government expenditure on education expressed as percentage of GDP and percentage of total government expenditure were used to predict the future amount of government expenditure on education. Prognosis allow better monitoring of planned expenditure on education, subsequently their comparison between countries in advance and then if necessary their adjustment to desired amount. To forecast future development of government expenditure, we created two models. First one, cluster model, can be use in the case that some countries have not published their data on government expenditure on education per pupil/student or do not intend to do so, but we want to make a comparison between all EU member countries. Cluster model sorts EU countries into a number of clusters on the basis of a similar GDP per capita measured in PPPs. Data on GDP per capita in PPPs are available in Eurostat's database, or in IMF database. Data on government expenditure on education in PPPs are only available in the OECD database. The number of EU member countries who are also members of OECD is 21. Consequently, based on the confirmed correlation between the amount of expenditure per pupil / student and GDP per capita, we expect states within one cluster to have approximately the same amount of government expenditure on education. Thus, this model allows estimating the amount of government expenditure on education per pupil / student in PPPs for non-OECD countries as well as OECD member countries that do not publish it. This model, however, has its limitations. It is not suitable for data estimation for Luxembourg due to its distorted data on GDP. In addition, in order to estimate the most exact amount of government expenditure on education is needed to publish data on the amount of government expenditure on education by as much OECD member countries as possible. In the case that only l0 and fewer countries out of 21 OECD member countries publish data on it, it will be very difficult to create clusters in the way it will be possible to predict the amount of expenditure for other countries.

The second created model is a linear regression model. This model allows us to predict the amount of either total government expenditure on education or government expenditure on education per pupil / student. We decided for linear regression model based on confirmed positive correlation (r) = 0.904 between government expenditure on education per pupil/student and GDP per capita; and (r) = 0.760 for total government expenditure on education as percentage of total government expenditure and percentage of GDP. At the same time we confirmed that the model meets all the requirements of a linear regression model. We also confirmed that model errors are normally distributed with mean of zero, with constant variance, independent and random. Both linear regression models can be used in practice to estimate the amount of government expenditure on education.

Final models have the following form:

$$GE1 = -837.148 + 0.257 * G1 \quad (1)$$

where:

$GE1$ = Government expenditure on education per pupil / student (PPPs)

$G1$ = GDP per capita

This model is recommended to apply in the case that we have data on estimated amount of GDP in next year or years, or in the case that there cannot be used cluster model considering its limitations in the current or prior periods.

$$GE2 = 1{,}061 + 0{,}378 * G2 \quad (2)$$

where:

*GE*2 = Total government expenditure on education as percentage of GDP

*G*2 = Government expenditure on education as % of total gov.expenditure

This model is recommended to use in the case we have data on planned government expenditure and we can also determine how much percentage of government expenditure is devoted to education. However, as there was not confirmed very high correlation between the examined variables, the estimated amount of expenditure on education measured as a percentage of GDP is rather informative.

Conclusion

When crisis hits, governments play an important role in making difficult decision about future direction of their country. The situation is more difficult when countries are part of a great community like EU. In EU there is no central fiscal policy, and the countries are thus responsible for creating its own fiscal policy while taking into account regulations, which stem from EU membership. However, actual reports on public debt amount show that measures and regulations adopted by the EU in order to reduce it are ineffective as EU member countries failed to meet the requirements and they have not been penalized till now. Thus, the EU should find a better solution to break the crisis rather than issuing other measurements that are not respected. Establishment of a central fiscal policy is the first possible solution, however the expert opinions on this issue differ. The second possible solution stems from participation in fight against the crisis by training educated people who, with their own knowledge and ideas can significantly help to change the negative economic development. This idea strongly depends on sufficient financial support from public sources. If EU wants to break the crisis by this way, each member country should invest enough money to support education.

The main objective of our paper was to find relation between the amount of government expenditure on education and development of basic macroeconomic indicator of GDP and public debt of EU member countries and find its use in practice. It was achieved, thanks to our subgoals which we have set. We confirmed correlation between the amount of government expenditure on education and GDP. This information can be used to create cluster model and linear regression in order to predict the amount of government expenditure on education in the future, or to estimate the amount of government expenditure on education in the current or prior periods if this information has not been released by EU member countries yet or they do not plan to publish it. The biggest contribution can be observed in a better comparison of government expenditure on education between EU countries in a significant advance, with the opportunity of possible adjustment of its amount in order to step by step eliminate significant differences between EU member countries.

To achieve the same educational level of EU member countries is a huge challenge, but not impossible. Thus, we should follow the quote of famous US entrepreneur Bob Parsons:

"*Measure *everything, because everything that is measured and watched improves."

Acknowledgment

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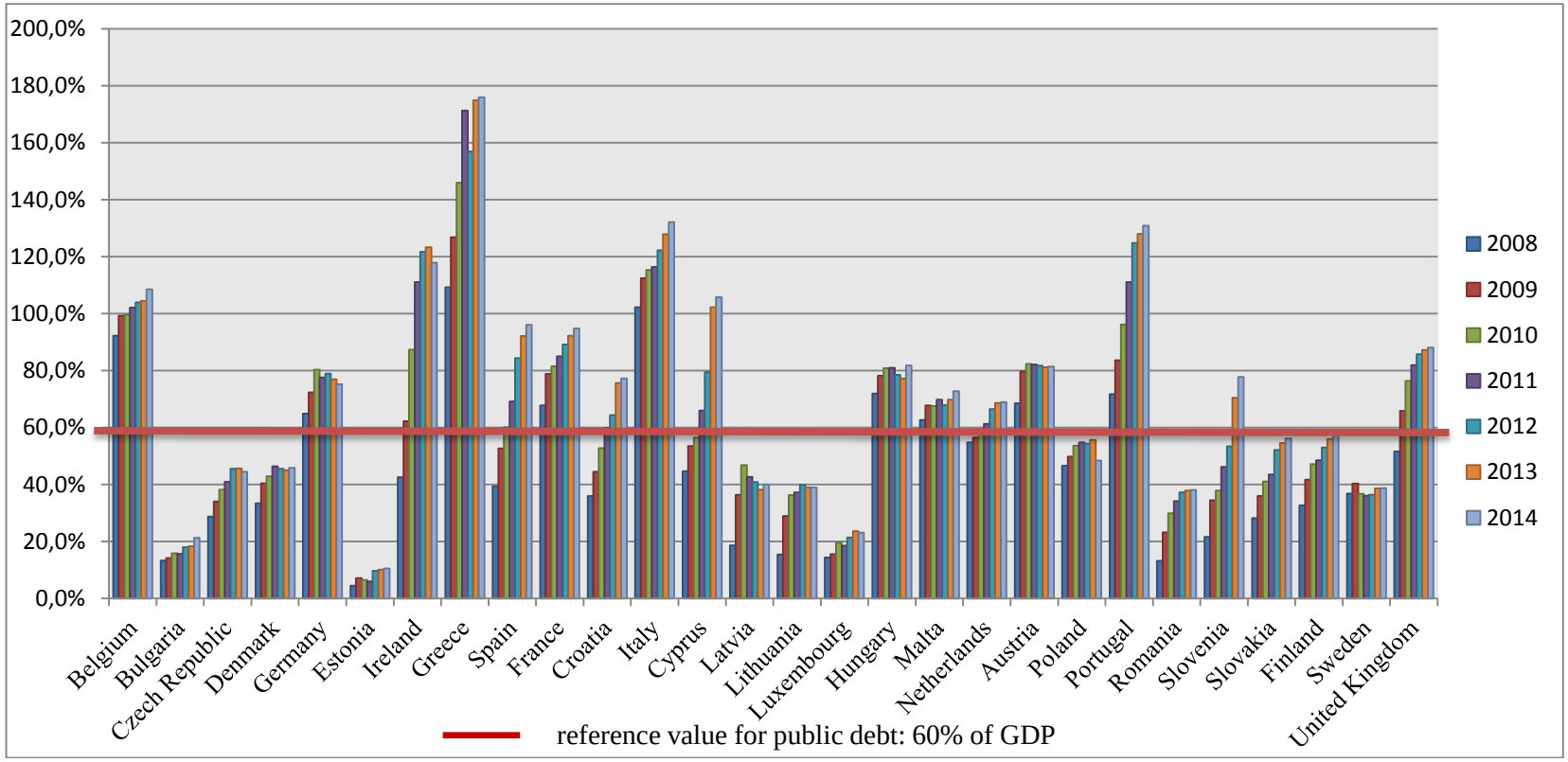
APPENDICES

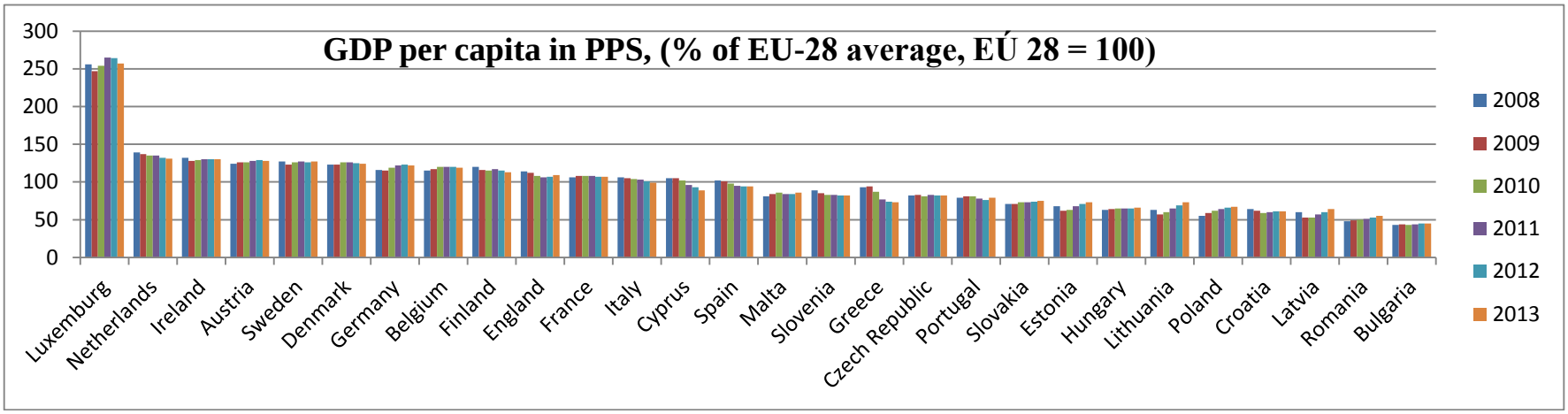
Figure 1 - Public debt development since 2008



Source: processing was based on data from Eurostat

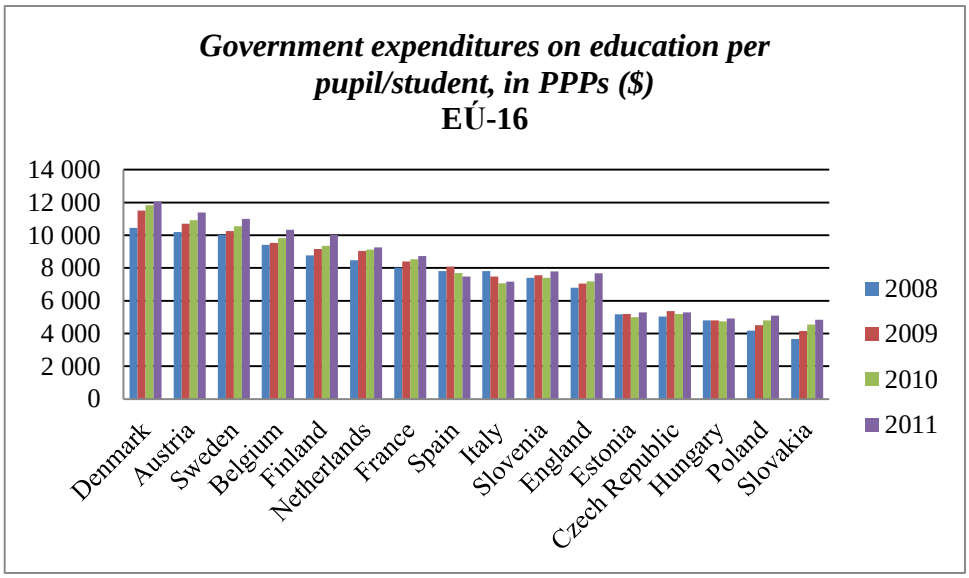
Note: data for 2014 represent data for the period Q1-Q3 2014

Figure 2 - GDP per capita in PPS



Source: processing was based on data from Eurostat

Figure 3 - Government expenditure on education per pupil/student, in PPPs ($)



Source: processing was based on data from OECD database

FINANCIAL CONTROL AND EFFECTIVENESS OF PUBLIC EXPENDITURE

Roman Horák, Eva Vincencová, Monika Hodinková

Abstract

Authors deal with the impact of financial control on the effectiveness of public expenditure in the Czech Republic. Authors discuss about the Act about financial control of public expenditure and about a draft of the Act about Management and Control of Public Expenditure, which is currently at reading in Parliament CR. Authors focused on its impact to decrease ineffectiveness of public expenditure. The authors summarize available current information about results of financial controls in public sector with the main attention focused on the effectiveness of public expenditure. Authors critically evaluate the current arrangements for the Act about Financial Control. They analyse its spirit expressed in the explanatory memorandums accordance to the effectiveness of public expenditure.

Key words: public expenditure, financial control, responsibility, effectiveness of public expenditure, ineffectiveness

JEL Classification: H50

1 THE GOAL AND METHODS, APPROACHES OF AUTHORS

1.1 Goals and methods

Theory of public finance defines effectiveness as the optimal allocation of resources between the various possible uses ... eliminates the ineffectiveness and provides the best possible use of those resources, taking into account the objectives. [Hamerníková, 2000] The definition of effectiveness in public sector use macro theory. The definition doesn't solve problems with the financing of public services and its performance. [Jackson and Brown, 2003] are focused on the ineffectiveness f. e. of Defence sector, due to unauthorized inclusion of a specific project, the allocation and production ineffectiveness. Analysis of the production ineffectiveness is provided by 3Es concept. The concept of 3Es, which means efficiency, effectiveness and economy, is used for the evaluation. The authors will compare the concept of 3Es by present financial control and by a new management and control of public finance.

The goal of the paper is to perform a critical analysis of the draft of the Act about Management and Control of Public Expenditure (MCPFA) in the context of increasing the effectiveness of public spending in the country. The authors will analyse how to determinate financial control ineffectiveness of public expenditure. They will compare the current Act about Financial Control (Act No. 320/2001) with a new draft of the Act MCPFA and its role for increasing effectiveness in public sector. The authors deem the increasing control of efficiency public spending as a crucial issue and consider as an important to implement the concept of E3s into the law. The E3s concept is a tool based on evaluation and management of public expenditure in countries such as Sweden, United Kingdom, Australia, New Zeeland etc. [Schick, 1999] The

authors provided a documentary analysis of the current Act about Control of Public Expenditure and the new Act about Management and Control of Public expenditure.

The comparative analysis was used to evaluate the draft of the new law and to present the different approaches and recommendations of the EU, the World Bank and the principles of financial management of selected states and the role of the so-called 3Es (economy, effectiveness, efficiency). They discuss whether the new draft has the tools to eliminate the shortcomings of applicable Act No. 320/2001.

1.2 Approaches of authors

For purpose of this article authors define financial control according to harmonization process into the EU. In the frame harmonization process was established a concept of Public Internal Financial Control (PIFC) in the EU. PIFC was developed by the European Commission. PIFC combines two concepts: financial management and control systems and internal auditing. Under the extended definition of PIFC proposed by France, a third element, financial security, has been added to satisfy the objective of ensuring sound financial management.
PIFC is an integral part of good governance (GoGo), which supports increased accountability and transparency in spending public money with the concept of 3Es.

For the purpose of this paper the authors are based on following definitions of 3Es concept. At first the authors are based on general definition used in managerial accounting. According to Management Accounting Official Terminology [ASPI, 2002]:

a) Economy means the acquisition of resources of appropriate quantity and quality at minimum cost.
b) Efficiency is the achievement of either maximum useful output from their resources devoted to an activity, or the required output from the minimum resource input.
c) Effectiveness means the utilisation of resources such that the output of the activity achieves the desired result and is bind to the process output or activity.

Ad second William A. Sterling, P.E. director of Recreation City of Port Angeles, Washington, defines these terms:

a) Efficiency is accomplishment of ability to accomplish a job with a minimum expenditure of time and effort. Efficiency focuses on how something is done in order to avoid waste; it is a yield-based measure. Economy means reducing costs of inputs taking into account a reasonable quality. Efficiency is defined as the ratio of outcome to inputs and describes the cost per activity to achieve a given outcome; for example, the cost of sweeping a lane mile, the cost per transit passenger or the cost per installation of traffic signs. It can also be used to determine how you did in reaching your goals. The term effectiveness is defined as the level of outcomes (goals); for example, the miles of lane miles swept, the number of transit riders or the number of traffic signs installed.
   Effectiveness is getting the job done and reaching objectives; efficiency is doing the job at the lowest cost. But because we must start with limited resources, we must know how much an action will cost, including the benefits or opportunities that have to be set aside to achieve the goal. Effectiveness is getting the job done and reaching objectives; as the level of outcomes (goals); for example, the miles of lane miles swept, the number of transit riders or the number of traffic signs installed. To paraphrase a quote from Warren Bennis: *Efficiency is doing things right… Effectiveness is doing the right thing.*

Effectiveness means producing a decided, decisive or desired result. Effectiveness focuses on what is done in order to maximize the contribution gained from people resources; it is a results-based activity. [Sterling, 2006]

As the third author´s quote was used the introduction from the Financial Accountability Handbook of Queensland Government:"… Financial management Legislation is underpinned by the concepts of „efficient", „effective" and „economical". In the Financial Accountability Act 2009 and Financial and Performance Management Standard 2009 require the accountable officer to achieve reasonable value for money by ensuring the operations of the department are carried out efficiently, effectively and economically. And agencies have to establish management systems for 3Es for their financial resources. The terms 3Es and value for money are not defined in legislation but in Financial Accountability Handbook and the Standard. [Queensland Council, 2013]

2 ANALYSE OF PRESENT ACT ABOUT FINANCIAL CONTROL IN PUBLIC SECTOR

2.1 Situation before 2001

For the period 1993 – 2001 (after split Czechoslovakia) was the absence of a uniform concept of control system and the uniform methodological management of financial control at all their stages in the public administrative. Organizational and competency changes were reflected in the weakening, in extreme cases, directly in the collapse of the internal control systems of the public authorities. Legislation was not carrying out checks of the public authorities on the management of the resources provided by the Czech Republic from abroad. In the Czech legal order was not a sufficiently adjusted system of financial control in relationships of subordination, the superiority and the establishment of the internal control departments in the central administrative and the definition of their functions while ensuring financial control. It also was not in the legal order of the secured exchange of controlled information and unification of control files. It was typical for this period. The politicians' preferred own interests instead of public interests. The period was so-called „Czech model of free market economy". In this period the concept of 3Es was not widely known in professional public. The public practice was focused only on the economy. The National Audit Office (NAO) started control and won step by step experience and good results.

2.2 Situation in the period 2001 - 2013

According to Government Governance and the interest of the Czech Republic enter into the EU politicians were under pressure to change organization of financial control. The EU commission prepared for this reform a model of PIFC.

Firstly, this model was welcomed by the professional and political public. The requirements of the model were understandable. Gradually, however, the political representation lost an interest in its implementation. Politicians declared the EU approaches as the so-called dictate from the EU, and talked about specific conditions of the Czech Republic etc. Finally, under pressure from the European Commission after a two-year process, which was full of obstruction, Czech Parliament adopted the second version of the law about financial control in 2001. However, authors cite the definitions set out in the Act about financial control of public expenditure:

a) Economy means use of public funds to ensure the set tasks with the lowest spending of these resources, and in compliance with the appropriate quality of the tasks performed,
b) Effectiveness of such a use of public funds, which achieves the maximum possible extent, quality and benefits of tasks performed in comparison with the volume of funds spent on their fulfilment.
c) Efficiency of public funds means to ensure the optimal degree of achievement of the objectives set out in the performance of tasks. [Act No. 320/2001]

In the light of the above mentioned information, the authors are convinced that the concepts contained in terms: effectiveness, efficiency and economy as well as of the current Act about financial control do not represent exactly their importance and their implementation in practice in the Czech Republic.

But there wasn't defined the way of exact scale and criteria for the evaluation of public expenditure, responsibility of public financial managers. If these criteria were not generally known and established by law, regulations, technical or other standards must be in accordance with the law, established in advance by the head of the public authority, on the basis of objectively given facts. It wasn't declared by managers of public organizations. Three elements for evaluation of using of public finances, which are declared in the present Act about financial control don't support an idea of an effective tools for evaluation of spending public money. There were not integrated with other system f. e. accounting, budgeting, and reporting.

According to the lack of politicians was adopted the Act No. 320/2001 in 2005 after four years under the pressure of the EU, OECD and the World bank. There was a period of partial amendments to the Act No. 320/2001. The Act No. 320/2001 was adopted by the edit causing complications under the pressure of the opponents, who criticized it consistently. In 2008 the Government adopted an Action plan on the implementation of the priorities and objectives of the National strategy for the protection of the financial interests of the European Community in the Czech Republic. There were laid down criteria to draw up new arrangements, which would replace the existing law.

In 2013 the Senate rejected the amendment to the Act about financial control, which was hastily prepared by the Ministry of Finance of the Czech Republic. Vice chairwomen of Senate of the Czech Republic commented this amendment: „The proposal is in contradiction with international standards, for example, is contrary to the recommendations of the World Bank to nonfiscal functions of tax administration. Other standards that define the internal management control system for the public sector, issued by the international organization of supreme audit institutions, etc. I think that's very serious that this proposal further populates the anti-corruption strategy of the Government that no control mechanisms are reinforced in the public administration with regard to anti-corruption hearing; does not enhance managerial responsibility for the management of public funds. Even does not strengthen the functional independence of the internal audit, which has long been criticized and threatened one of the fundamental features of the internal control system. It introduces a new audit work, the so-called audit in public administration, which systematically duplicated the activities of the internal audit. The introduction of the so-called audit in public administration without a clear responsibility even more diversifies the system of financial control in the public administration. Further deepening the involvement of territorial financial authorities in the process of the internal audit and control system, which is contrary to the recommendation of the World Bank

and the international good practice. It allows different interpretations and great application flexibility. It used terminology that does not harmonise with the terminology currently used in the European environment, for example manager of operations, budget manager and the chief accountant.“ [Horská, 2013]

In this period the concept of 3Es in professional public was widely known and discussed. The Ministry of Finance prepared very understandable manuals for implementation 3Es concept, but it was not widely applicable by public sector. The National Audit Office (NAO) controlled public expenditure with the concept of 3Es. The NAO indicated a waste of public resources as a result of negligence and also intend to raise the money at the expense of the Czech state. The NAO criticized impossible to determine the legal responsibility, non-existing criteria for evaluating expenditure in many cases. But these results were not respected by politicians. If the situation happened politicians and lawyers stand up for offenders to effectively.

The experience of 14 years of using of the Act about financial control confirms the truth of the above words. The law couldn‘t prevent billion crowns losses in public finance, which for 14 years in the public sector have occurred. And opponents of this Act aspired about that. It has confirmed an unusually large and the last presidential amnesty, Mr. Klaus, which covered special large economic offences in 2013.

3 ACT ABOUT MANAGEMENT AND CONTROL OF PUBLIC FINANCE 2015

The current Government is standing face to face to create a new concept of financial control in public sector. Entirely has prepared a new Act about financial control, which should be harmonised with the best practice of the EU. That means to implement and develop PIFC systems. The PIFC is interconnected with accounting, national budget cycle from input to output budget, supports fight against fraud (inspection), collaborate with external audit and civil public service reforms. The draft of new Act was prepared by the former deputy of Minister of Finance, Mr. Wagenknecht. The basis of the draft law has been prepared by Mr. Včelák, who was the author of Act about financial control from 2001 and a supporter of the harmonization process and effective financial control in the Czech Republic.

3.1 Principles of PIFC [by European communities, 2006]

The PIFC is the overall financial control system performed internally by a Government or by its delegated organisations, aiming to ensure that the financial management and control of its national budget spending centres (including foreign funds) complies with the relevant legislation, budget descriptions, and the principles of sound financial management, transparency, efficiency, effectiveness and economy. PIFC comprises all measures to control all government income, expenditure, assets and liabilities. It represents the wide sense of internal control. It includes ex ante financial control (EAFC) and ex post internal audit (EPIA).

The system of the public internal control is focused on transparency. It means on cleanliness of responsibility and in terms of harmonised methodology and standards. Transparency is the principle of the government being held accountable towards the public that has elected it to raise income and spend on its behalf. PIFC encompasses international standards, f. e.

INTOSAI, IPSAS and the EU best practice and it aims to provide the optimum approach for reforming traditional national control systems.

Central to PIFC are the concepts of managerial accountability and functionally independent decentralised internal audit. Public internal control is preventive in nature and aims to ensure that adequate systems are in place to the wart as much as possible the occurrence of corruption and fraud. Public internal control itself is subject to external assessment by the Supreme Audit Institution. PIFC consists of tree pillars:

a) Financial Management and Control (FMC),
b) Internal Audit (IA),
c) Central Harmonisation Unit (CHU).

Financial management (FM) is the term, which is understood to be the set of responsibilities of the management to establish and implement a set of rules for an efficient, effective and economic use of available funds (comprising income, expenditure and assets). It refers to planning, budgeting, accounting, reporting and some form of ex ante financial control. The FM is subject to internal and external audit.

The wide meaning of financial control follows the meaning of internal controls except that it refers to controls, which have a specific financial component. In practice, in this context, there are few controls, which do not have a financial component and the phrase financial control can often be virtually interchangeable with internal control. The narrower meaning follows the narrower meaning of financial controller and refers to the specific review of the conformity of transactions with regulations and procedures described in ex ante financial control.

Internal audit is an independent, objective assurance and consulting activity designed to add value and improve an organisation's operations. It helps an organisation accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management control and governance processes.

In public finance a distinction is made between centralised internal audits (CIA) and decentralised internal audit (DIA). The CIA is public ex post internal audit performed by a centralised body. The DIA is the internal audit performed by specialised Internal Audit Units located inside government or lower public budget implementation spending centres. A policy unit attached and directly reporting to the Minister of Finance on the status of internal control in the entire public sector, responsible for redesigning, updating and maintaining the quality of the internal control systems, for harmonising and co-ordinating definitions, standards and methodologies, for networking between all actors (managers, financial officers, internal auditors), for the establishment and co-ordination of sustainable training facilities, including the setting of criteria for the certification of public internal auditors and for all other actions to improve public internal control systems.

The CHU can cover both areas of FMC systems and IA in one Directorate with each area to be developed independently (two sub-directorates). Alternatively a country may decide to establish a special CHU for the development of Internal Audit, directly reporting to the MoF and a special CHU for FMC-systems that could be attached to the Treasury or the Budget Department. The PIFC covers concept of 3 Es in following meaning:

a) Economy means minimising the cost of resources used to achieve given planned outputs or outcomes of an activity (including having regard to the appropriate quality of such outputs or outcomes).

b) Efficiency means maximising the outputs or outcomes of an activity relative to the given inputs.
c) Effectiveness means the extent to which objectives of an activity are achieved i.e. the relationship between the planned impact and the actual impact of an activity.

3.2 Principles of the draft of new Act about management and control of public finance

The Ministry of Finance (MoF) has prepared a draft of the Act about management and control of public finance (AMCPF). The MoF announces that the adoption of the draft law will, in particular, to:

1. Eliminate the undesirable differences arrangements management and control in the public administration to increase the effectiveness of the systems of authentication to protect national and international public funds on the principle of a uniform "audit" (single audit);
2. Application of the principle of the full "control" process. In addition to the mechanisms of control of economic control or internal audit (phase detection), introducing inspections (phase of implementation and corrective). The result of the inspection is the confirmation or refutation of the initial findings of infringement relating to public resources in accordance with the recommendations of the experts of the World Bank and the European Commission's Directorate-General for the budget;
3. Strengthen the harmonization and coordination of the elements of the integrated framework, the tasks of the internal management and control systems in the public administration of the role of the central supervision of compliance with the compliance with the legal framework.
4. Strengthen the harmonization and coordination of the elements of the integrated framework, the tasks of the internal management and control systems in the public administration of the role of the central supervision of compliance with the legal framework and compliance with the standards.

A distinctive feature of the proposed adjustments to the internal audit function is the transition from a decentralized system in the individual responsibility of the public authorities to an integrated system, for whose implementation is the responsibility of the MoF and the setting, especially with regard to its responsibility for implementation of the state budget. The draft law is traversed to the civil service statute. The application of both regulations, i.e. the draft of this law and the law on the civil service should contribute to the reduction of illegal conduct in the management of public funds. Processing of the draft law on the internal management and control in the public administration is a measure to eliminate the risks associated with the current under-execution shown allocation for the programming period 2007-2013 in the context of the implementation of the resolution of the Government of 5th March 2014 No. 144, which was approved by the analysis of drawing the European funds and contingency plans. [www.mfcr.cz]

3.3 The analysis of the expected benefits of the MCPFA for the effectiveness of public expenditure

The authors have made a documentary analysis of the draft law. Authors focused on these benefits and comparison of selected parts of the MCPFA with the provisions of the Act No. 320/2001. The results of the analysis bring the following conclusions.

1. The MCPFA regulates in relation to the directly applicable regulations of the EU the management and control of public finances. The MoF guarantees processes and system harmonization in the Czech administration. The MoF will be a provider of methodological support and will be an adviser in the field of internal control in public administration. The MoF in the frame of this Act will evaluate the performance of duties, the effectiveness and quality of the system of internal control in public administration. The MoF will carry out the obligations of the central contact point of the European Network of the Anti-Fraud Office and the Office submitted to the European Anti-Fraud Office will report directly applicable regulation by the EU. The MCPFA defines the scope of the CHU as a department of the MoF.
2. The MCPFA harmonizes management and control mechanisms, the strengthening of the corrective phase of the full inspection process financing tasks of public administration, the implementation of audit tasks, in order to maintain the same mode of the protection of public funds (international and national). The MCPFA defines the aim of internal control: „… is to protect public funds and ensure that they are treated efficiently, economically and effectively". The definitions of the 3Es concept are following:
    a. Efficiency is using of public funds administrator of the public budget, a public entity and a recipient of public funding ensures that the results correspond to the needs.
    b. Economical use of public funds administrator of the public budget, a public entity and a recipient of public funding ensures that resources are available at the right time, in sufficient quantity and adequate quality at the best price.
    c. Effectiveness of management of public funds administrator of the public budget, a public entity and a recipient of public funding ensures that achieved the best relationship between resources and results obtained.

The authors awarded the complexity of the appropriate translation definitions from Czech into English. They compared definitions of 3Es in the table 1 and have following remarks. Definitions of 3Es in draft of the MCPFA do not approach the under stable definitions in PIFC. The definition of economy is very similarly in all definitions (I – IV). Definition of effectiveness III is approaching significance more similar to the definition IV than I and II. The Definition of efficiency III is more consistent with the definition IV. It will depend on the development of the definitions and criteria for evaluation 3Es. In draft MCPFA is not defined, who and how will evaluate expenditure with 3Es. The authors are convinced that the definitions of 3Es and their application in practice will again be difficult. Who and how will determine and evaluate the relevant criteria 3Es. Authors ask why proponent didn't use definition II for draft of the MPCFA.

Table 1 – Comparison definitions of 3Es

Definition I		Definition II	Definition III	Definition IV
Resource	**Act No. 320/2001**	**PIFC Glossary Definitions**	**Draft of new Act of management and internal control of public finance**	**Management Accounting Offical Terminology**
Economy	minimizing the costs of resources used for the activity, taking into account a reasonable quality.	Minimising the cost of resources used to achieve given planned outputs or outcomes of an activity (including having regard to the appropriate quality of such outputs or outcomes).	use of public funds to ensure the set tasks with the lowest spending of these resources, and in compliance with the appropriate quality of the tasks performed,	The acquuisition of resources of appropriate quantity and quantity at minimum cost.
Effectivenes	the extent to which objectives are achieved and the relationship between the intended consequences of the activity.	The extent to which objectives of an activity are achieved i. e. the relationship between the planned impact nad the actual impact of an activity.	use of public funds, which achieves the maximum possible extent, quality and benefits of tasks performed in comparison with the volume of funds spent on	The utilisation of resources such that the output of the activity achieves the desired result.
Efficiency	the relationship between outputs, in terms of goods, services, or other results and sources inputs used to produce them.	Maximising the outputs or outcomes of an activity relative to the given inputs.	ensure the optimal degree of achievement of the objectives set out in the performance of tasks.	The achievement of either maximum useful output from the resources devoted to an activity, or the required output from the minimum resource input.

Source: authors

On the other side authors appreciate the transition from financial control to the economic control and internal audit. These instruments are defined in draft MCPFA and bring necessary unifying element. Systems of internal control and audit will operate on common principles. Authors expected limiting of the numbers of procedural regulations under which inspections take place today (egg. the exclusion of the tax code or unified rules for the management control). Controls and audits will be coordinated, planned and transparent at all levels of public administration. There will increase the role of independent internal audit.

3. The draft MCPFA reduces of personnel and cost performance by removing duplicate structures in existing control systems. The role of the effective control of providers of public funds will have more responsibility for their use. The tax authorities will transmit their powers in the area of public expenditure on funding public organizations. Tax authorities will focus on the revenue side of the budget. They will not control provided grants for beneficiaries.
4. The MCPFA establishes the responsibility of the supervisory authorities of the public administration. The MCPFA provides for an obligation clearly determine the responsibility of specific persons in the management and control of public finances. It is for the management of public funds key assumption.

Conclusion

We need further harmonization with international accounting standards for the public sector (IPSAS), which are a necessary prerequisite for the effective control of public expenditure.

The authors evaluate the draft MCPFA as to a qualitatively higher tool than the existing the Act No. 320/2001. Please note that this proposal will be under pressure from the ranks of amendments proposed by the interested deputies, senators, lobbyists. This pressure could significantly reduce the quality of the draft MCPFA.

The authors declare that it is important to develop the idea of 3Es concept. It means to harmonise terms used in 3Es concept in the Czech legislation with the PIFC definitions and to create a draft of the Financial Accountability Handbook for the public sector as is usual f. e. in Australia. [Queensland Treasury, 2013]

Government should show the importance of this Act for the promotion of democratic values of our country. After approval government should be initiated both, controllers as well as managers, and politicians, who provide decisions making process. Based on the provided comparison of the present Act and the new Act authors recommend a thorough debate about the effective implementation of 3Es concept focused on the public expenditure management in practice.

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QUANTITATIVE EASING – A TOOL OF MACROECONOMIC POLICY

Marta Orviská, John Hudson

Abstract
In recent years in many countries fiscal policy, as a macroeconomic tool, has been constrained in its use by a number of factors. Firstly, international tax competition and voter hostility makes the increasing of tax rates difficult. This is compounded by tax evasion and avoidance. Secondly, in the aftermath of the economic crisis of 2008, many governments face an unsustainable debt to GDP ratio. Finally, there are increasing pressures on public spending from an increasingly elderly population. Given this, expansionary fiscal policy now has limited applicability in many countries. In part to fill the (temporary?) gap left by fiscal policy, a new tool of macroeconomic management has emerged – quantitative easing (QE).The view that QE is being used as a tool to boost the economy in a manner similar to expansionary fiscal policy is a controversial one. It is controversial in part because conventional economic theory indicates that increasing the money supply will lead to inflation. It is also controversial because relatively few view QE in this way. In this paper, we discuss the current view of QE – as a tool of 'balance sheet operations'. We then turn to the quantity theory of money which suggests that expanding the money supply will lead to inflation. Finally we will turn to the use of QE as a tool of macroeconomic policy, similar to expansionary fiscal policy, looking at its use, its potential, its dangers and limitations.

Keywords: quantitative easing, fiscal policy, Wagner's law, fiscal limits

JEL Classification: E58, E62, E63

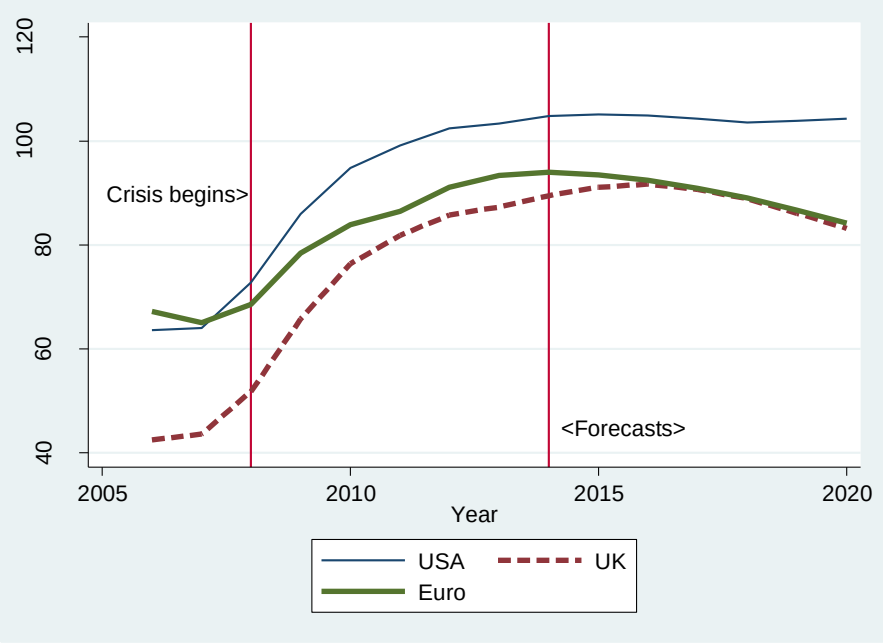
Introduction

Wagner's law relates to the statement by the n*ineteenth century German economist Adolph Wagner* that an increasing government size is an inevitable consequence of economic growth (Wagner and Weber 1977). Richer populations want more social, regulatory, and redistributive services from the state. It is not just that people want better quality services from the state than the ones they currently have, the range of activities undertaken by the state has also steadily expanded. The core activities of the state relate to the provision of public goods and has been extended gradually to cover externalities and even perhaps to activities which come under neither heading. Thus the first states focused on the provision of defence and law and order, quickly moving to include transport and infrastructure under their gamut of activities. More recently the state's activities have expanded to providing education, health and a welfare system to protect people against adverse shocks. On the economic side they try to promote industries and innovation which will generate growth. Since 2008 however, the state has taken on a whole new role in protecting the economy and society against a collapse, or partial collapse, of the financial system which now cannot now be allowed to fail in part or in the whole. The state is now there to protect the population and the economy from all adverse shocks.

1 FISCAL LIMITS

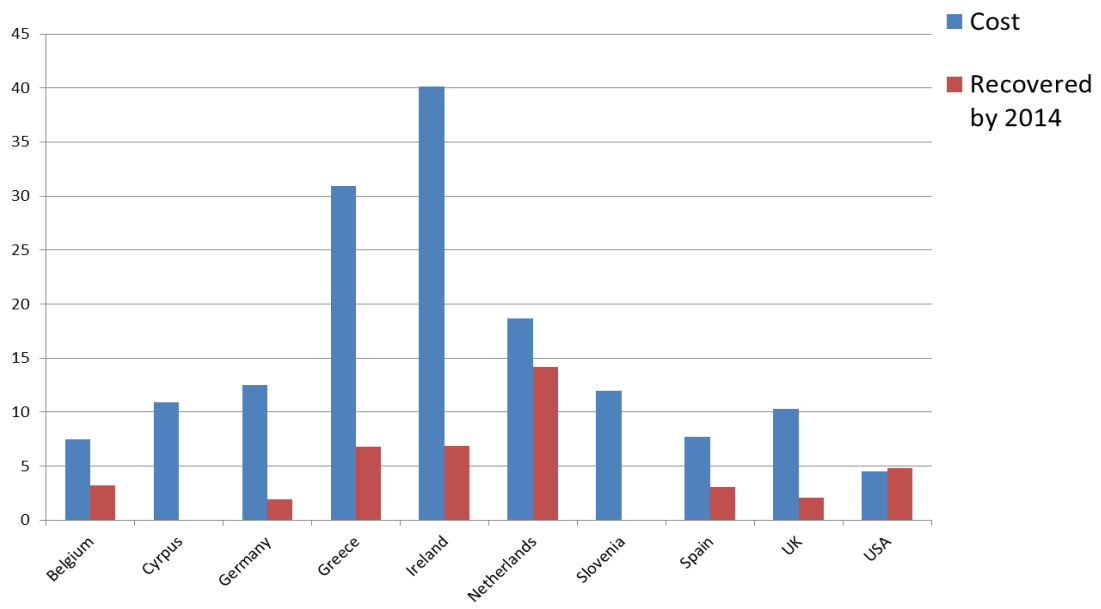
With this increase in activities, the state has increasingly grown, even in strongly capitalist countries such as the USA, but even more so in many European countries. However, this continued and inexorable expansion of the state has now met another force in the form of fiscal limits which may, at least temporarily, set an upper limit on the size of the state. The first of these is the size of the debt. As Figure 1 shows this inexorable growth of the state, coupled with a reluctance to finance this growth through taxes led to a large government debt in many countries even before the onset of the crisis in 2008. But the crisis exacerbated this position considerably. The crisis began with the government having to rescue parts of the financial sector. This added considerably to the debt and, as Figure 2 shows, in some countries only a small amount has been retrieved by the sale of financial institutions back to the private sector. This fuelled the initial rise in debt in the post 2008 period, but subsequently the debt also grew as a consequence of the severe economic downturn. This debt is now forecast to come down in Europe, but not in the USA and forecasts are often too optimistic and always tend to be based on a 'no adverse shocks scenario'. In any case on even optimistic assumptions, unless we have inflation or 'cancel the debt', in many countries it is going to be high for well over a decade, perhaps two, even three decades.

Figure 1 – Gross government debt



Source: IMF Fiscal Monitor 2015

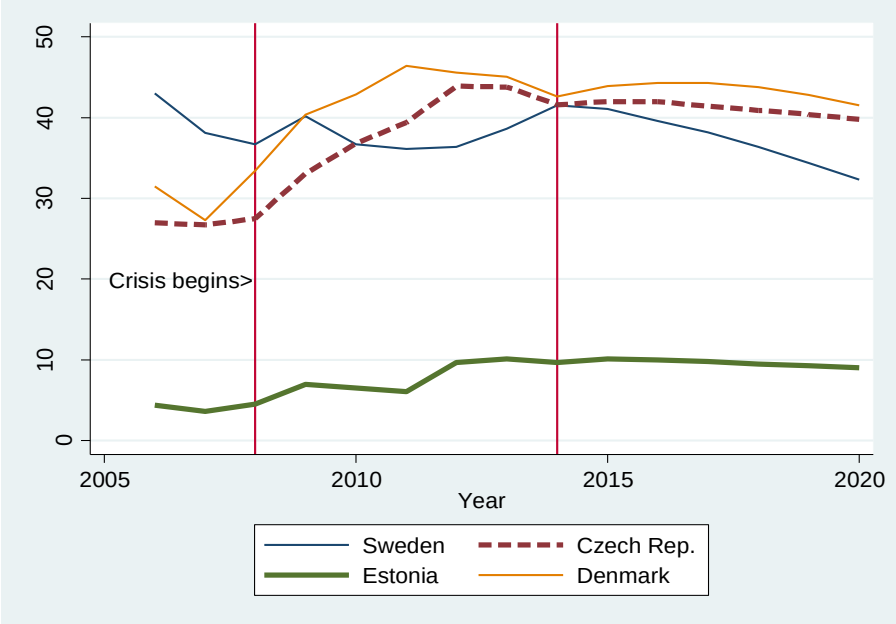
Figure 2 –Public sector cost of financial sector support (% of 2013 GDP)



Source: IMF Fiscal Monitor, October 2014

It is important to emphasise that this is not the case in all countries as Figure 3 shows. In several, often smaller, countries (but not all small countries of course) the debt is not so great a problem. These countries' fiscal policies are not so constrained by the debt problem. However, Estonia, points the way for a better approach of just not letting it grow beyond a small amount.

Figure 3 – Gross government debt

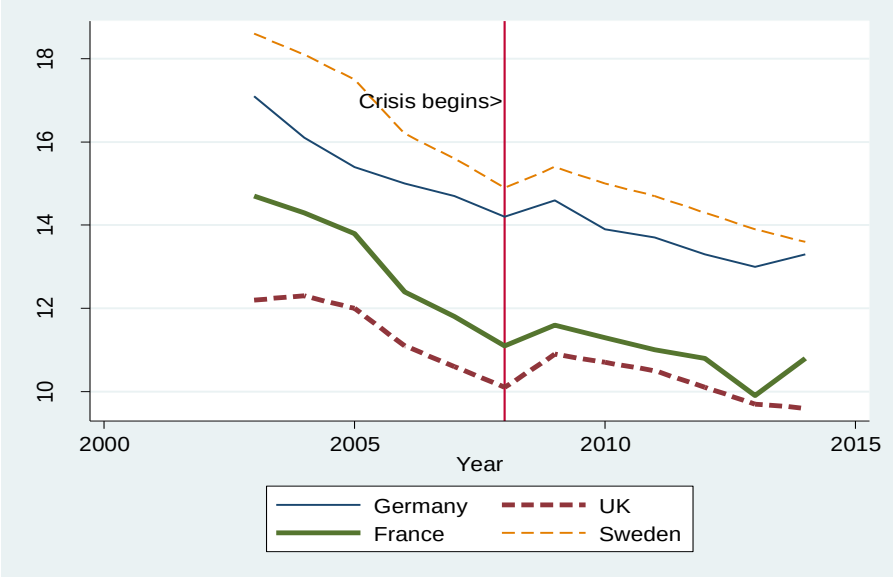


Source: IMF Fiscal Monitor 2015

Other factors, both economic and political, are important in determining the fiscal limit. There is of course the Laffer curve which is suggestive of an upper limit on tax revenue due to the disincentive effects of high taxation. However, political intolerance of high tax rates is likely to place an effective upper bound on taxation before substantial disincentives to work and labour

set in. Reflecting this, major tax reforms in the United States, the United Kingdom, Sweden and elsewhere in the 1980s and 1990s substantially lowered marginal tax rates. International tax competition also limits a country's ability to raise taxes, particularly on firms. That is countries are reluctant to raise taxes, or even to keep them were they are, because of a fear that they will lose out to other countries, with e.g. large multinationals shifting their base of activities. There is also the problem of tax evasion and the shadow economy. By definition measuring tax evasion is more difficult than measuring official economic activity as reflected in GDP. Some of the most widely used estimates are those by Schneider and his colleagues. The ones in Figures 4 and 5 are derived from Scheider *et al.* (2015). There is a downward pattern which may be due to increased awareness of the problem by governments or because of the move to credit cards (the shadow economy is a cash economy). Despite this Schneider's estimates emphasise that tax evasion is still a problem and this is particularly so in some countries more than others. Note too that immediately after the crisis there was a jump in the estimated size of the shadow economy. There is also the related problem of tax avoidance – evasion is illegal, avoidance is the use of legal loopholes in the law to reduce the tax bill. Thus the EU states that whilst there are many different estimates and reports on the scale of tax avoidance, there is no conclusive figure quantifying the scale of corporate tax avoidance, although the general consensus is that it seems to be substantive. They go on to state that one of the highest estimates refers to the amount of €860 billion a year for tax evasion and €150 billion a year for tax avoidance, i.e. up to €1 trillion a year when combined[1].

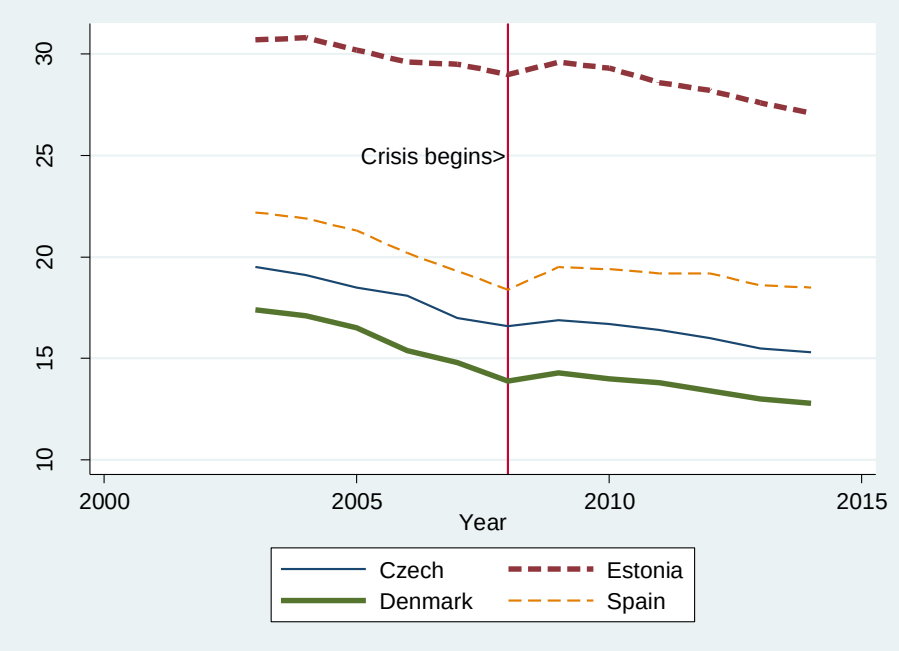
Figure 4 - Estimated shadow economy (% GDP)



Source: Schneider *et al.* (2015)

Figure 5 – Estimated shadow economy (% GDP)

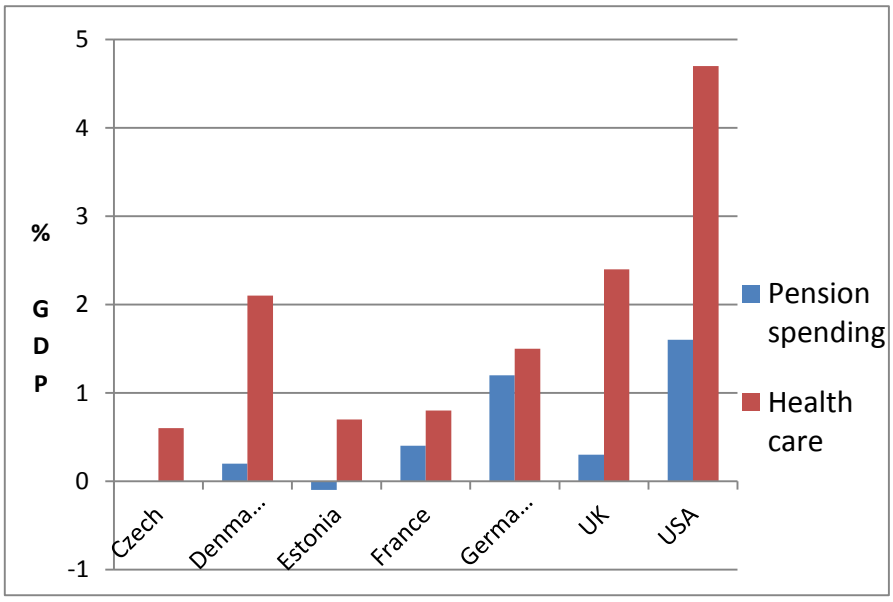
[1] http://ec.europa.eu/taxation_customs/taxation/tax_fraud_evasion/a_huge_problem/index_en.htm accessed October 2015.



Source: Schneider *et al.* (2015)

Just as the government is running up against problems in raising revenue to cover its expenditure. So there are upward pressures on that expenditure linked in part to an increasingly elderly population. These are particularly linked to both pensions and health care. The changes are mainly the consequence of an increasingly elderly population. As can be seen from Figure 6, the consequences for the USA are particularly serious. By 2030 they will be spending over 6% of GDP more than they do now on these.

Figure 6 – Projected increases in Social Spending

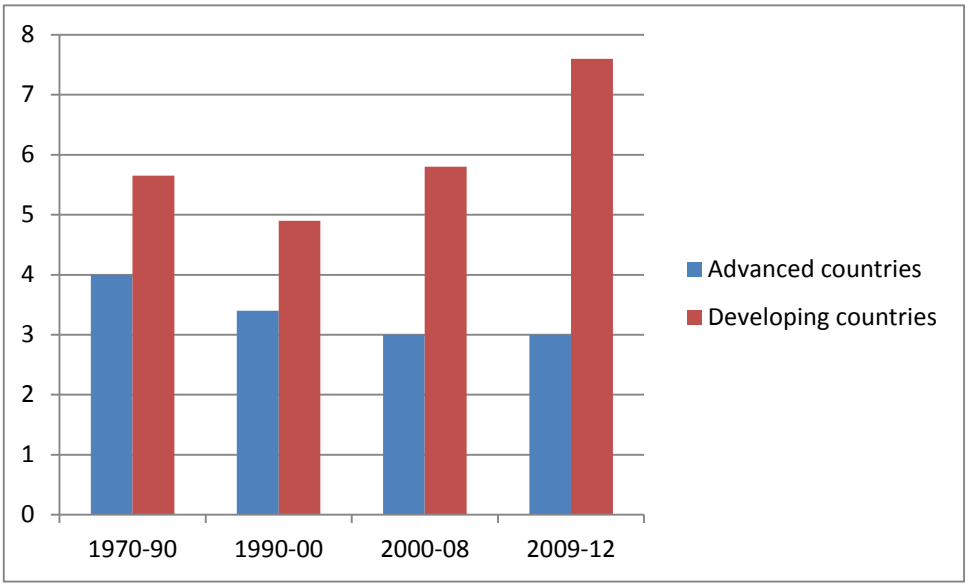


Source: IMF Fiscal Monitor, October 2013

In part governments are reacting to this by retreating a little from their welfare state commitments For example, with respect to pensions several countries increased retirement ages or tightened early retirement rules (including the Czech Republic, France, Italy, Netherlands, Spain and United Kingdom) or changed the indexation of benefits (Czech Republic, Spain).With respect to health, there have been widespread reductions in national health budgets, partially achieved through cuts in prices for pharmaceuticals and wage and salary cuts for health care workers. Notwithstanding this as we have seen spending in these areas is still forecast to increase in the future.

There have also been cuts in other areas of government expenditure. In advanced economies, as Figure 7 shows, there was already a declining trend of government investment, which the crisis has reinforced. As a result, in these countries government capital stock has declined.

Figure 7 – General Government Investment as a Share (%) of GDP



Source: IMF Fiscal Monitor, April 2014

Fiscal Policy is thus challenged in raising the revenue to meet all the competing demands for government expenditure. It is also being challenged in terms of its ability to impact on demand (GDP) in a Keynesian manner. Many countries are experiencing high unemployment, but are constrained from attempting to boost demand by running a still larger deficit. With one of the few exceptions to this being the USA, although one might question for how long.

2 QUANTITATIVE EASING

2.1 The rise of quantitative easing

In part to fill the gap left by the partial, and possibly temporary, decline of fiscal policy, a new tool of macroeconomic management has emerged – quantitative easing (QE).This is being used particularly in those countries and parts of the world with an already large public debt. It has secured low interest rates, probably boosted demand and, to an extent relatively unnoticed, provided cheap finance to governments at a time they desperately need it.

QE involves central banks buying securities, such as government bonds or treasury bills, from banks, with electronic cash that they create for the purpose. This increases the size of bank reserves by the quantity of assets purchased—hence "quantitative" easing. They may also buy the debt directly from the markets and not from banks. Different central banks have implemented QE in different ways (Fawley and Neely, 2013). The Bank of England have also argued that their version has pushed investors out of government bonds into other risky assets (such as shares and corporate bonds), improving market liquidity and reducing the cost of borrowing in corporate bond markets (Joyce *et al.*, 2011). If this is so it will have boosted (some) share prices which benefits some in the economy more than others. The phrase "quantitative easing" was first coined (Joyce *et al.*, 2012) to describe Japan's efforts to stimulate growth starting in 2001 and lasted five years. It thus predates the crisis beginning in 2008. But really became important after the crisis. The Fed (Federal Reserve Bank) began QE in November 2008. The bond-buying programme reached $85bn a month then slowing to $15bn a month. It finished, at least temporarily, doing this in 2014. It was a very substantial program. For example, in 2011, the Fed purchased 60.2% of the total net Treasury issuance (difference between new loans raised and old ones paid back).

QE adds to the size of the central banks' assets in their balance sheet and may also, as in the USA with 'operation twist', lead to a shift from short to longer term assets such as treasury bills. Because of this central banks and others often refer to QE as 'balance sheet operations'. However, this focus tends to hide the fact that QE is funding a large proportion of government debt through electronically created money at effectively zero interest rates.

There is, however considerable uncertainty as to if, to what extent and even how QE 'works', i.e. impacts on the economy. This uncertainty is reflecting in the following quote[2] from Paul Tucker, formerly Deputy Governor of the Bank of England.

"The distinct thing about balance sheet policy is that there isn't a consensus on the channels through which it works or on its legitimacy. It appears to have worked effectively in the United States and the United Kingdom, but we will learn more from experience in the euro area. I have thought that balance sheet policies work largely through the portfolio balance channel – plus a degree of signaling about future interest rates. But, up to a point, one can give credible signals without balance sheet policy. So in evaluating quantitative easing (QE), we need to know more about the effects of purchases on asset management behavior, and how induced changes in risk premia influence spending in the economy."

Other statements from the Bank of England (2015) help clarify this.

"The previous holder [of the asset] will either spend the cash on goods and services, which directly adds to overall spending, or purchase other assets, which will tend to boost the prices, and hence lower the yields, of those assets more broadly."

2.2 Inflation

From this it is clear that QE can stimulate demand, in a similar manner to fiscal policy, or it can be viewed as lowering interest rates as with traditional monetary policy, and hopefully stimulate investment and GDP. But will it cause inflation? According to the quantity theory of money

[2] http://www.moneyandbanking.com/commentary/2015/3/4/interview-with-paul-mw-tucker

this is quite likely. This is based on a relationship between 'money supply' (M), the velocity of money (V), the number of transactions in an economy (Q) and the average price of transactions (P). Linking these is an identity:

$$MV \equiv PT \quad (1)$$

Rearranging we get:

$$P \equiv M(V/T) \quad (2)$$

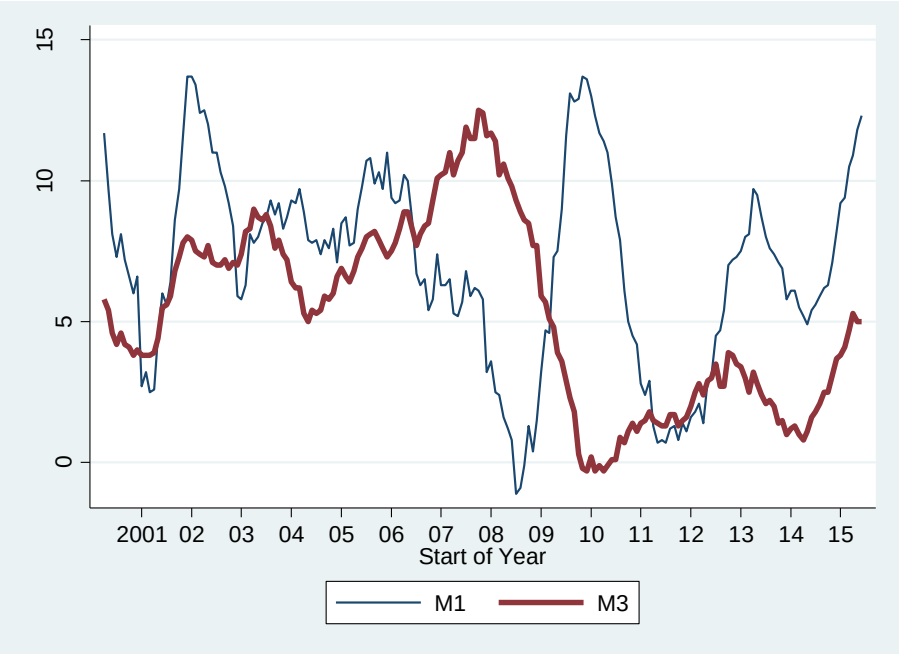
Make some assumption about V/T, e.g., it is constant (k), and we now have a theory:

$$P = Mk \quad (3)$$

Thus an increase in the money supply will lead to an increase in the price level (inflation). This is the theory associated most strongly with Milton Friedman.

The Bank of England are keen to stress that electronically creating money is not the same as printing money. But if the increase in electronically created money creates an increase in demand for liquidity the printing of money may well follow. So why has this increase in the money supply associated with QE has not led to inflation? In part this is because the increase in the money supply has been largely limited to M1 (narrow money) and not M3 (broader money). This is shown in Figure 8. As soon as the crisis started the growth in M3 declined sharply and is only now beginning to recover. The banks are more careful in lending following the crisis and also they are having to meet stronger capital requirements following banking reforms such as Basel III. But this is unlikely to last for ever and eventually an aggressive QE policy pushing up M1 should filter into M3 and then, according to the quantity theory of money, there is the possibility of inflation.

Figure 8 – Changes in M1 and M3 compared



Source: European Central Bank Statistical Data Warehouse

2.3 Quantitative easing: a different perspective

But as we commented earlier, there is much we do not know about QE. One important issue is the extent to which the government pays back the central bank, and if it does how quickly it pays it back. Conventional wisdom seems to be that it will pay it back in full, but only slowly over time (Martin and Milas, 2012). And even with this scenario it is possible that future use of QE will mean that over time QE is on an increasing path, with the central bank financing an increasing proportion of government debt. It is also possible that relatively little of the money the government has borrowed from the central bank will ever be paid back. Central bankers, governments and even economists saying it will happen is not evidence. And at this point in time there is relatively little evidence of this happening in the USA, the UK, the Eurozone nor Japan. Indeed in some cases quite the opposite.

This has led De Grauwe and Ji (2015) to argue that

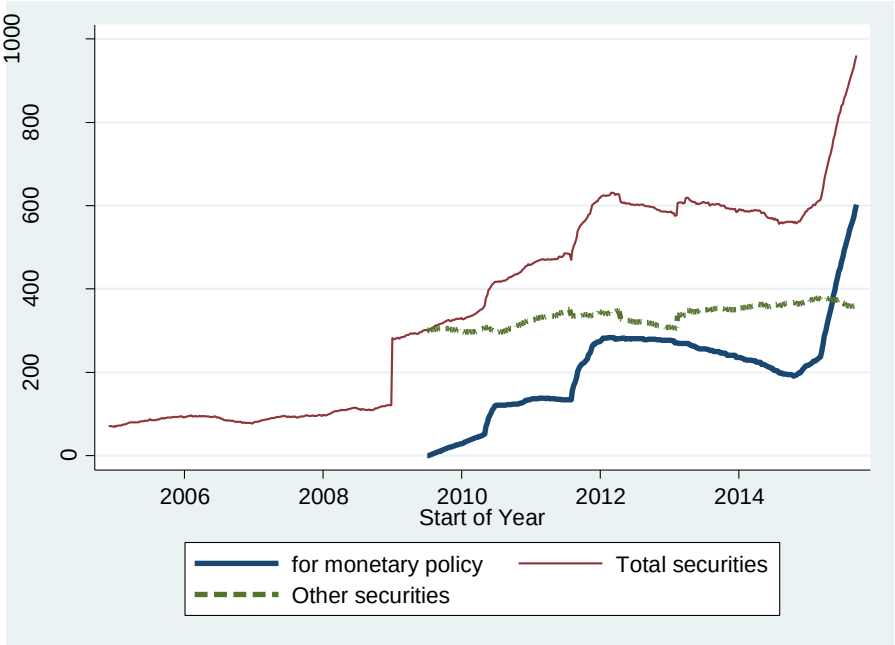
"At the moment a central bank buys government bonds the government bonds 'cease to exist'. All that is left of the bonds is a monetary liability of the central bank (which is one branch of the public sector). Of course, typically the central bank keeps the government bonds on its balance sheet but they are just a claim of one branch of the public sector (the central bank) against another branch of the public sector (the government)."

They go on to argue that this has fiscal implications in that taxpayers pay less taxes because the bonds held by the ECB do not lead to interest expenses of the respective governments anymore.

3 QE IN THE EUROZONE

It has been suggested that the European Central Bank (ECB) was late to begin QE, although in reality they have been acting to support the financial system directly and governments indirectly for several years. Regardless of this however, they have now begun 'orthodox QE' in earnest. Starting at the beginning of 2015, the ECB has and will inject at least €1.1 trillion into the Eurozone economy, buying €60bn bonds each month from banks. This is shown in Figure 9. Securities held for 'monetary policy purposes' include all QE activities by the ECB. By week 37 of 2015, 23.3% of the ECB's total assets come under this heading, having started from nothing a few years earlier.

Figure 9 – Securities held by the ECB for monetary policy and other purposes



Source: European Central Bank Statistical Data Warehouse

4 OPTIMAL QE?

What is the optimal level of QE? On this there is no literature. However, if there are no adverse consequences, then in theory there should be no limit to the extent to which central banks can do this. But few people would argue for such a position and thus there are indeed likely to be adverse consequences, most notably with respect to inflation which takes us back to the quantity theory of money. It is important to realise that we are still at the beginning of the QE experiment. Until we have more information, caution is advisable and the enormous boosts being given by central banks such as the ECB, the Fed and the Bank of Japan may well be seen to have been a policy mistake in the future.

There are other possibilities to consider. Firstly, the central bank is financing a large proportion of government expenditure. Does this reduce central bank independence, either now or potentially in the future? Secondly, there are distributional consequences to consider. If the central bank simply buys government bonds, then the distributional implications of QE are largely limited to indirect effects (what would have happened to taxation and interest rates without QE). Nonetheless, as we saw part of the rationale for QE is to boost asset prices, and thus asset holders (e.g. shareholders), or at least some asset holders, will benefit more than others. However, QE can go beyond this, there can be direct effects. For example the Fed purchased large amounts of housing-related debt, subsidising the housing market over other sectors of the economy. This benefited some in the economy more than others (Orphanides, 2015). There is some evidence, although no consensus, that QE has increased inequality (Claeys *et al*., 2015). There are particular problems for the ECB which other central banks do not face. The Bank of England buys UK government bonds. The Fed buys US government bonds. Whose government bonds do the ECB buy? What rule should be followed with respect to Eurozone countries? In proportion to GDP? Population? Government debt? In this respect, it is unlikely

that any rule is ever perfect or without potential bias. They risk favouring one country over another. The ECB may also buy the assets of (partially and fully) state owned companies such as Italian utilities Enel SpA, Snam SpA and Terna SpA - Rete Elettrica Nazionale. But again which countries, which companies? And is this giving unfair competitive advantage to these companies? Such effects are clearly far beyond the remit, as we have known it until now, of central banks. How long will this growth in powers of the central banker continue? What steps will be taken to co-ordinate their actions with governments?

Conclusions

When the crisis began it seemed likely that as in the 1930s it would cause a revolution in economics. What was unexpected was that this revolution would come from policy makers in central banks not academic economists. But it is far too soon to make a full judgement on QE. In the meantime caution should be the watchword. When you go down a road never before travelled, you should go slowly. It does seem to us unlikely that governments will repay in full what they have borrowed under QE. But as the adverse impact of this on the economy gradually becomes apparent, it also appears to us highly unlikely that 'unpaid QE' will ever fund government expenditure to any considerable extent in the long-run.

It thus probably remains the case that people will have to pay for the public services and welfare systems that they desire and this may well prove to be the point in time at which the inexorable growth of the state is reversed.

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VOTERS PREFERENCES WITH REGARD TO SOLVING OF THE PUBLIC FINANCES CONSOLIDATION PROBLEM

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Abstract

The last global economic crisis has been linked with many economic problems. One group of particular problems has followed another group of problems and it is linked with different phases of the crisis. In this article we focus on the problem of the public finances and growing public debt of the particular countries. This is the part of so-called debt crisis. On the one side, countries have to focus on the public finances consolidation. On the other side, countries have to face decrease of the economic performance and growing unemployment. The aim of all countries is almost the same in this area, however, there are several possibilities how to reach it. They can choose increasing of the economic growth no matter how the consolidation continues (in this case, consolidation actions will arise as a side effect of the extent economic growth). Another possibility is to focus firstly on the public finances consolidation and consequently on the sustainable economic growth. The choice must be done by particular country by the means of its politicians. Politicians are elected by the citizens of the country. Focusing on the general elections held in 2012 and 2013 in the European countries and their results, we can identify which solutions for public finances stabilisation citizens prefer in this period of crisis.

Keywords: public finances, public choice, debt crisis

JEL Classification: E61, E62, G01, H30, H68

1 PUBLIC FINANCES AND PUBLIC CHOICE

There are several possibilities how to solve problems of public finances, mostly of the deficit and public debt. People can chose easy and quick solutions, that seems to be painless at the first glance but which results and consequences are more than doubtful. On the other side, there are solutions and actions that are severe but that can lead to the step by step stabilisation and return to the prosperity. Beside economic approach we must consider also political preferences of the people. People can chose between left-oriented and right-oriented political approaches to the problem solving. The aim of this paper is to focus on the political preferences linked with the public finances problems solving in the period of debt crisis in the chosen countries of the European Union.

Public budget is created by several partial budgets. In Slovakia, as well as in most of the countries in the word, state budget represents the largest part of the public budget. Public incomes are used to finance public expenditures (they are inevitable for realising all state activities). According to Peková, public revenues represent relationships of the public budgets and eventually also other out-of-budget funds (mostly purpose-made ones) creation (Peková, In: Medveď, 2011, s. 167). Hamerníková defines public finances as revenues of the public

budgets (both state budget as well as budgets of regions, municipalities, para-fiscal funds and budgets of health insurance institutions) (Hamerníková, 2010).

There are many factors that influences equilibrium in public finances. They influence creation of the short-term as well as long-term disequilibrium (Sivák, 2007). One of the most important factors are effects of the economic cycles. That is why the aim of the anticyclical policies of the state is also to identify and to anticipate reasons of economic values fluctuations, to influence amplitude of particular phases of the economic cycle and to adapt actions for reducing negative consequences of the economic development, including deficit and public debt development (Uramová, 2010).

In general, we can characterise budget balance as discrepancy between the budget revenues and expenditures within one fiscal year. The budget deficit is the situation when budget expenditures are higher than budget revenues in a certain period. On the other side, if budget revenues are higher than budget expenditures, it is a budget surplus (Dvořák, 2008). Budget deficit and government debt have become a standard situation for many countries. This situation, however, can cause many problems for further generations. There are many macroeconomic factors that can influence budget deficit and public debt. The most important of them are interest rates, inflation and the methods for its calculation (Medveď, 2011).

At the end of 1950s and beginning of 1960s, economists realised that instruments which are standardly used to describe and explain behaviour of consumers and companies can be used also to describe behaviour of voters, governments and political representatives (Ochrana, 2003).

Mostly economist James Buchanan focused on this approached. In 1986, he was awarded the Nobel Prize in economics for his development of the contractual and constitutional bases for the theory of economic and political decision making. He started his research in 1950. Later, he was followed by economist Gordon Tullock. Altogether, they published series of articles and books and they created fundaments for a new sub discipline called "theory of public choice". They argued, that the basement of the political market analysis (similarly to the private market analysis) should be rational individuals who follow their own interests. They declared that the state is an organism independent from the individuals who created it. The main objective of individuals is to analyse how effectively governmental institutions allow individuals to express and to realise their preferences in the area of public goods and policy (Johnson, 2008).

The theory of public choice focuses on decisions of governments about taxes, expenditures and other tools of state interventions to the economy. It also analyses rules of political system of decision making (Peková, 2008).In our case, it is a connection between the public choice and public finances. Even more, this connection is specific because of the voters´ preferences point of view on the debt crisis solution (it means high deficits and public debts of the countries).

2 DEBT, DEFICIT AND RECESSION IN THE EUROPEAN UNION

At the end of 2011 and beginning of 2012, economic recession was evident again in many European countries. Several countries faced recession (decline in GDP for two consecutive quarters) already at the end of 2011. Many other countries followed in 2012. Many countries rested in recession also in 2013. In the period of recession, it is very difficult for states to keep public finances under the control. It was necessary to reduce high deficits from the previous years and public debt. The mean public debt in the European Union was over the 80 %; in many countries public debt exceeded 100 %.

The European Union set an ultimatum to reduce deficit under 3 % for some countries already in 2012. Most of the countries (between them also Slovakia), however, had to reduce deficit by the end of 2013. That is why European countries adapted actions linked with decreasing of expenditures and increasing revenues, mostly through the increased taxes. However, it was not enough. According to the "Fiscal compact" that was concluded that period, countries have to decrease their deficits more and more and they also have to find solution for solving their debts problems.

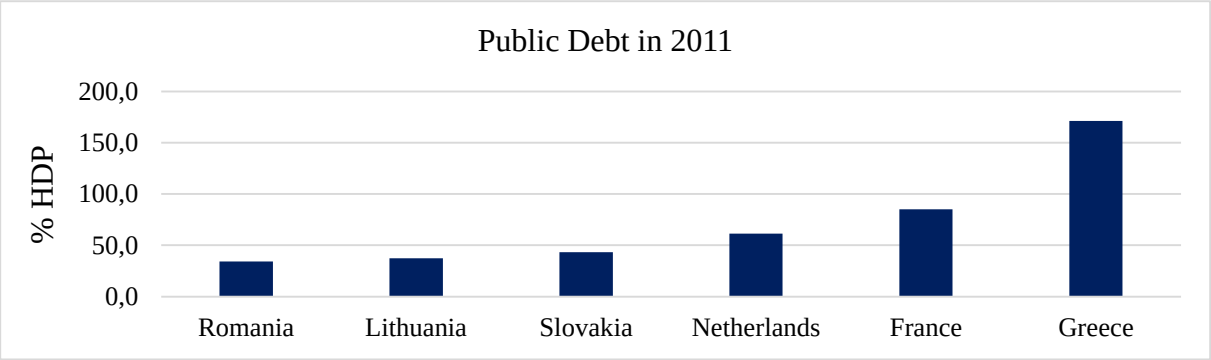
There are several factors that have influenced way how the states solve this situation. So far development and current status of the countries play an important role in this situation. There is evidently different situation, in case countries try to re-establish economic growth and prosperity, if they have low public debt and deficit, and high level of competitiveness, compering to countries in which debt and deficit are high and even more they have to face bankruptcy.

One of the key actors in making decisions about public finances consolidation are citizens of the state. They cannot do it directly. They can do it by the means of politicians (citizens vote for them in public elections and politicians should fulfil they election promises). Examples, how decisions on decreasing public debt and public choice are linked together, are preferences of the voters during the general parliamentary elections in 2012 and results of these elections. There are, of course, more possibilities how to analyse and check preferences of the voters and adapted actions. We have, however, decided to analyse exactly above mentioned approach – election promises and preferences of the voters expressed in the election results in chosen European countries.

Theoretically, there could be a time lag between the elections and consequently adapted actions. In this article we, however, abstract from this time lag.

In 2012, there were general parliamentary elections in six countries of the European Union – in France, Greece, the Netherland, Lithuania, Romania and Slovakia.

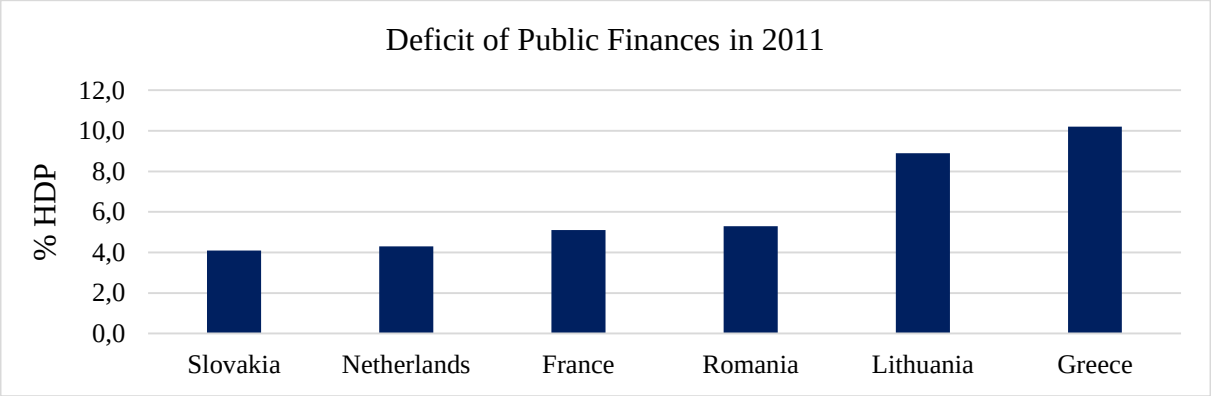
Figure 1 – Public debt in chosen countries in 2011



Source: own elaboration according to Eurostat data

In the graph 1, there is information about public debt of chosen countries in 2011. The best situation was in Romania, with public debt of 34.2 % of GDP. The worst situation was in Greece, where the public debt reached 171.3 % of GDP.

Figure 2 – Deficit of public finances in chosen countries in 2011



Source: own elaboration according to Eurostat data

In the graph 2, there are data on deficit of chosen countries. In all six countries, deficit of public finances was significantly high in 2011, much higher than 3 % set by Maastricht criteria. The worst situation was in Greece (the same as in case of public debt), where the deficit was 10.2 % of GDP. It is clear from these two graphs that all six countries had to focus on adapting actions for consolidation of public finances. This situation was well known also for most of the well-informed voters in all of these countries before the general parliamentary elections. Even more, possible solutions for solving problems of public finances were included in the election promises of the political parties. In the following text, we will focus on the preferences of the voters according to the results of the general elections in chosen countries.

3 GENERAL ELECTIONS IN CHOSEN COUNTRIES

WE will, step by step, analyse results of the general parliamentary elections in six European Union countries. All elections were in 2012. Even the economic situation in these countries was different before the elections, there was a common feature in all of them – it was necessary to adapt actions for solving problems of public finances in all six chosen countries.

France

According to Aktualne.sk (Liberáli a socialisti sa v Holandsku dohodli na vytvorení vládnej koalície, 2012) and BBC (France Hollande: Ayrault government takes pay cut, 2012), general elections in France were realised in two rounds. The first round took place in 10th June and according to it, the winning party should have been left oriented party Parti socialiste – PS with the leader François Hollande. This expectation was confirmed in the second round that took place one week later. Parti Socialiste won the general election with the significantly more votes than Nicolas Sarkozy´s party. Parti socialiste year ago won the majority also in the Senate, in 2012 the party won majority also in the National Assembly. It means that the position of left oriented political parties in France is so strong, that they represent majority in both chambers of the Parliament, as well as the president of France (presidential election took place even before the parliamentary election, and the Francois Hollande as the head of Parti socialiste won this election). I tis very important because political system in France is hybrid, parliamentary and presidential and president of the country has significantly lot of political power.

The fact, that the left oriented parties won alt he important political posts in France can indicate the political tendencies in the country. It was confirmed in 2013, when the new budget was

introduced. Instead of restrictions and savings in expenditures, country has chosen higher taxes for large companies and rich persons. The examples are already notified 75 % tax rate for persons whose income is more than million euro per year and 45 % tax rate for persons with annual income higher than 150.000 euro. The government, however, declared that in case of nine citizens of ten, the taxes will not increase. Besides, government has promised frozen of the government expenditures to the minimum (except the debt payoff and pensions), abolish limits of property taxes, decreasing of tax benefits for large corporations and impose a tax also on capital profit and dividends. Comparing for example with Germany, France has preferred to focus on the growth support.

The government, in fact, declared that actions in 2013 will focus more on tax increase than on savings in expenditures. By the means of adapted actions, the socialistic government wanted to keep the promise, as well as the condition set by the euro area – to decrease the budgetary deficit below 3 % of GDP in 2013. In 2012, the government expected budgetary deficit on the level 4.5 % of GDP (comparing to 5.1 % in 2011).

These plans, however, were not fulfilled. The budgetary deficit was not below 3 % in 2013, even more it was about 4 % of GDP also in 2014. The government, despite of its strong position, did not resist the whole electoral term and by the present time it was two times dissolved. After each dissolution, the government was newly constituted with the new prime minister. By the time, attitude of the government towards the budget and restrictions has been changed and government is already ready to adapt more restriction actions (Francúzska vláda podala demisiu, premiér zostaví novú, 2014).

Besides, also the 75 % tax for rich society seems to be a fiasco. This tax, in the meantime, was cancelled because it did not lead to the anticipated revenues (Exit la taxe à 75 % qui a sapé l'image de la France, 2015).

Greece

The situation in Greece was specific comparing to the rest of EU. Greece has been on the edge of a state bankruptcy for a long period and economic situation in this country has strongly influenced instability not only in Greece itself, but also in the whole monetary union.

According to sme.sk (Grécka vláda sa otriasa, budú vyššie dane aj drahšia MHD, 2012) and euroactiv.sk (Grécke voľby vyhrali proeurópski konzervatívci, 2012), the highest public debt in the EU, high deficits, decreasing of ratings of all world rating agencies have caused that Greece became country the worst rating in the world in 2011.

The pressure from the financial market towards Greece became gradually extremely big and the conditions for Greece to get the financial loans became unbearable. In 2010, Greece officially asked also European Union for the financial help. The EU provided Greece a loan of 110 milliards euro. However, it was not enough and in 2013 EU approved another 130 milliards euro for Greece. The EU set conditions for Greece to fulfil for the real possibility to drawdown the loan – to decrease salaries and to reduce staff in public administration, to decrease old age pensions and to increase age of retirement, to increase taxes as well as to introduce new taxes, to close state organisations that are in loss, to privatise state organisations. Restriction actions, however, have not led to the expected effects. Also due to the deep recession Greece has to face from the beginning of crisis, public debt and deficit are still very high. People in the country

repeatedly protest and strike against the restriction actions and the government tries to adapt further and additional actions.

That is why also people in Greece had to make a decision in general election in 2012 which possibility for solving problems in country will be preferable. However, situation was different from other countries. The question was not whether restriction actions are realised by the means of government savings or increasing of taxes. The question was, whether there will be any restriction actions at all.

The political campaign before the elections was not the standard battle between the left and right oriented parties. The parties were divided according to their attitude towards reforming actions, saving packages, and mostly towards acceptance of the financial loans from the international creditors.

In the elections, people finally chose pro-European parties, even if it meant further restrictions, increase of taxes and subsequent decrease of the life standards. The winning party was conservative New Democracy and it also formed new government with the Antónis Samarás as prime minister. In the coalition government, New Democracy cooperated with PASOK and DIMAR, and they covered 179 mandates altogether in the parliament (out of 300 seats).

Situation of the new government had not been easy from the early beginning. I tis evident also from their attempt to approve set of restriction actions. These restriction actions included decrease of the salary of state bureaucrats and soldiers, restriction of the children allowance only for those families, whose income was lower than pre-set amount. Families, whose income is above the average could not get the children alliance. Actions also included increase of the retirement age for 67 and reduction of the old age pension. Difficulties in approval procedure were evident, negotiations were extremely long and even not all members of coalition did not agree with these restriction actions. This situation ended in reducing coalition after some of members have left it.

Situation in Greece has not been positive even in the present time. In 2014, after the third unsuccessful attempt to elect the president, the government was dissoluted. At the beginning of 2015, there were another general parliamentary elections, where the party SYRIZA got most of the votes. This party has been against restriction actions and it has also refused orders of the European Union. However, difficulties with public finances and problems that Greece has to faced are so massive, that SYRIZA had to draw back from its election promisses and starts with the restriction actions (Grécke voľby vyhrala strana, ktorá chce škrtnúť dlh. Zostavila už aj vládu, 2015).

The Netherlands

We can say that necessity of the parliamentary elections in the Netherlands in 2012 was the direct consequences of the budget restrictions urgency. The previous government was dissoluted in 2012, just after the situation, when members of one coalition party – right oriented anti-European Party for Freedom with the Geert Wilders as a leader – refused to support restriction actions. They were also not able to agree with the rest of coalition on the state budget.

In further early parliamentary elections that were held in September, the pro-European parties won. The coalition was created between the winning party People's Party for Freedom and Democracy and Labour party. I tis unusual coalition of the liberal and traditional social-democratic party with many political discrepancies. However, both of the parties follow the

pro-European approach, what was the most important at the time of coalition creation. In the early election, the anti-European Party for Freedom and eurosceptic Socialist Party totally failed (Liberáli a socialisti sa v Holandsku dohodli na vytvorení vládnej koalície, 2012).

Lithuania

Voters in Lithuania decided that parties of the previous coalition remained in opposition. The centre-right government was replaced by the new government with leading Social Democratic Party of Lithuania, left oriented Labour Party and Order and Justice Party. These three parties agreed on creation of the coalition, however there are complications because of the Lithuanian president who refused to appoint the government. Reason was, that president did not want to support Labour party because of the suspicions that this party was buying votes before the elections. That is why president addressed the Constitutional court to decide about the legality of the elections 'results. It was for the first time in the Lithuanian modern history that president has refused to appoint the government that has majority in the parliament. At the end, to solve the political crisis, president agreed that there is no any other possibility to constitute the government and she appointed Algirdas Butkevičius (leader of the Social Democratic Party) prime minister (Litva má novú vládu, povedú ju socialisti, 2012).

Slovakia

In Slovakia, there were general elections in 2012 as well. As well as in many other countries, it was necessary to launch early parliamentary elections. According to pravda.sk (Predčasné voľby budú 10. marca 2012, dohodli sa lídri strán, 2012), previous government dismissed because of the disagreement of one coalition party (Freedom and Solidarity, Sloboda a solidarita) with the euroval approval. In the following early elections that were held in March, party SMER – sociálna demokracia won the campaign. Party SMER covered 83 out of 150 chairs in the Parliament. This situation allowed that party SMER was able to constitute the government without support from any other party. Centre-right parties created the opposition.

Between 2008 and 2018, Slovak Government have participated by more than 90 % on the public debt of the country. The rest of the public debt was created by debts of higher territorial units and municipalities (Mazúrová, Kollár, 2014).

The new government promised to continue with the consolidation of the public finances and decreasing of the debt (according to EU decision, public debt should have been decreased under 3 % of GDP v 2013). Most of the actions were on the income side of the state budget and only marginal actions were adapted on the outcome site. The government refused to increase value added tax (they argued that increasing VAT will extra charge mostly low income families). On the other side, they preferred to get higher incomes from the higher taxes for rich people and increasing income tax of legal entities. Another action to increase state budget income was reducing levies to private pension funds and increasing levies to the state Social insurance institution. The government advocated more actions on the income side of the budget by the lack of time for the structural reforms if they wanted to fulfil the deadlines in which savings must became obvious (Dlhovú krízu sme zverili socialistom. Je to na nich!, 2012).

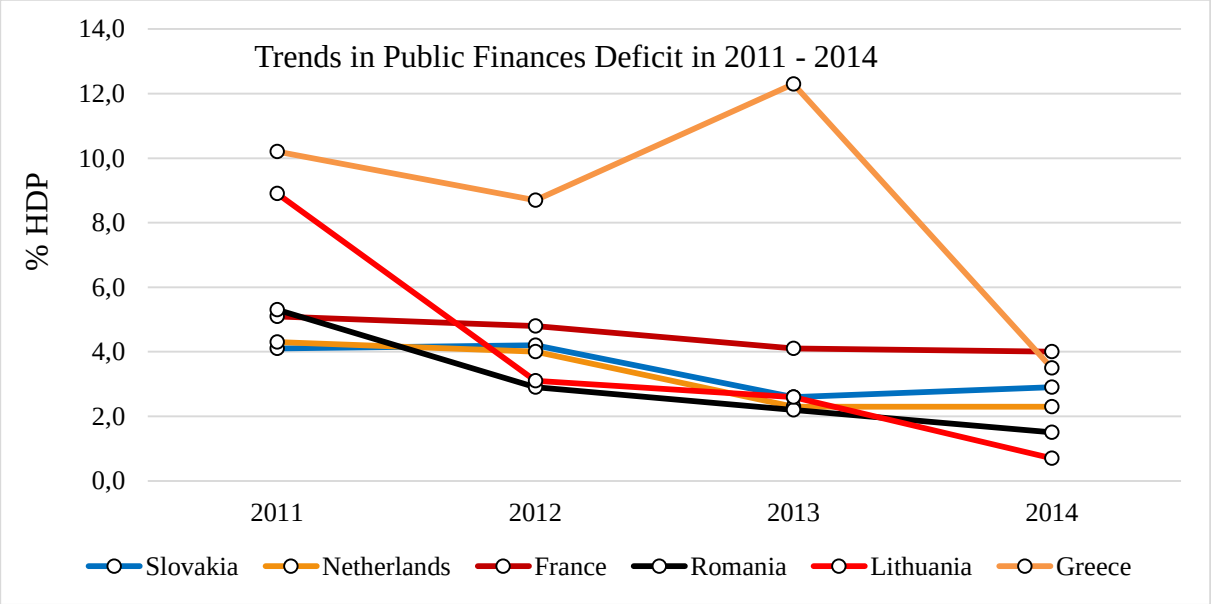
Romania

The last country, in which general elections took place in 2012, is Romania (elections were in December 2012). The party that governed the country before the elections (with the leader and Prime Minister Victor Ponta), got a majority support also in the elections. Within two weeks after the elections, new centre-left coalition was created. This coalition has two thirds support in the parliament. As an old and new Prime Minister Victor Ponta declared, Romania would like to continue with the "pro-European" approach (Rumunsko: Parlament schválil novú vládu premiéra Pontu, 2012).

The power of a new government is evident also according to the political stability. The first serious problem occurred only in the half of 2015, when Victor Ponta's government survived a no-confidence motion in Romania's parliament. It was initiated by the opposition, however it was a fiasco, because opposition was missing 287 votes in parliament for successful no-confidence voting (Vláda rumunského premiéra v hlasovaní o nedôvere obstála, 2015).

According to the results of the parliamentary elections in all six countries, we can conclude that voters preferred left-oriented, eventually conservative political parties. According to the attitudes towards European Union, voters preferred pro-European approach and political parties that want to continue with restriction and hard actions to stabilize public finances.

Figure 3 – Deficit of chosen countries in 2011 – 2014



Source: own elaboration according to Eurostat data

As we can see on the graph 3, there were decreasing tendencies in public finances deficits from 2012. Significant fluctuation in the trend was in Greece in 2013. Slight increase of the deficit was also in Slovakia in 2014. Beside Greece, also France does not fulfil Maastricht criterion of 3 % of GDP. In France, public finances deficit decrease every year, however, decrease rate is slow. Even in 2014, deficit was about 4 % of GDP.

4 DISCUSSION AND CONCLUSIONS

In this article, we focused on the public debt and public finances deficit analysis in chosen countries of the European Union, as well as on the preferences of particular countries and their citizens to solve problems of debt and deficit.

The influence of the government and its connection with the public expenditures and public debt are the subject matter of many foreign studies and researches. We can find interesting conclusions and findings in the papers of Persson and Tabellini (2007), Milesi-Ferretti, Perotti and Rostagno (2002), Blume at al (2009), Roubini and Sachs (1989), Vučkovic and Sertic (2013), Frank Naert (1990) and Balassone Giordano (2001). In their studies, they stress mostly the fact that government expenditures are higher in case of proportional government that in case of the majority government. According to them, if proportional government is transforming to the majority government, the government expenditure will decrease. They also agree that fragmented government can cause higher budget deficit as well as higher public debt. These conclusions are not directly linked with the approach we have used in our article, however it is possible to utilise these results to get more complex overview about the studies subject matter.

In our article, we have chosen countries, in which there were general parliamentary elections in 2012. According to the political campaign and results of the elections we tried to identify preferences of the voters regarding the today most serious economic problems and their preferences regarding the orientation of the political parties. In the chosen countries (France, Greece, The Netherlands, Lithuania, Romania and Slovakia) we analysed results of the parliamentary elections in 2012. According to the analysis, we can sum up three most important conclusions.

First of all, voters in these countries have chosen pro-European political parties that support policy of the European Union, according to which responsible approach and consolidation of public finances are inevitable.

The second conclusion is, that voters have voted for left-oriented parties in most cases. According to political programs of these parties, consolidation of public finances should be rather through increasing taxes than reducing expenditures. However, taxes should not be equal and higher income groups of people should be taxed more. Nevertheless, there is always a risk, what will be the real effect of higher and unequal taxation and what will be the indirect consequences of adapted actions.

The last conclusion is linked with the character of elections. In two of the six countries, there were early elections. Even more, another early elections took place in 2013 in Czech Republic and Luxembourg. The early elections could indicate that previous governments were not able to solve problems of crisis adequately. Consequently, voters express their claim to change attitudes of the country towards the adapted actions.

According to us, these conclusions are not surprising. Voters more or less realize that it is necessary to solve the situation with public finances. However, they prefer less complicated and less painful solutions form their point of view. Our attitude presented in this article, connection between the public choice and public finances, open also many other questions for further discussion. It will be possible to analyse trends in voters´ preferences according to the crisis development in the long period. Also it is possible to find similarities or specifications of the countries (chosen countries have had historically different political culture – both from the elected parties and citizens who apply their voting right point of view). Also connections between the election results, government structure (left or right oriented, coalition government,

one party government, eventually also minority government) and extend of the public expenditures. There are also other open questions that could be analysed in the area of public choice and public finances interactions.

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A MODEL FOR THE CREATION AND SUSTAINABILITY OF ECONOMICALLY JUSTIFIED COSTS IN SOCIAL SERVICES

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Abstract

Normative financing of social services is a long-standing problem of all transition economies, a market for heterogeneous social service providers and the state is significantly resigned to financial responsibility. In Slovakia this was inappropriately transferred to the municipalities and to citizens who are dependent on the help of the others. Still, there is no consensus on the degree of financial intervention from the state and other stakeholders in the provision of social services. In this contribution we present a model of its own creation and funding of economically justified costs (EJC) to social services. The model in Slovakia has been assessed and recommended by both, professionals and a general community. It is based on three financial pillars that have mandatory and also optional multi-source financing sources and includes forms of participation of different actors in the field of social services. These three pillars are followed by a fourth - optional pillar of funding the social services. The proposed model aims to maintain financial sustainability, accessibility, and quality for the produced public social services. The proposed model for the first time introduces into the Slovak social insurance system for all policyholders a new obligatory contribution for a long-term social care. Thus the mandatory funding sources for the policyholders in case of need of social services should be sufficiently guaranteed.

Keywords: social services, economically justified costs, normative financing

JEL Classification: H53, H55, H59

1 RISKS TO THE SUSTAINABILITY OF SOCIAL SERVICES FUNDING SOURCES

Under EJC, it is understood that it optimizes resources provided to implement social services. All EJC are standardized and specified limits that may be mandatory and optional. Creation of economic and non-economic standards and norms is fundamental in the development and quality of social services in the Slovak Republic. The process is essential, as it is not a sustainable condition where the growth in demand for social services, there are a national and commonly accepted standards and norms of their operation. A certain positive event in this area is the recent Slovak amendment to the Act on Social Services, which entered into force on 1.1.2014. Still, there is not a common agreement from what sources, and to what extent, will the services be paid and how will it guarantee their independence, quality, and sustainability.

Main risks can be divided into four levels:

a) The most vulnerable in uncertain economic space are the ones who are dependent on the help of others - potential and current clients of social services. The accentuation of their social situation (low disability and old-age pensions, health care costs and dependence, worsening economic conditions in the family due to job loss, additional costs in providing social services, etc.) and necessity of aid in the form of social services

and a social reminder to the public interest and solidarity. But rising costs to their sustainable standard of living becomes the risk of further alienation from everyday life.

b) inconsistencies in the subsidy policy are particularly felt by private providers, who annually until the end of February, experiencing stressful situations and uncertainty about the number once again of "contracted" places on the higher territorial unit level. The economic uncertainty is very difficult to model for the strategic vision and development services in the region where they operate. Although financial shortfalls must at least be partially offsetted by increased payments from clients interested in the provision of social services, it is comparable to the interest of the same services provided by public producers.

c) At the level of regional government (the higher territorial unit or HTU) is also found quite a challenging fiscal policy. The impact of the global economic crisis on regions is considerable, albeit different. Directly linked to the economic strength of a region is the affects of social potential. Traditionally poor Slovak regions are confronted with unbearable rising unemployment, poverty, and social exclusion of its citizens. The above and other important factors reduced the revenue budgets of the HTU. Consequently, there is a risk that the reduced budgets for social services, which by law are directly responsible (public providers), will be unfaithful providers. Only through the responsibilities regional management and council members will there not be significant reductions in the size of their social budgets, even in some of the HTU there is not changed.

d) The state level is analogous to the economic situation, with increases the other tasks, the government must and wants to solve for the sake of social peace and the elimination of the impact of negative externalities on the population. Upward pressure on state subsidies for social services has long been obvious and therefore various one-off, but non-systemic solutions are not perspective. It is necessary the legislative branch guarantees a sustainable economic environment for all registered providers of social services who apply for their service on a non-profit principle. It's one of the reasons why the public debate, we offer a model of sustainable financing of social services.

2 AIMS AND SUBJECTS OF MODEL EJC

The main objective model of sustainable financing system we consider to be EJC, guaranteeing clear multi-source financing of social services. It also identifies all the stakeholders, their financial stability, participation, and perspective of sustainability and quality of development assistance.

The main stakeholders include:

- State legislative, conceptually, professionally and methodically, control and financial participation is based on social acceptance of the principle that social services are performed in the public interest and in the area of social entrepreneurship,
- Local authorities
  - ✓ regional government (HTU) - in professional and methodical, regional-conceptual, award / cancellation of the registration of private providers in the central register of entities operating in social services, with financial participation and control,

✓ local governments (municipalities, cities) - in the original and transferred responsibilities, community needs and plans for the development of social services in their territory and the financial participation of their fellow citizens dependent on the help of others,

- founders, producers and providers of social services (all legal forms) and providers - in meeting the demand for social services, financial participation and guaranteeing the quality of their services; operators in the commercial business is based on statutory legislation, excluded from public subsidies, which we consider to be correct,
- the client and their family - in self determination of the need for assistance, respectively, what form of social service is needed (home care, outpatient services, selected social service with weekly or year-round residents),
- donors and sponsors (legal and natural persons) - the financial and non-financial assistance for specific purposes, in the form of tax assignation (2-3%), in the development and implementation of various domestic and international projects,
- volunteers - in all areas and activities that take place in the social and support services.

2.1 Obligatory and facultative norms in the proposed model

A norm is percieved that a normative system of economic and non-economic instruments through which is chosen the criteria and characteristics / indicators, something that is a universal and standardized measurable value (obligatory norm), or something additionally measured and normalized (optional normative).

The EJC model that is introduced has two basic norms: obligatory and facultative.

a) Obligatory norms in social services

They are eligible norms that create a fair and universal EJC formation of different types and forms of social services for all its providers.

Mandatory norms constitute a guarantee:

- The provision of social services as priority service, and security/implementation of health services, as a secondary but essential services (non-economic aspect of the norm),

- Participation of government and clients with operating costs (economic - financial aspect of the norms).

The pricing system of social services (EJC) in the model quantified by the three obligatory pillars and four obligatory resources. We follow the acceptance of the principle that each pillar of the EJC funds has universally eligible components. This principle as a percentages (proportionally) guarantees the delivery of social services funding sources to provide social services to all stakeholders, including themselves.

Mandatory financial norms guarantee the following four sources:

- state - as a universal financial contribution according to the degree of reliance on social customer service; in the model perspective, we propose to shift of responsibility to the state social insurance, if it establishes mandatory contributions to social service,
- health insurance - according to the degree of reliance on client‘s supplementary health services,

- local authorities - as it nationally determined the amount of contribution to the running costs by type and by providing social services and the capacity of social service facilities,
- client / family - as determined by the amount of national contribution to the running costs and contracted type and form of social service provision.

b) Facultative financial norms in social services

These are unvested and complementary norms that take into account several non-universal criteria for operation. Additional financial norms and are accepted:

- the proportional participation of government and client operating costs,

- financial possibilities and priorities for local authorities,

- the right to choose the client‘s quality and standards of social services provided to him (standard, above-standard).

Give this principle of the group’s non-eligibility for financial norms, the model of EJC accept different participation in operating costs, or even zero. It concerns two pillars and two sources of funding for social services.

Facultative financial norms provide these resources:

- local authorities - after deduction of the amount of their universal obligatory contribution to the operation, determine the additional component contribution to social service providers in their area. Portrait of an optional contribution for the operation determined by:
  - concept development of social services and prioritizing types of social services in its territory
  - current financial possibilities of the budget and approval in the form of a generally binding regulation (GBR) for the council for a period of two to three years for all registered social service providers who operate in the area of social entrepreneurship and in their territory,
  - Generally accepted regional and local disparities and other differences (coefficient of energy consumption, income of potential clients of social services, demographics, unemployment, etc.), amount of such subsidies may be the same or at the time or in the area,
  - The capacity of the social service facilities.
- client/family – is according to the results of the income of the client paying for the operating costs of the service. It accentuates the principle of having a choice of service provider. There may be a situation where the client will not pay the price for the service.

The EJC model allows for the possibility of facultative financial contribution to the client / family as the commision could be increased in the event that it would require superior quality of service (eg. independent luxury residential living).

The EJC model assume not only the diversification of obligatory and facultative contributions, as well as a clear definition of who and how many should, and how much could, be put into the system. The provider of social services will be guaranteed by the EJC, that the client, and his family will be satisfied with the quality of services provided.

2.2 Sustainable funding model for EJC

Within the sustainability of financing social services, the model allows for three basic pillars of financing plus one extra pillar. The essence of the philosophy of sustainability of funding is that

each pillar is an obligatory and facultive resource. The fourth, additional pillar is specific and has the potential to raise funds in various ways (sources from founder, donors, sponsors, assignment of taxes). We are focusing mainly on two sources: the involvement of volunteers and the use of franchising. The number of hours worked by volunteers if any, shall be counted in managerial accounting and represents the value saved in hours of work in social services. Basically it is a payroll savings funds which would otherwise have to be paid by the provider of persons in employment, if he wanted to provide activities undertaken by volunteers.

Another potential source of finance is social franchising. It is a mean by which it could be achieved social goals in the area of social services, in particular the cooperation and sharing of knowledge and experience. It allows the recipient to replicate the model using a proven system (quality of service) and use a brand name to achieve social objectives. Franchisees (the recipient) is required to comply with quality standards (economic and non-economic), reports and statistics from the provision of services, contractual payment of franchise fees. Franchisor (franchise provider) gives its partners – rights of the beneficiaries, while the obligation, to use their concept is in a predetermined framework. The contract authorizes, but also commits the recipient to use the name of the provider, his service marks and other protections and copyrights, as well as know-how, economic, technical, and business methods. The franchisor provides beneficiaries direct or indirect remuneration. Social franchising is the transfer of knowledge and experience from one successful entity to another, for example, the provision of social services.

The fourth pillar focuses on social franchising as an alternative and additional sources of funding. In Slovakia, the said form of fund raising in the provision of social franchising is in its infancy, but in the developed countries of Western Europe and the USA, it is a proven resource. In addition to ensuring the transmission of quality in social services, it is an appropriate source of funding for the non-profit sector, precisely because of the need for diversification of funding sources and multiple-sources.

We assume that the use of a system of EJC formation and financing, as well as other activities of the operating entities in the social services is feasible.

3 EJC RESOURCE MODEL IN SOCIAL SERVICE

The basic objectives, philosophy, entities and sources of funding of the proposed model was presented above. In essence, the model is formed so as to guarantee that people who are dependent on social services will receive high-quality, accessible, and personalized services at a reasonable charge. Secondly, the model changes the role of the state and government in social services and transfers the responsibility for social and health insurance. In the third, but not least, it ensures that all providers of social services be in a financially stable environment. The proposed model consists of four pillars, their norms and resources that are designed to meet the objectives of sustainable financing of social services.

The first pillar (P-1) and its norm

In the first pillar (P1) there is only an obligatory (nationwide, universal) source of funding, namely the dependency allowance to help other people ... (FPO). The measurement and

calculation of the contribution in P1, has two identifiable mandatory financial norms: social services and the health services that are necessary for the provision of social services.

a) The financial norms for social services are determined on the basis of dependency, i.e. the degree and nature of social services - FPO1. It is bound to the direct cost to the client, without taking into account the capacity of equipment and other factors in residential services.

The financial norm proposal forms the social insurance, as a new tax-levy contribution. Statistical studies that we conducted show that social insurance is possible without increasing levies or introducing a new tax liability for long-term care - social services.[1]

b) Funding formulas for health services, i.e. performances, which are necessary for the provision of social services (chronic medical procedures) - FPO 2, is reimbursed by health insurance.

In mathematical terms: P1 = FPO = FPO1 + FPO2.

The second pillar (P-2) and its norm

In the second pillar P2, we propose two levels of funding (obligatory and facultative) and two alternatives for the creation of norms and their financing. The aim is to open an informed debate on the future participation of the state (the state budget, social insurance) and government (municipal budgets) in the field of social services.

1. Two models of financial norms and the creation of a dual EJC to operate social services (FFP)

We see this as an ideal model, when a potential client pays in advance for future social service under Social Security.

In P2, there are two mandatory and two optional financial norms.

a) the obligatory part (P2/o)

The first obligatory financial normative for operation (FPP1) is nationwide and has determined the source of funding for social security and health insurance. It is calculated from the national average EJC to operate various kinds, forms, and capacities of social services (calculated for the client) for the last two years for all providers of social services.

The second obligatory Funding formulas (FFP US1) is regionally determined and is the source of funding of municipal budgets (HTU, towns, villages). Calculations of the average of the self-governing EJC to operate various kinds, forms, and capacity SS (calculated by the client) and regional disparities, particularly in energy intensity coefficients for the last two years for all providers in the relevant territory.

[1] The research results have been partially published. In all types of insurance, except pension insurance scheme are higher than income payments (benefits). The most significant differences is in unemployment insurance, when revenues amounted to two-fold higher values than payment (as of 2014). Similarly, the high differences is in the protective nature of illness insurance. We hereby would like to point out the possibility of transferring funds from insurance that have truly positive values, social insurance services.

Amount of both mandatory norms is determined in the Act on social services, while the autonomous normative law determines the percentage level the EJC to operate.

In mathematical terms, the P2 / o forms: P2 / o = FPP1 + FPP US1.

b) Facultative part (P2/f)

The facultative operating grants accept specific coefficients of regional disparities (material-technical conditions, temperature zone, demographics, average pension, ...)

The first facultative funding formulas for the operation (FPP2) is a nationwide contribution of compulsory social insurance to social services and represents the percentage conversion for the ineligible national average EJC for operation over the past two years for all service providers in Slovakia.

The second facultative Funding formulas for the operation (FPP US2) is the ineligible percentage conversion regional average of EJC, respecting regional disparities, and the municipal budgets. Funded from the municipal budgets (HTU, town, village).

In mathematical terms, the P2/f consists of: P2/f = FPP2 + FPP US2.

The total cost of running the pillar P2 is the sum of all the obligatory and facultative norms and have the following expression

$$P2 = P2/o + P2/f = (FPP1+ FPP US1) + (FPP2 + FPP US2).$$

2. The model of the two financial norms and the creation of a single-EJC to operate social services (FFP)

In this alternative model, we assume that the self-governing regions will receive a higher percentage of shared taxes. Then their larger budgets allow for higher spending on the operational costs of providers of social services within the EJC. At the same time it does not create a new tax levy to Social Security to long-term care - social services.

Then the P2 for operating costs of (FFP) will be formed as follows:

a) the obligatory (municipal) contribution to the operational costs (FPP US1) is an eligible funding formula and is determined by the act on social services, accepts the type, form of social services, and their combinations and the coefficients of capacity of social service facilities. Sources of the funding are the municipal budgets (HTU, town, village). The Act on Social Services is required to indicate the percentage conversion of the national average EJC to operate for all providers in Slovakia. Then P2 / o = FPP US1.

b) facultative (municipal) contribution to the operational costs (FPP US2) is an ineligible norm and accepts the specific coefficients of regional disparities (material-technical conditions, temperature zone, demographics, average income, ...). A proportionate amount of FFP U2 is based on calculating the average regional EJC to operate social services. Sources of funding are the municipal budgets (HTU, town, village). The Act on Social Services indicates that FPP US2 is ineligible and respects the possibility of self-government budgets. A percentage of the calculation takes into account the income of providers from clients as to keep the principle of the social business (a non-profit provider). Then P2 / f = FPP US2.

Total EJC to operate social services in the second (P2) is the sum of all the obligatory and facultative norms and have the following expression:

$$P2 = P2/o + P2/f = FPP\ ÚS1 + FPP\ ÚS2.$$

The second model of financial norms from one source in the self-governing pillar P2 is in our opinion less favorable than the first model, where we assumed a systemic solution sustainable of financing of social services through Social Security.

The third pillar (P3) and its norm

The third pillar (P3) recieves payments from the client. It is an additional charge to the amount of total EJC to the normal operation of the particular social service facilities that is chosen. These funds (including payments of premium from clients) remain non-public providers to co-finance the EJC. Public providers receiving funding from the client is levied by the appropriate government, which they will then finance 100% as a total EJC, or accept extra services for clients.

In P3 there are two basic types of norms (obligatory, optional) and a superior norm.

a) the obligatory financial normative for operation (FPP KL1) is the percentage of eligible clients to supplement the total price of the EJC regional operation. Its percentage amount is defined in the Act on Social Services. Then P3 / o = FPP KL1

b) the facultative funding formulas (FPP KL2) is ineligible to supplement regional EJC to operate social services. The accepted individual income of clients and beneficiaries of the Act on SS (parents, children), including the client's property (10 years). In justified cases (low income) the supplement may also be zero. Then P3 / f = KL2 FPP.

c) the facultative funding formulas (FPP KL3) is a superior type of norm and is intended that the clientele is willing and financially able, to pay the outstanding cost for material above standard (single room, apartment) or more supplementary services that guarantee their former standard of living. Then P3 / n = FPP KL3.

The total EJC operating in Pillar P3 is the sum of all obligatory, facultative and above standard financial norms from the client and have the following expression:

$$P3 = P3/o + P3/f + P3/n = FPP\ KL1 + FPP\ KL2 + FPP\ KL3.$$

There is an alternative possibility that the sum of the costs of social services of the pillars of P1 and P2 will represent 80-100%. Consequently, the third pillar (P3) represented 0-20% of the total costs of operating a particular SHC. This means that the client paid in advance to the Social Security standard on social services, and so may no longer participate in the financing of social services use, respectively, he is paying only the minimum.

The additional fourth pillar (P4)

We made a designation of a fourth pillar (P4) and a facultative extra (FPD) on the grounds that it is comprised of the complementary resources of the founder and provider of social services within fundraising. The amount of this revenue is largely dependent on the ability of management and marketing activities, which are generally are made in the available non-profit space. We are focused on two sources: the systematic involvement of volunteers and social franchising as they are relatively underused in the area of social services, particularly franchising. We assume there is the prospect of improving social services and their financial

resources. Volunteer hours worked are counted in Managerial Accounting. Social franchising is not only a social marketing "prestige" that the provider and recipient guarantee quality service, it can also bring financial effects.

The financial norms in P4 is not limited in scope or resources, or income level.

At the end of this section we present the mathematical formulation of the first model creation and sustainability of EJC in social services, which in terms of funding are considered an appropriate perspective. The proposed model of EJC has the following structure:

EJC = P1 + P2 + P3 + P4.

Within the content of specification, the individual financial norms apply:

EJC = FPO + FPP + FPP KL + FPD.

In terms of optional and mandatory funding, such as the scope of the EJC is calculated as follows:

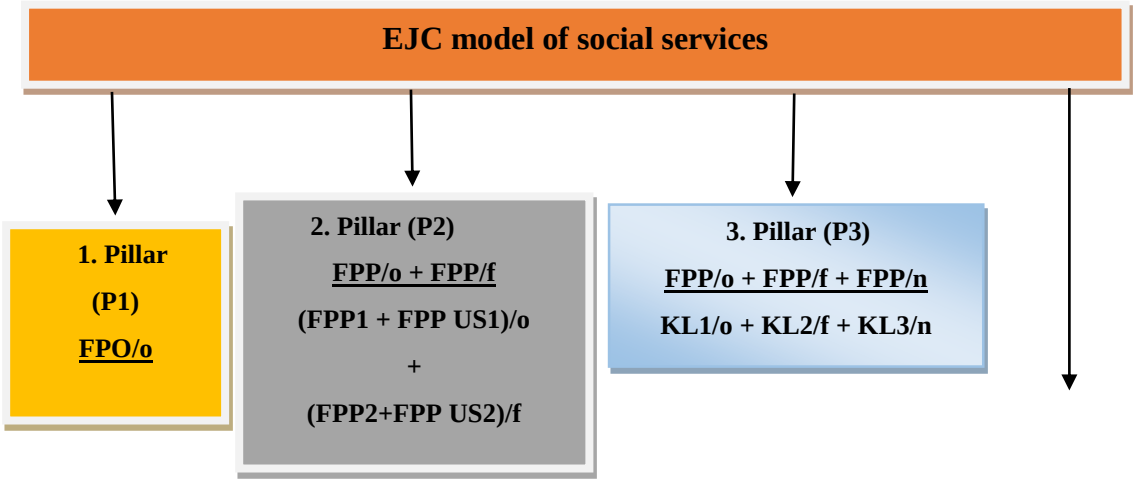
EJC = P1/o + (P2/o + P2/f) + (P3/o + P3/f / P3/ n) + P4/f.

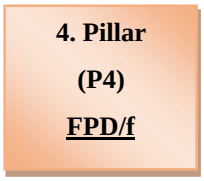
The combination of content and scope of the resulting product of all norms of the EJC is: **EJC=FPO/o + (FPP1 + FPP US1)/o + (FPP2 + FPP US2)/f + FPP(KL1/o + KL2/f + KL3/n) + FPD/f.**

We assume that acceptance of the structure content and sources of funding for the EJC will guarantee economic efficiency, equitable use of available resources, and ultimately ensure the quality of all social services.

A graphic representation of the draft model EJC formation in social services is presented in the following scheme.

Figure 1 - Graphically presents the cash flows (norms) for the EJC of social services.





Source: own conception

Explanation:

FPO: financial contribution reliance

FPP: financial contribution to the operation

FPP1: obligatory insurance contribution for operation

FPP US1: obligatory financial contribution to local government (regional, local) for operation

FPP2: State facultative financial contribution to the operation

FPP US2: facultative financial contribution to local government (regional, local) for operation

FPP KL1: obligatory financial contribution to the operation by client

FPP KL2: facultative financial contribution to the operation by client

FPP KL3: superior client's financial contribution to the operation

FPD: facultative additional contribution to the EJC

In the proposed model of financing social services it has as a new principle that each pillar of calculation and sources EJC has incorporated in them the compulsory obligatory (mandatory,'s eligible) and facultative (ineligible) financial part. Payment from the client have a social dimension (standard, above-standard). At the same time, it is assumed that each insured person will be of working age are required to pay for long term care - social services.

Conclusion

Changes in the demographic structure of the Slovak population also caused changes in the financing of social services. Given the relatively low level of existing retirement and disability pensions in Slovakia, it is necessary to seek other - multisourced - guarantees of delivery and accessibility of services on which there are different social groups dependent. The proposed model is a result of several years or work, assessment, observation and subsequent recommendations of professional and general communities. It is based on three fundamental pillars, it defines mandatory and optional multi-source financing sources and identifies the forms of participation of different stakeholders in the field of social services. For the first time in the Slovak social insurance system it introduces for policyholders a new obligatory contribution for a long-term social care - based on compulsory social insurance in the form of tax levy to social services. The basic idea of the proposed model accepts a many years of experience abroad, especially the German insurance scheme, where such obligatory contribution already exists and guarantees sufficient revenues for the policyholders and for the

providers of different types and forms of social services. The model also presumes the obligation of municipalities to serve their citizens and the self-help of anyone who is dependant on some social services. Thus the funding model guaranteed by law can provide good quality social services

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FINANCING ACCOMMODATION SOCIAL SERVICES FOR SENIOR CITIZENS FROM PUBLIC SOURCES IN THE PERSPECTIVE OF THE NEXT DECADES

Milan Lindner

Abstract

The paper discusses the effects of demographic trend in the Czech Republic on providing and financing accommodation social services for old people demonstrated on the reality of the City of Prague. After putting the matter into the subject and legislative frame at the beginning the first part characterizes in detail the extent and structure of currently available accommodation social services for senior citizens and the amount of non-investment grants for their operation from Prague budget. The second part of the text is key for quantification of expected demographic trend effects in the next two decades on required capacities of Prague retirement homes and of their financing from public sources. At the end of the paper some alternative approaches to operate and finance social services based on experience from other segments of the tertiary sector and on experience from abroad.

Keywords: social services, retirement homes, city of Prague

JEL Classification: B22

Introduction

Providing accommodation social services in the Czech Republic underwent a major change in the last twenty five years which manifested itself in legislative and organizational levels and mainly in the quality of provided services and their focus on client needs. The second similarly dynamic change of social services is to be expected due to the demographic trend of the Czech Republic in the next decades.

Welfare services and providing of welfare services in the Czech Republic is governed mainly by Act No 108/2006 Coll. on welfare services as subsequently amended from 14th March 2006. This act says that welfare services include social counselling, social welfare services and social prevention services that are provided in social services facilities as long stay accommodation, ambulatory or field services.

To provide accommodation social services for the senior citizens target group social services facilities are established, mainly so called retirement homes. The same target group of clients can be alternatively served by other social services facilities, for example by day care centres for elderly people, in homes with special regime or by relief services.

Social services in specific facilities can be provided by registered social services providers only that are included in the social services providers registry maintained by the Czech Ministry of Labour and Social Affairs (MoLSA hereinafter).

After fulfilling requirements of legislation on social services the social services can be provided by local public authorities and legal persons established by them; by other legal and natural

persons; by the Ministry and state organizational divisions established by it; or by state- funded institutions.

The majority of social services providers are of institutional character. Social counselling and prevention services are provided mainly by non-state non-profit organizations. Social welfare services are provided mainly by state-funded organizations established by local public authorities. In case of retirement homes state-funded institutions established by municipalities form approximately three quarters of all providers and they operate almost 90% of national capacity of these facilities (Ministry of Labour and Social Affairs [MoLSA], 2010).

Economic activities of state-funded organizations established by local public authorities are usually connected with necessity to provide non-investment grant from the authority budget. The grant level vastly varies from case to case and it depends among other things on the institution capacity, its technical parameters, energy consumption, quality of facilities etc. In most cases the non-investment grants from the establisher budget comprise approximately one fourth to one half of the state-funded organization income.

Given the expected demographic trend of the Czech Republic the level of financing of accommodation social services for senior citizens by public grants could entail a risk that is discussed in this paper. Only publicly available data were used during the creation of this paper. The thoughts presented here assume that the present context, mechanisms and parameters of provision and financing of social services in Czech Republic will remain the same.

1 CHARACTERISTICS OF ORGANIZATIONS PROVIDING ACCOMMODATION SOCIAL SERVICES FOR SENIORS IN THE CITY OF PRAGUE

To satisfy the needs of citizens and other inhabitants of the City of Prague the accommodation social service for senior citizens is provided by 28 facilities that form the so called basic axis of Prague (i.e. municipal) social services network with capacity of 2,554 beds (City of Prague, 2014).

From this number 1,965 beds (i.e. 76.9% of the total available beds capacity) are provided in 13 facilities (i.e. 46.4% of the total number of retirement homes for elderly people) of state-funded organizations providing accommodation social services established by the City of Prague.

Another 352 beds (i.e. 13.8% from the total capacity) are provided by 8 facilities (i.e. 28.6% of the total number of facilities) established by municipalities of the City of Prague. Remaining 237 beds (9.3% of the total capacity) are provided by 7 other facilities (i.e. 25% from the total number of facilities), these are mainly church facilities and other non-state non-profit social services providers.

Among the Prague network of retirement homes 2.5% clients younger than 65 years, 10.0% clients between 66 and 75 years, 32.1% clients between 76 and 85 years, 52.2% clients between 86 and 95 years and 4.2% clients are older than 96 years (City of Prague, 2014). At the same time the share of clients older than 85 years on the total population of the said age range in the City of Prague region is 6.24% which is the lowest share of all Regions in the Czech Republic (Czech Statistical Office [CZSO], 2014).

Data of the Czech Statistical Office (CZSO, 2015) imply that as of 31st December 2013 there were 225,042 persons older than 65 years in the City of Prague and the share of these persons

on the number of people in the City of Prague was 18.1%. There were 25,629 persons older than 85 years in the City of Prague as of the same date. The capacity of retirement homes from the so called basic axis of Prague social services is currently able to satisfy the social services needs of 1.13% citizens of the City of Prague older than 65 years and of 9.97% citizens older than 85 years.

As of 31st December 2013 social service facilities for elderly people in the City of Prague registered a total of 6,450 unsatisfied applications for social service which means there is a 250% excess demand in the field of social services (CZSO, 2014). Information mentioned above might not be completely accurate as one client may apply at several places at once and all those applications are then added in the total number of unsatisfied applications. Nevertheless, it is possible to state that the demand for social services of retirement homes significantly exceeds current supply.

With regard to reliability and comparability of the presented data the paper concentrates only on 13 (from 28 in total) retirement homes with 1,965 beds operated by state-funded organizations established by the City of Prague which provide more than three fourths of the total capacity of this social service in Prague. Same institutions provide additional 396 beds to elderly people within other accommodation social services, in particular relief services and services of homes with special regimen for persons affected by senile dementia, Alzheimer's Disease or other mental illness.

Facilities operated by state-funded organizations established by the City of Prague are funded from public sources. The total annual amount of non-investment grants from the City of Prague budget is almost CZK 278 million. Even though the City of Prague in its budget does not distinguish what accommodation services the non-investment grant is awarded for, it is possible (by means of a simple arithmetic calculation) to quantify the non-investment grant designated for retirement homes services at approximately CZK 231 million. The annual amount of non-investment grant from the establisher designated for elderly people accommodation social services can also be quantified at almost CZK 118 thousand per bed.

Table 1 – Facilities focused on the senior citizens target group operated by state-funded institutions established by Prague

Facility	Operator	Capacity (number of beds)		Non-investment grants from Prague budget (2015, CZK thousands)
		Retirement home	Other services	
Dobřichovice	Domov pro seniory Dobřichovice, p.o.	56	---	7,850
Ďáblice	Domov pro seniory Ďáblice, p.o.	172	---	45,821
Slunečnice		258	---	
Eliška	Domov pro seniory Elišky Purkyňové, p.o.	259	19	47,094
Háje	Domov pro seniory Háje, p.o.	200	20	25,305
Heřmanův Městec	Domov pro seniory Heřmanův Městec, p.o.	80	62	17,634
Hortenzie	Domov pro seniory Hortenzie, p.o.	65	---	10,124
Chodov	Domov pro seniory Chodov, p.o.	260	---	22,200
Kobylisy	Domov pro seniory Kobylisy, p.o.	92	119	18,010
Krč	Domov pro seniory Krč, p.o.	152	---	13,821
Malešice	Domov pro seniory Malešice, p.o.	218	30	23,185
Pyšely	Domov pro seniory Pyšely, p.o.	60	---	9,776
Zahradní Město	Domov pro seniory Zahradní Město, p.o.	93	146	36,710
Total		**1,965**	**396**	**277,530**

Source: City of Prague, 2014, City of Prague, 2015

Accommodation social services for elderly people get only a portion of public funds designated for social purposes. City of Prague budget expenditures and individual municipalities support operating a whole range of other social services, for example centres of day services, day care centres, personal assistance services and above all nursing services.

At present, public provision of social services can be regarded as a necessary expense (provision of residential social services for the elderly on a free market basis is currently limited by income limitations of absolute majority of the care-dependent clients, missing systematic family care for the elderly people in their home environment etc.) but the total amount of public resources thus spent, their effectiveness and efficiency, call for adequate attention.

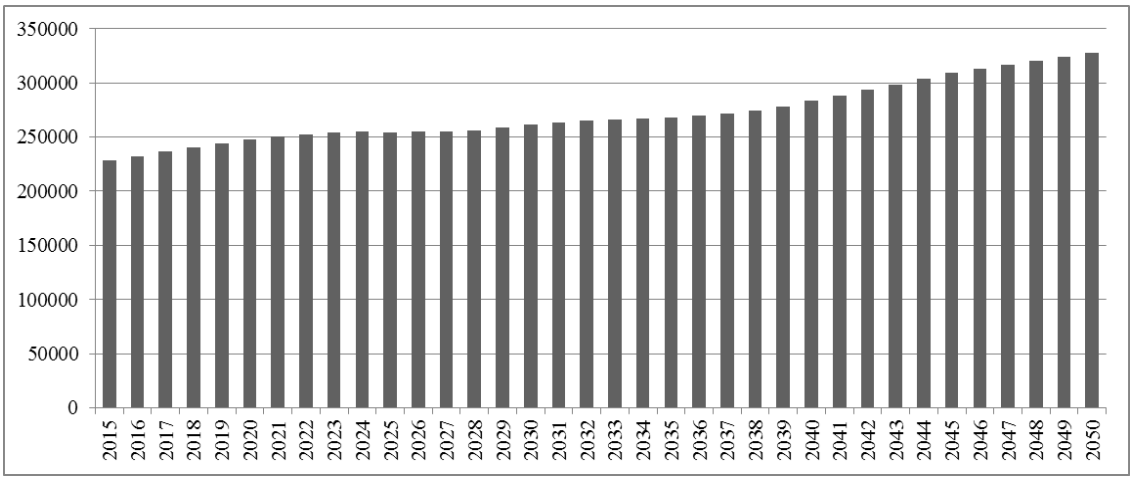
2 EXPECTED TREND OF NUMBER OF INHABITANTS OF THE CITY OF PRAGUE UNTIL 2050 AND ITS INFLUENCE ON PROVIDING ACCOMMODATION SOCIAL SERVICES FOR ELDERLY PEOPLE

The Czech Republic and its regions will feel effects of inevitable population ageing along with the majority of Europe. The Czech Republic will not only feel the effects of the population boom from post-war years but there was also a Czech population boom in the 70s of the 20th century.

The Czech Statistical Office data imply that in 2020 there will be approximately 247 thousand inhabitants older than 65 years in Prague, in 2030 the number will rise to 262 thousand and in 2040 to 283 thousand. In 2050 there will be 328 thousand people in this category (CZSO, 2013). In comparison with state as of 31st December 2013 with 225,042 people older than 65 years (CZSO, 2015) the increase is 9.8%, 16.4%, 25.8% and 45.8% respectively. The share of population older than 65 years on the total number of inhabitants of the City of Prague will

increase only very slowly from approximately 18% in 2013 to 24% in 2050. Next chart shows the trend of number of Prague inhabitants older than 65 years.

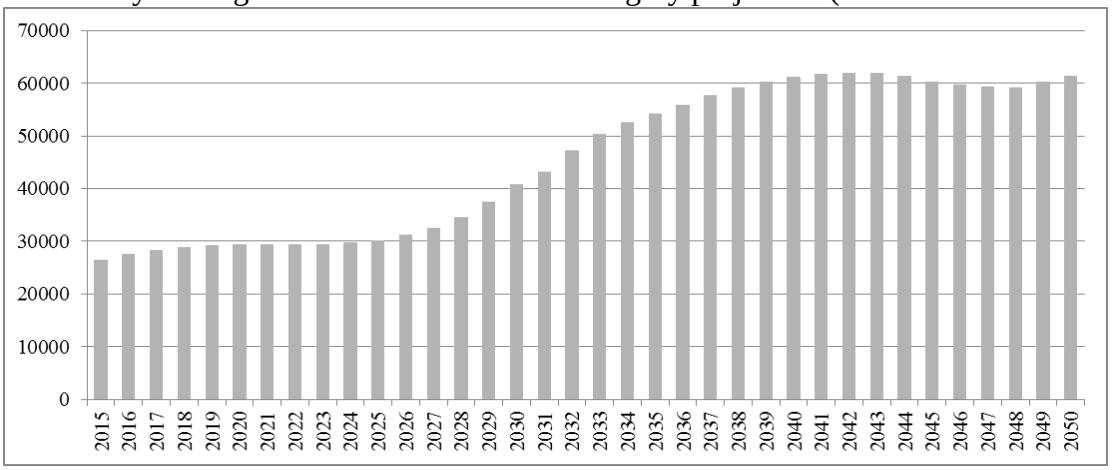
Figure 1 – City of Prague inhabitants in the 65+ category projection (between 2015 and 2050)



Source: CZSO, 2013, processed by author

From the accommodation social services provision to the senior target group perspective the trend of number of people older than 65 years is not that relevant as the typical client of accommodation social services is significantly older, i.e. people older than 85 years. The expected trend of number of Prague inhabitants in this age range in the same period shows completely different characteristics (see chart no. 2 below).

Figure 2 – City of Prague inhabitants in the 85+ category projection (between 2015 and 2050)



Source: CZSO, 2013, processed by author

Number of Prague inhabitants in the 85+ category will reach approximately 29 thousand in 2020, 41 thousand in 2030 and 61 thousand in 2040 which shall remain the same in the next decade (CZSO, 2013). In comparison with state as of 31st December 2013 with 25,629 people older than 85 years (CZSO, 2015) the increase is 13.3%, 60.2% and 138.3% respectively. The share of population older than 85 years on the total number of inhabitants of the City of Prague will increase rapidly from approximately 2% in 2013 to 4.5% in 2040-2050.

The expected demographic trend is a major challenge for many fields of social life and therefore for public finances as well. The effect will be most significant in the social services field. Even

if we consider optimistic scenarios that propose gradually increasing life expectancy with elderly people not having self-sufficiency reduced too much and therefore are not reliant on care of other people, the number of people in the potential target age range of all field, ambulatory and accommodation social services in the City of Prague shall rise significantly even in the next decade.

In the 2015-2025 period the number of people in the 65+ category will rise by approximately 25,000. These people are typically interested in provision of field or ambulatory social services related to food delivery, help in the household etc. In the same period there will be an increase of 5,000 people in the 85+ category who are much more reliant on external help, support or care. These are typical clients of accommodation social services provided by retirement homes with comprehensive care.

Even if we presume that social services in the City of Prague would be provided to 6.24% people in the 85+ category only, which is the lowest figure from all Czech Republic regions [average value in the Czech Republic is 10.55% (CZSO, 2014)], it will be necessary to increase the Prague retirement homes network capacity by at least 300 new beds. If we considered making accommodation social services for clients older than 85 years equally available as is the average of the Czech Republic, the available capacity of Prague retirement homes network would have to be at 3,200 beds in 2025 which is by approximately 650 beds more than at present.

The calculated need for Prague retirement homes network extension mentioned above could be realistically achieved until 2025 with high probability. In case of full financing from public budgets it is necessary to take into account more than CZK 1.3 billion spent on one time investments and CZK 77 million spent annually on non-investment grants.

We can expect a much more dramatic situation in the field of social services provision in the City of Prague in the next decade, i.e. between 2025 and 2035. According to the CZSO data, the expected number of Prague inhabitants older than 85 years should rise from approximately 30 thousand to approximately 54 thousand.

In the Czech Republic there are beds for 10.55% of population older than 85 years available in average. If we maintain this level of availability the minimum capacity of Prague retirement home network would have to be at 5,700 beds.

The mentioned number presumes that beds in retirement homes are used to provide services to inhabitants older than 85 years exclusively. Of all clients of these types of facilities there are only 55.6% in this category today. Even though there is no doubt this share is going to rise in the future due to reasons mentioned above, it will be necessary to provide retirement home services to seniors under 85 years heavily or completely reliant on help of other people.

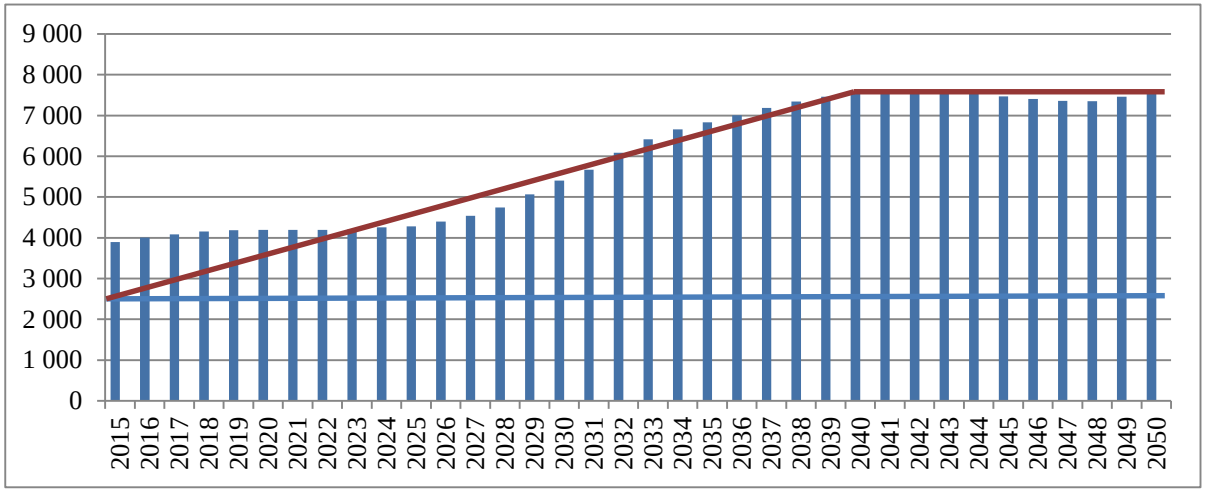
Today the retirement home services are provided to 0.57% of City of Prague inhabitants in the 65-85 category (approximately 1,100 persons). If this share decreases in accordance with trends mentioned above (to 0.5%), it is possible to calculate with the same absolute number of 1,100 beds to care for people under 85 years.

The above mentioned considerations show that the total required capacity of senior homes in Prague in 2035 will be approximately 6.800 beds, which is about 4,250 beds more than is available now. In 2040, the number of needed beds is going to go even higher to about 7,600 beds, i.e. about 5,000 beds more than in 2015.

These facts are clearly demonstrated in chart no. 3 below, which shows the future development of the minimum required capacity of the residential social services that can be described as "homes for the elderly" in Prague in the years 2015 to 2050. The graph also includes a representation of the currently operated capacity of these services (horizontal line - 2554 beds) and the required development of the capacities to ensure future availability of these services for the same proportion of seniors, as we have today (broken line).

The considered necessary increase of 5,000 beds by 2040 would mean that the overall capacity of beds in homes for the elderly in Prague would increase every year by approximately 200 beds (i.e. one big senior home per year) over the next 25 years. Given the average investment of 2 million CZK per newly built bed, the total capital expenditure would add up to 10 billion CZK from the Prague city budget.

Figure 3 – The minimum required overall capacity of homes for the elderly in Prague (2015-2050)



Source: CZSO, 2013, City of Prague, 2014, processed by author

Expenses associated with the construction of additional capacities of the homes for elderly are not the only investments that will be needed in Prague in the coming years in terms of social services provision – more money will be needed to increase the capacity of homes with special regime, the capacity of field services - especially in the form of day care services, etc.

Non-investment funds allocated to existing organizations that have been established by the city of Prague and provide social services will also have to increase substantially. Their operational costs related to provision of the analyzed services are expected to increase from the present 231 mil. CZK per year to more than CZK 800 million per year (in 2015 prices and provided, that present principles of financing will not change).

However neither the potential additional annual capital expenditures CZK 400 million, nor the gradual increase in current expenditure associated with the increasing social services capacity, present any serious complications since the budget of the city of Prague operates with average total revenue of approximately 55 billion CZK annually (Prague, 2015). Despite this fact, a strong discussion can be expected to arise in relation to this issue, both on objectively-expert and on political levels.

The budgetary outlook of the city of Prague is not favorable for the growing needs for capacity of the residential social services either. The budget is expected to significantly reduce total capital expenditures between 2015 and 2016 (from 14.2 to 6.8 billion CZK) and this trend is expected to continue until 2020 (Prague, 2015).

The considerable degree of dependence of residential social services on the funding from the local governments´ budgets should present a sufficient reason to initiate discussions and the search for alternative approaches to the provision and financing of residential social services in the Czech Republic, whether in the form of systematic support of home care provided by family members and other relatives, or in the form of provision of social services by private providers as public service, in the form of various types of PPP-projects, through the creation of comprehensive grant schemes to support non-profit, religious, and other types of social service providers etc.

The inspiration for these solutions can be found in other sectors and industries in the Czech Republic (e.g. the public transportation services provided by private providers under contracts by local governments) or abroad, especially in the way residential social services are provided in Germany, Austria and Switzerland.

Conclusion

In the Czech Republic, activities included by the unified classification in the social care field developed significantly especially in the last decade not only from the client focus and quality of provided services perspectives but from the legislation and organizational perspectives as well. The field of social services will undergo another dynamic change in the Czech Republic in relation to the demographic trend.

The inevitable population ageing is showing itself in the increase of number people in the 65+ category which will be accompanied by the rapid growth of the 85+ category in 2025. These factors shall significantly increase demand for field, ambulatory and accommodation social services in the next ten years.

From the analysis of a specific example of accommodation social services of retirement homes in the City of Prague it is clear that even a simple preservation of current qualitative and quantitative parameters in the services provision shall necessitate an increase from current 2,550 beds to 7,600 beds in 2040, i.e. by more than 190%.

Considering very high share of accommodation social services provided by public corporations and organizations established by them, it is possible to expect that the rise in demand will create pressure on growth of their capacities and therefore on public budgets of relevant local public authorities. In case of the City of Prague this scenario would necessitate one time investments of at least CZK 10 billion and related increase in annual operating costs that would have to be granted to organizations providing social services.

Due to social importance and financial demands of social services provision it is necessary to consider alternative models and approaches to social services provision in the Czech Republic. It is necessary to consider system changes in the way of providing support of home care for related persons and in the form of providing social services by private providers in the public service compensation regimen. It is also possible to consider using PPP projects, creating comprehensive grant programmes to support non-profit, church and other social services

providers etc. Inspiration could be found in foreign systems of social care provision, special attention should be paid to experience of our neighbours in Germany and Austria.

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THE IMPORTANCE OF GOVERNMENT SPENDING IN CONTEXT OF FISCAL POLICY

Barbora Mazúrová, Ján Kollár

Abstract

The importance of government spending in the economic system and its effect on economic growth was demonstrated by several experts. The economic crisis has revealed major shortcomings in fiscal policy of many countries and the need to consolidate their public finances. Their long-term sustainability is a current topic of many professional and political debates. It is desirable to find a model of public finance policy that respects the achievement of macroeconomic stability while eliminating the increasing indebtedness of the economy. In this context, in the foreground is the question of effective allocation of public resources. The aim of this paper is to evaluate the development and structure of government spending of Slovak Republic, according to their functional classification COFOG in the period between 1997 and 2011. The examined time series is developed based on available data from the OECD database, which enables us to compare findings with other scientific studies dealing with this topic.

Keywords: fiscal policy, government spending, productive government expenditures, unproductive government expenditures, government spending multiplier

JEL Classification: H30, H50

Introduction

The economic crisis has identified serious gaps of fiscal policies of EU countries. The current economic situation and the related crisis in public finances leads rightly to criticize the policy of public spending in many countries. Right in times of crisis there were excessive increases in budget deficits almost worldwide. The associated growth of the public debt leads economists and politicians to discuss the long-term sustainability of public finances.

As stated Kiaba, Szalai (2015) an interesting fact is that "the debt of countries and households' indebtedness have their own and often different specificities. For countries such as those of Central Europe, the level of indebtedness of the state and households is not so different. However, a significant difference is seen for example in northern European countries where the same "budget responsibility" of states doesn't pass on the responsibility of citizens and their debt is one of the highest. "

Public finance problems can generally be resolved by reducing government spending or raising tax revenues. As stated Drobiszová, Machová (2015) government spending plays an important role in promoting economic growth. Economic growth may be stimulated by fiscal expansion - increasing government spending, but the same can support economic growth lower level of taxation that can be realized only at lower public expenditure. Changes in setting government spending or tax burden must be viewed in the context of achieving macroeconomic stability, efficient allocation of resources and at the same time limiting of increasing public indebtedness.

Government spending has been long the matter of debates and controversial discussions, not only in the academic environment. First, in the theory of economic growth it has received little attention. In the models government spending featured an inefficient allocation of resources. While empirical studies provided ambiguous correlation between public spending and economic growth, Barro (1990) from the model of endogenous growth of government spending extended, analytically derived the existence of effects of public expenditure on economic growth. As the first, in his work he classified government spending on productive and unproductive, according to their relation to production. While productive government expenditure, in the broadest terms capital expenditure, has a similar impact as private capital formation, about unproductive expenditure he assumed that indirectly increase the level of benefit infinitely living representative household. Accordingly, the influx of government spending in the economy has a dual effect. In the event of allocation to the productive sector, government spending has a positive impact on economic growth; on the other hand, their allocation to the unproductive sector dampens this effect. Based on this, we are inclined to the view that it is irrelevant how much government spending the country save, but what is their structure. Barro based on the assumption of balanced state budget. Kneller et al. (1999) extended the analysis of the fiscal deficit and pointed to the need for a comprehensive verification of the significance of the components of fiscal policy in a growth model respecting their interactions. Impact of government spending on economic growth further explore Barro and Sala-i-Martin (1990), Jones, Manuelli and Rossi (1993), Stokey and Rebelo (1995), Machová (2013), and Drobiszová, Machová (2014). It shows that fiscal policy can have positive or negative effect on economic growth, depending on the structure of the tax mix and government spending.

Classification of government spending to productive or unproductive sector is not clear in the literature. Between productive governments expenditure typically belong those that contribute to raising the level of human capital (education, health care), promote technological progress, infrastructure and communications. For unproductive government expenditure they are considered especially social spending and transfers. Afonso et al. (2005) notes that these costs may slow economic growth by reducing incentives to work reduce investment in human capital and crowding out private investment. On the other hand, social expenditure ensures the appropriate institutional environment. The negative impact on economic growth was confirmed by other authors, e.g. Devarajan, Swaroop, and Zou (1996) or Agénor (2010).

Empirical basis of this paper are the conclusions of the examination of Drobiszová, Machová (2015). Their analysis was based on a panel model describing the impact of various fiscal variables on economic growth. By these variables were government spending divided on productive and unproductive constituents. The main conclusions of their investigations show that substituting unproductive government expenditure by productive expenditure on defence and security, education and health, and general public services leads to boost economic growth. The results also suggest that the substitution of unproductive government expenditure on infrastructure and economic affairs and environmental protection has a negative effect on economic growth. As stated Drobiszová, Machová (2015) it may be due to inefficient use of expenditure in the area, which do not bring added value necessary for economic growth. Environmental regulations according to a number of empirical studies often hamper economic growth. Unproductive government expenditure - social spending may lead to an increase in consumption. The negative effects of these expenditures may be reduced, especially during the recession. It follows that economic policy makers should focus on the allocation of government

spending in areas that stimulate economic growth, mainly defence and security, education, health and general public services.

The aim of this paper is to evaluate the development and structure of government spending of Slovak Republic, according to their functional classification COFOG in the period between 1997 and 2011. COFOG classification („Classification of the Functions of Government“) correspondents to methodology applied in the OECD and EU statistics. The examined time series is developed based on available data from the OECD database, which enables us to compare findings with other scientific studies dealing with this topic.

1 SLOVAKIA GOVERNMENT SPENDING

Since its emergence, economy of the Slovak Republic undergoing turbulent changes that were characterized not only by transforming the economic system, but also socio-economic conversion in connection with market opening and globalization. Understanding of government spending by inhabitants of Slovakia (as well as other post-communist countries) is still linked to the role of a "strong" state which is able to help in certain situations. On the other hand, the policy of government spending becomes a target of controversy and criticism that question their importance and contribution to society. Nevertheless, in terms of historical development and current conditions it is difficult to imagine a country without the existence of government spending which leads to ensure not only public goods. Finally, government spending is an important component of GDP, as suggests its very nature character by dispersing in different areas. Its importance is evident in many macroeconomic contexts. It influences national economic processes and is a prerequisite of multiplier effects that have a positive effect on the economy in the short and long term. "In the years 1998 - 2009 government spending in Slovakia accounted for an average GDP growth of 1.6 percentage points, while the standard deviation was at one percentage point" (Lisy et al., 2011, p. 178). After 2009, the proportion of government spending to GDP ratio increased almost in all OECD countries. These facts and the development of the economy after the crisis show the need to pay proper attention to government spending.

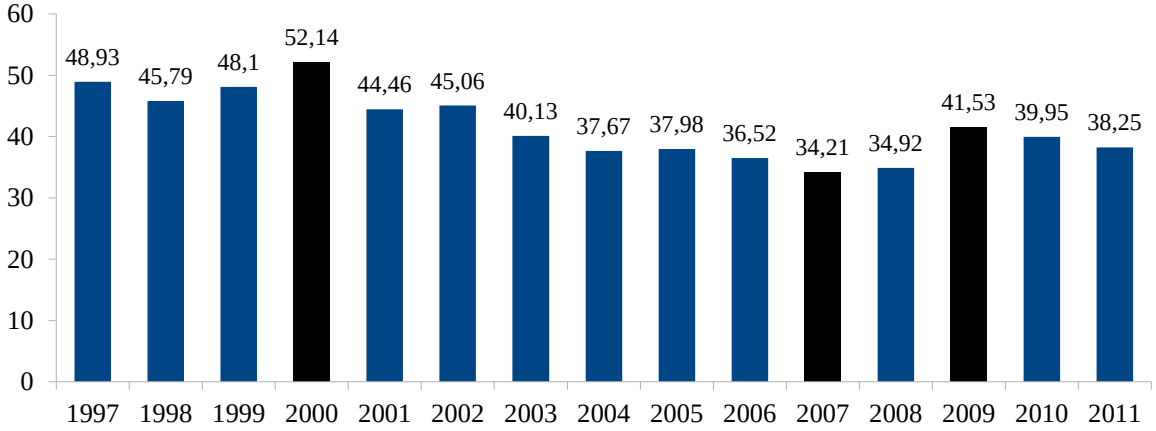
In this part of the article we deal with the analysis of changes in the proportion of government spending to GDP ratio in Slovakia in the period 1997-2011, with a sharper focus on their structure under COFOG.

Since the establishment of the independent Slovak Republic in 1993, the Slovak government implemented restrictive fiscal policy in order to achieve macroeconomic stability. The relaxation of restrictions occurred in 1996. As stated Uramová et al. (2003) in this period, the government preferred to achieve higher economic growth, what was subordinate to the choice of the instruments applied in the context of economic policy. An ambitious expansionary fiscal policy was accompanied by higher spending from the state budget. In 1997, the proportion of government spending to GDP ratio reached 48.93% (see Figure 1).

Government decided to tackle the growing macroeconomic imbalance at the cost of economic slowdown and in 1999 initiated the strongly restrictive fiscal policy. Its content was limiting government spending. The Figure 1 shows that the highest proportion of government expenditure to GDP ratio reached 52.14% in Slovakia in 2000. For comparison, that year, the average proportion of government spending to GDP ratio in the OECD area was 41.94%. In the following period, the proportion of government spending to GDP ratio in Slovakia mostly

declined and fell below the OECD average. While eg. in 2007, the average proportion of government spending to GDP ratio in OECD countries was at the level of 41.31%, in Slovakia it was only 34.21%. This trend continued until 2009, when Slovakia was also particularly influenced by the financial crisis and the proportion of government spending to GDP ratio increased to 41.53%, which is close to the OECD average that year (41.94%).

Figure 1 - The development of the proportion of government spending to GDP ratio in Slovakia.



Source: own processing according OECD: General government spending (indicator)

The crisis we consider a momentum that led the country to increase government spending as one of the instruments particularly in the sense of the Keynesian approach to stabilize the economy and prevent even deeper recession. From this perspective, we view a given fiscal expansion as one of the possible measures that governments have taken in relation to concerns about future development. However, we believe that the cumulative assessment of government spending is insufficient and it is important to analyse their structure. As mentioned in the introduction, government expenditure can be divided into productive and unproductive according to their effect on economic growth. Table 1 presents the structure of government spending by Kneller et al. (1999).

Table 1 - Structure of government spending.

Productive expenditure	**Unproductive expenditure**
General public services expenditure	Social security and welfare expenditure
Defence expenditure	Expenditure on recreation
Educational expenditure	Expenditure on economic services
Health expenditure	-
Housing expenditure	-
Transport and communication expenditure	-

Source: own processing according: Kneller, Bleaney, Gemmell 1999, OECD

As we mentioned above, for unproductive government expenditure they are considered especially social expenditures and transfers that can slow down economic growth by reducing motivation to work, reduce investment in human capital and crowding out private investment

(Afonso et al., 2005). At the same time, we can conclude that the reduction of these expenditures could be a threat to the social sphere, which has its justification in the economic system. As reported Lukáčik (2013) also unproductive government expenditure are important, especially in those areas which are characterized not so much by economic power, but by the value of a microeconomic perspective. We agree also with the statement that the effect of government spending on economic growth depends not only on the nature and structure of government spending, but also the development of the economy (Shengeen, Saurkar, 2003).

Based on available OECD database we processed Table 2, in which we present structure of government spending of Slovak Republic, according to their functional COFOG between 1997 and 2011. Within this classification, government expenditures are divided into 10 items.

Table 2 – Proportion of government spending to GDP ratio according to COFOG.

Government expenditure as % GDP/Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Total government expenditure	48,93	45,79	48,1	52,14	44,46	45,06	40,13	37,67	37,98	36,52	34,21	34,92	41,53	39,95	38,25
General public services	6,682	6,257	7,638	9,22	7,604	7,173	5,415	5,632	6,071	4,674	3,739	3,679	5,44	6,315	5,887
Defence	2,51	2,42	2,09	2,225	2,221	2,128	1,751	1,895	1,62	1,704	1,549	1,336	1,501	1,248	1,032
Public order and safety	3,175	3,035	2,675	2,715	2,761	2,653	1,936	2,336	2,047	2,057	1,892	2,04	2,409	2,618	2,446
Economic affair	9,36	7,82	9,01	11,06	6,66	6,69	4,36	4,35	3,76	3,88	4,13	5,06	5,22	3,56	3,75
Environmental protection	0,859	0,845	1,074	1,353	0,744	0,852	0,707	0,65	0,662	0,686	0,605	0,655	0,679	0,931	1,037
Housing and community amenities	0,975	0,83	1,072	1,234	0,821	1,025	1,124	0,781	0,769	0,721	0,752	0,65	0,767	1,011	1,006
Health	5,595	5,412	5,434	5,222	4,911	5,024	6,469	4,658	4,845	5,845	6,41	6,955	7,801	6,389	5,934
Recreation, culture and religion	1,25	1,07	0,903	1,016	0,938	0,941	1,236	1,291	1,047	0,865	0,672	0,915	1,085	1,196	1,142
Education	3,775	3,582	3,268	3,599	3,239	3,641	4,311	3,946	3,963	3,742	3,861	3,478	4,336	4,467	4,043
Social protection	14,75	14,52	14,94	14,5	14,56	14,93	12,82	12,14	13,2	12,35	10,6	10,15	12,29	12,22	11,97

Source: own processing according OECD: General government spending (indicator)

The table shows that the largest proportion of government spending in each year of the reporting period consists of expenditures on social protection (the highest proportion to GDP ratio was 14.94% in 1999). The second largest component is the expenditure for providing general public services (the highest proportion to GDP ratio was 9.22% in 2000). The lowest proportion to GDP ratio in general has expenditures on environmental protection (the lowest proportion to GDP was 0.605% in 2007), housing and community amenities (the lowest proportion to GDP ratio was 0.65% in 2008) and for recreation, culture and religion (the lowest proportion to GDP ratio was 0.672% in 2007).

In 2009, when the Slovak Republic had fully reflected effects of the crisis, we can observe an increase in government spending in all areas of the national economy, mainly on social protection and general public services.

Benos (2009, in: Drobiszová, Machová) in his work highlights the problem of static significance of individual government spending and suggests that in the case of similarity character of costs is appropriate to aggregate them into larger groups. The productive expenditure include spending on defence and security, infrastructure spending and economic affair, spending on education and health, expenditure on environmental protection and expenditure on general public services. The unproductive government expenditure ranks social protection expenditure and expenditure on recreation, culture and religion. These aggregated

groups of government expenditure as a percentage of GDP are expressed in the following table while comparing the descriptive statistics in Slovakia and OECD countries.

Table 3 - The average values of proportion of government spending to GDP ratio over the period 1997- 2011

Expenditure/Average values	Slovak Republic	OECD
General public services	6,09	6,57
Defence	1,82	3,26
Environmental protection	0,9	0,75
Health and Education	9,61	11,88
Public order and Economic affair	8,36	5,65
Unproductive government expenditures	**14,1**	**17,25**

Source: own processing according OECD: General government spending (indicator), Machová, Drobiszová 2015

From Table 3, it is possible to interpret some essential context for a considerable long time series, which includes the peak season as well as the economic recession. It is clear that in the period considerably larger part of government spending directed to productive areas. In comparison with OECD countries, we can follow a higher positive variation of productive expenditure on infrastructure and economic activity, where Slovakia is above the OECD average. Within productive expenditure on health and education, and defence and security, by contrast, is a negative variation, which means that the proportion of spending in these areas is lower than the OECD average. Following the conclusions of the examination by Drobiszová, Machová (2015), which is stated in the introduction, we can conclude that in order to stimulate economic growth should be part of government spending on infrastructure and economic affairs and environmental protection substitute mainly by spending on health and education and on defence and security.

Proportion of unproductive government expenditure to GDP on social protection and expenditures on recreation, culture and religion compared with the OECD average in Slovakia is also lower. Based on the assumption that the unproductive factors have less effect on economic growth, we can conclude that in the international comparison, the government spending of Slovak Republic to the unproductive factors are lower what is potentially creating more space for the stimulation of economic growth, in the acceptance of mutual causality.

Within the analysis and evaluation of the structure of government spending is appropriate to take into account the intensity of their effect on GDP. Multiplier effect of government spending to GDP have defined e.g. Sloman (2006, p. 464), Mankiw, Taylor (2008, p. 320), Uramová, Lacová, Hronec (2010, p. 146), Lisý et al. (2013, p. 47), Jurečka (2013, p. 53). Based on the theory and the real data of the Slovak economy, we estimate the average height of a simple multiplier of government spending in the period before the crisis (2007), during the crisis (2009) and post-crisis (2011) in order to determine whether there was a change that substantially influenced their multiplication.

A simple spending multiplier can be formally entered in the equation (1):

$$k = 1 / (1- mpc), \qquad (1)$$

where:

k = simple multiplier government spending,

mpc = marginal propensity to consume.

In calculating the value of the marginal propensity to consume we relied on a study prepared by Pauhofová and Martinák (2014). The calculation results are presented in Table 4.

Table 4 - Values of marginal propensity to consume and simple spending multiplier

Rok	MPC	K
2007	0,78	4,55
2009	0,12	1,14
2011	0,69	3,23

Source: own processing

Given the results of calculations of a simple spending multiplier in the reporting period we can conclude that it has different values depending on the economic cycle. A detailed analysis of consumption, savings and investment dealt Pauhofová, Martinák (2014), which concluded that in times of crisis in Slovakia significantly increased propensity to save and tendency of marginal propensity to consume was declining. This explains the low value of simple spending multiplier in 2009. Specifically in Slovak households was reflected precautionary motive of holding money, which led to uncertainty especially in the labour market preference and savings at the expense of consumption for fear of losing income. After the crisis in 2011, the marginal propensity to consume approached the value before the crisis in 2007. Therefore, the intensity of the effect of government spending to GDP increases. There are clear links between the private sector and government action, which is reflected in the macroeconomic perspective of the GDP, which is an indicator of economic performance not only of the country but also the well-being of society.

Conclusion

Fiscal policy in the European Union and its tools are a current topic of many discussions mainly of economists and politicians who are trying on the one hand positively stimulate economic growth, while on the other hand eliminate public debt. The aim of this paper is to evaluate the development and structure of government spending of Slovak Republic, according to their functional classification COFOG in the period between 1997 and 2011.

Based on analysis of available data we can conclude that while in the period after the transformation of economy and before the effects of the financial crisis on the Slovak economy, government spending declined. After the crisis it began to rise again. Like the governments of many other countries, including the Slovak Government with the aim to stabilize the economy and prevent a deeper recession proceeded to fiscal expansion by increasing government spending. We are inclined to the view that in this context is the cumulative assessment of government spending insufficient and it is important to analyse and evaluate their detailed structure.

Based on the available OECD database, we divided the government expenditure of Slovak Republic, pursuant to their functional classification COFOG for productive and unproductive. We consider positive the fact that during the period 1997-2011, a substantial part of government spending of Slovakia was concentrated in the productive areas of the economy, which affects economic growth positively. In comparison with OECD countries, the proportion of government spending to GDP ratio on infrastructure and economic affair in the years 1997-

2011 was higher than the OECD average. Conversely, the proportion of government spending on health and education, and defence and security in the period was lower than the OECD average. The proportion of unproductive expenditure on social protection and recreation, culture and religion as compared to OECD countries was lower.

On this basis, we believe that economic policy makers should focus on the allocation of government spending in productive areas that stimulate economic growth. Based on an empirical study (Drobiszová, Machová, 2015), the part of government spending on infrastructure and economic affair and environmental protection should substitute mainly the spending on health and education, and defence and security. We also recommend sensitively assess and calculate spending in the social sphere, which is indispensable in the economic system.

Using a simple spending multiplier, we proved that government spending stimulates economic growth even during the crisis immediately (government spending multiplier (k) in 2009 reached a value greater than 1), but the intensity of their impact on GDP is lower. The period after the crisis and increasing of the multiplier effect of government spending suggests the merits of economic stabilization by discrete instruments of economic policy in the Slovak Republic.

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EFFICIENCY OF VAT COLLECTION IN THE SLOVAK REPUBLIC

Ľudomír Šlahor, Mária Barteková

Abstract

The aim of this paper is to analyse the collection efficiency of the value added tax (VAT) in Slovakia using selected ratios. The VAT was introduced in Slovakia within the reform of the taxation system as of January 1, 1993, and along with the excise duties replaced the previously applied turnover tax and import tax. The VAT Act in Slovakia provides for two rates of taxation, i.e. the standard one at 20 % and the reduced one at 10 %. Like other taxes, VAT is subject to risks arising from tax errors and evasions that reduce the scope of the declared, accounted for and collected tax. Estimation of VAT losses is an important tool for their detection and prevention as well as for collection of the right sums of VAT in the right time (European Commission, 2015). Comparative international evidence suggests the conclusion that the collection efficiency of VAT in the Slovak Republic is at very low level.

Keywords: VAT collection, C - efficiency ratio, VAT gap, VAT losses

JEL Classification: H21, H26, H30

Introduction

In the tax structures of many countries, VAT (ESA95 code D.211) represents a most important source of budgetary revenues, raising about one-fourth of the world's tax revenue. The VAT was first introduced at a national level in France in 1954 but the idea of VAT traces back to the writing by von Siemens, a German businessman, in the 1920s. Its original coverage was limited, and France did not move to a full VAT that reached the broader retail sector until 1968. The first full VAT in Europe was enacted in Denmark in 1967. The rise of the VAT in Europe was accelerated by a series of EEC directives requiring member states to adopt a harmonized VAT upon entry to the European Union. Its global expansion in over 150 countries is the result of its neutrality in decisions of economic agents and easiness in collection for taxpayers and tax administration.

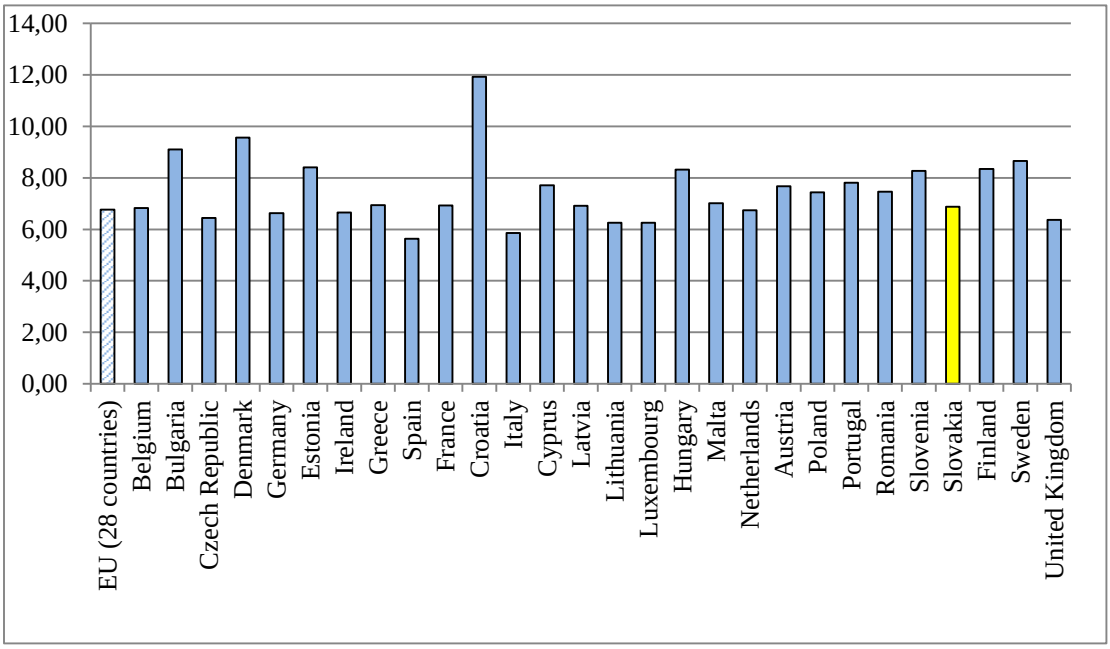
VAT is an obligatory form of taxing turnover of goods and services. The basic characteristic of VAT is taxation of every phase of trading in goods and provided services. A taxable person does not pay the charged VAT in the amount declared on issued invoices, but only the difference between the charged output tax on sold goods or provided services and the paid input tax on purchased goods or ordered services. Because the VAT does not affect the prices firms ultimately pay for inputs, it does not distort production decisions and does not create "cascading"—the "tax on tax" that arises when tax is charged both on an input into some process and on the output of that same process. This also makes the effects of the VAT transparent.

This paper presents an estimate of the level and recent trends of the VAT gap in Slovakia, and analyses recent VAT revenues in terms of the VAT gap. National accounts data (Statistical Office of the Slovak republic, 2015 a, SO SR, 2015 b) was used to model the VAT tax base,

and current Slovakian law (Act No. 222/2004 Coll. on Value Added Tax) is used to estimate potential VAT revenues. This potential VAT is compared with VAT receipts (MF SR, 2015, Vláda Slovenskej republiky, 2014), accrued to the timing of underlying economic activities with the difference being assumed to represent losses through non-compliance, i.e. the compliance gap. The difference between potential VAT revenue under current policy and theoretical VAT revenue calculated from final consumption and standard rate is defined the policy gap.

All EU countries rely on the VAT as one of their main sources of budgetary revenues (Eurostat, 2015). Figure 1 shows that, on average, VAT revenues amounted to 6.8 % of GDP for the EU - 28 countries over the period 2000 - 2013. The lowest percentage in a share of GDP was registered in Spain, while VAT revenues as a share of GDP were highest in Croatia.

Figure 1 - VAT revenues as a share of GDP (2000 - 2013)



Source: Eurostat

1 CRITERIA FOR EVALUATING THE EFFICIENCY OF THE VAT

Influenced by the global expansion of VAT, several criteria for evaluating the efficiency of the VAT system have been developed, such as the efficiency ratio, which is also known as VAT productivity ratio (Ebrill et al., 2001), and the VAT revenue ratio (VRR), which is called the C-efficiency ratio (OECD, 2012).

The efficiency ratio (productivity) of VAT is calculated by dividing revenues actually collected from VAT and potential revenues obtained by applying the standard VAT rate on GDP.

$$\text{VAT efficiency ratio} = \frac{VR}{GDP * r}, \quad (1)$$

where VR = VAT revenues collected

GDP = Gross domestic product

r = standard rate

Although it has been used for many years as a comprehensive measure of efficiency, the reliability of the efficiency ratio is not high mainly due to errors in the measurement of GDP, as a result of excluding non-observed activities in the calculation of GDP. The reliability of GDP, and thus all indicators that rely on GDP, is inversely proportional to the degree of the non-observed economy of a given country. More important, the appropriate benchmark should be total consumption (the ideal VAT base), not GDP. A policy error that brought some investment into the tax base, for example, would increase the efficiency ratio even though it meant a worse VAT.

In order to improve the quality of VAT efficiency measurement the OECD developed the C-efficiency ratio.

$$\text{C – efficiency ratio} = \frac{VR}{(FCE - VR) * r} \ , \tag{2}$$

where VR = VAT revenues collected

FCE = final consumption expenditure

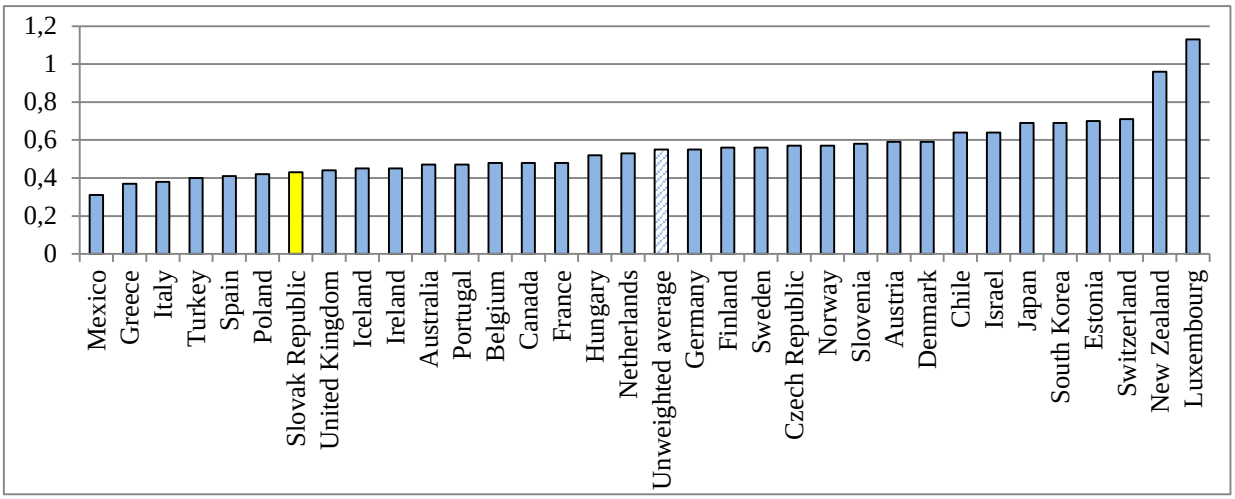
r = standard rate (in %)

C-efficiency ratio (CER) is calculated by dividing VAT revenue by the product of the standard rate and final consumption expenditure less VAT revenue. CER is a rough estimator for the overall tax gap for a VAT, and roughly equates to the product of the compliance gap and the policy gap. Generally, the availability of observations on C-efficiency data is constrained by the availability of VAT revenue data. But also the CER measure is not without some problems. For example, it assumes that consumption as defined in the national accounts is the same as the aggregate tax base that would be subject to such an ideal uniform comprehensive VAT. However, in principle a number of adjustments to national accounts data are needed to estimate something closer to the real base of the VAT because final consumption as reported in the accounts includes some items that are not subject to VAT and excludes some items that are subject to VAT. In practice, final consumption is measured in expenditure terms and includes not only private final consumption expenditures by households but also final consumption expenditures by non-profit organizations (Majerčáková & Mittelman, 2014, Rentková & Majerčáková, 2013) serving households as well as by general government.

1.1 C-efficiency ratio in OECD countries in 2012

Given the availability of data it is possible to compare CER for Slovakia with other OECD countries.

Figure 2 - C - efficiency ratio in OECD countries in 2012



Source: OECD

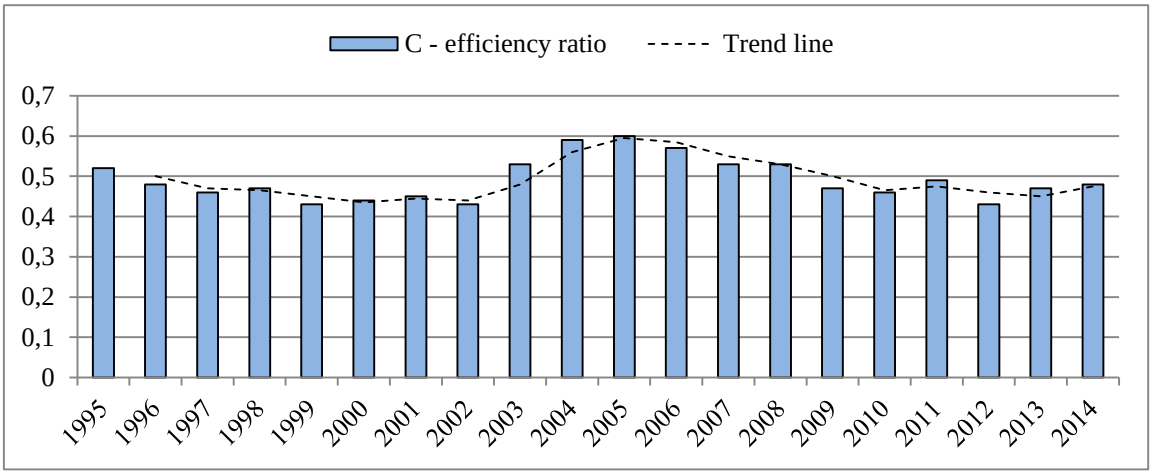
As we can see from the Figure 2, the CER in OECD countries in 2012 (OECD, 2014) varied in the range from 0.31 (in Mexico) to 1.13 (in Luxembourg).

In comparison with the results of the OECD's survey it can be concluded that the VAT system in Slovakia is less efficient than in most of the countries. In general, CER value in Slovakia (0.43) is significantly below the OECD average (0.55). One important factor is the structure of the VAT systems of those countries because most of them apply the VAT system with a different scale of rates. Comparison with the system in New Zealand represents de facto a comparison with the VAT regime which is close to the theoretical ideal, where the CER-ratio is equal to 1.

1.2 C – efficiency ratio in Slovakia (1995-2014)

In the period 1995-2014 CER in Slovakia ranged from a minimum of 0.43 (in 1999, 2002, and 2012) to a maximum of 0.60 (in 2005), and 0.49 on average between 1995 and 2014.

Figure 3 - C - efficiency ratio in the Slovak Republic

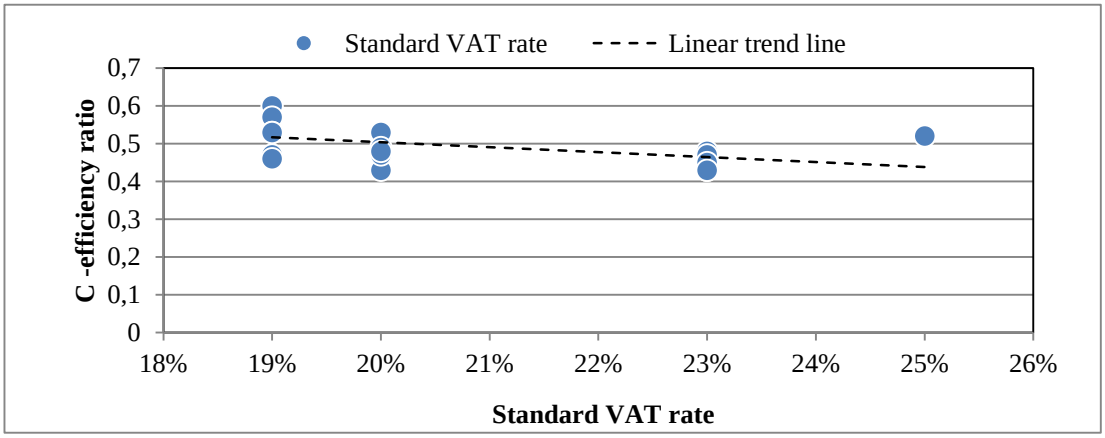


Source: Kucherka, MF SR, Statistical Office of the Slovak Republic

The trend line is hump-shaped, and after 2005 the efficiency of VAT collection was slowly going down until 2012. If final consumption is used as the denominator instead of GDP, the obtained efficiency ratio is slightly lower, as a result of the structure of GDP in Slovakia where consumption is dominant.

Figure 4 displays a scatter plot comparing CER for the years 1995-2014 against the general VAT rates. The estimates of CER show that VAT compliance appears to fall when tax rates are increased. Indeed, the correlation coefficient between CER and general tax rate was negative and equal to - 0.509. These results are consistent with predictions from the theory of tax avoidance.

Figure 4 - C - efficiency ratio vs. standard VAT rate in Slovakia (1995-2014)



Source: Kucherka, MF SR, Statistical Office of the Slovak Republic

2 ESTIMATING VAT LOSSES (VAT GAP)

The VAT gap (Ueda & Thackray, 2015) is the difference between the theoretical tax liability according to the tax law and the actual revenue collected. The volume of VAT losses due to tax evasions and errors is estimated on the basis of two methods:

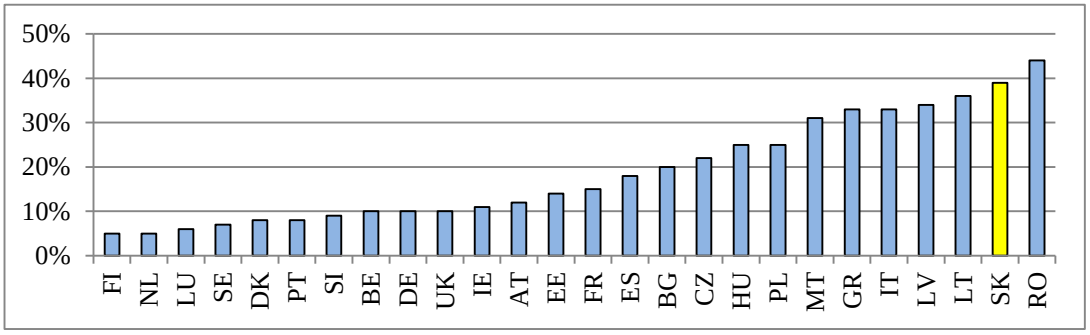
1. The top-down method (macroeconomic method), where the volume of VAT losses equals the difference between the theoretical VAT liability and actual VAT receipts. The theoretical VAT is the calculated value of VAT that ought to be received in the accounting period if all taxable persons accounted for and paid VAT in compliance with the valid legislation. The actual value of the received or paid VAT differs from the theoretical one because of intentional or unintentional errors in payments that contribute to the total VAT losses.
2. The bottom-up method (microeconomic method), that is based on operational data as well as on other sources of information used to produce estimates of the volume of VAT losses in specific areas or for different reasons. Within the framework of this method the data is predominantly provided on the basis of consumer surveys, market research, statistical analyses of data as well as modelling and extrapolating the results of controls of taxable persons.

Microeconomic method is more complex and less precise than macroeconomic method, however, it offers the advantage of searching for direct causes of VAT losses in individual fields and presents an appropriate basis for drafting strategies to reduce VAT losses within individual

segments, thereby enabling a more adequate distribution of resources when taking measures to reduce VAT losses.

Figure 5 offers a comprehensive overview of VAT gaps for the EU-26 countries in 2012 (Barbone et al., 2013, Kucherka, 2015, Zídková, 2014). The method used (Barbone, 2014) is a disaggregated top-down approach which applies the appropriate VAT rates to an appropriately segmented final consumption base and then further adjusts the estimated base to take into account the non-deductible input VAT borne by exempt suppliers. Problems arise both in matching consumption data with VAT bases and rates and in estimating the effects of legal exemptions and non-registrants in different sectors.

Figure 5 - VAT Gap as a share of potential VAT revenues in EU - 26

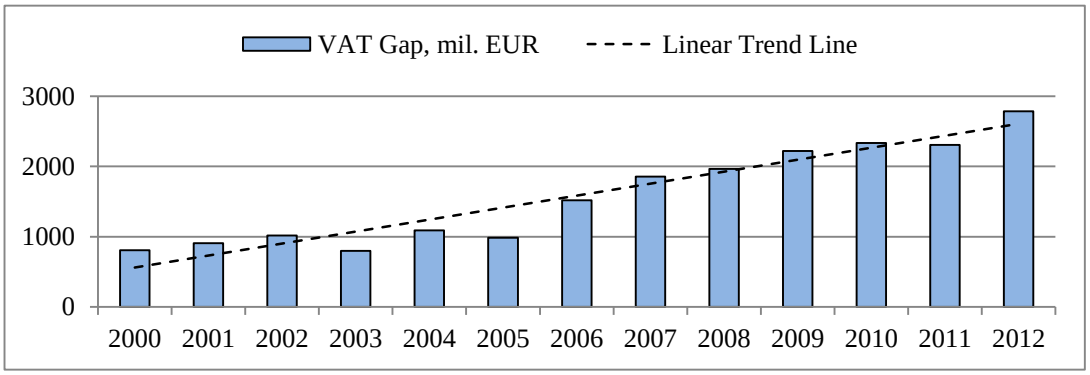


Source: Kucherka, Barbone

As we can see, the estimated VAT gaps have a very wide dispersion across countries; they range from the low of 5 % recorded for the Netherlands and Finland to the high 39 % in Slovakia and 44 % in Romania. For the entire sample, the average VAT gap is 18 %, and the median is 15 %. The estimated gap in Slovakia is high by international standards, over the typically observed levels not only in old EU member states but also in other V4 countries (Czech Republic, Poland and Hungary).

Figure 6 offers the estimated VAT gaps in Slovakia over the period 2000 – 2012 (Kucherka, 2015). As this figure shows, the overall gap has shown a marked upward trend: from 806 million EUR recorded in 2000 to 2´786 million EUR recorded in 2012. Over the period 2000 - 2012, the average VAT gap was 1´583 million EUR.

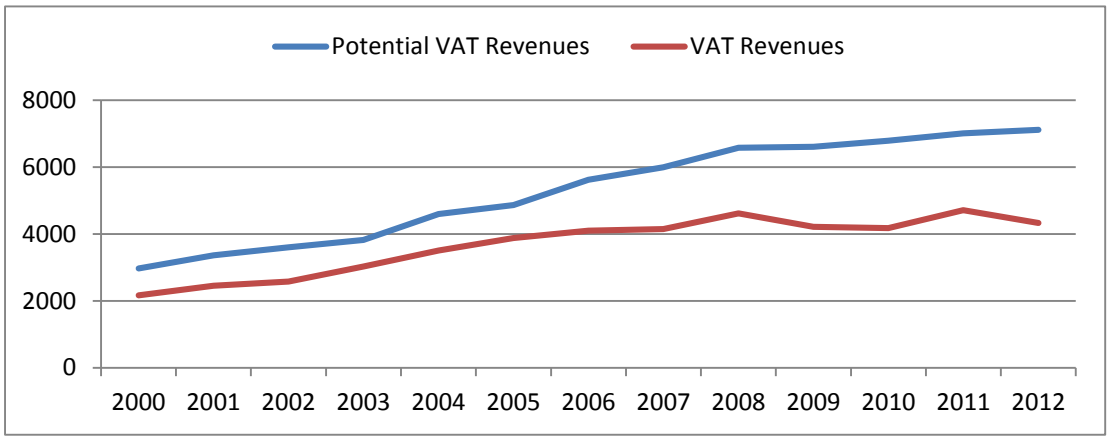
Figure 6 - VAT Gap in the Slovak Republic (2000 - 2012)



Source: Kucherka, Barbone

The VAT gap grew significantly in Slovakia from 2008 to 2012 (Fig. 7).

Figure 7 - Potential VAT revenues and actual VAT receipts

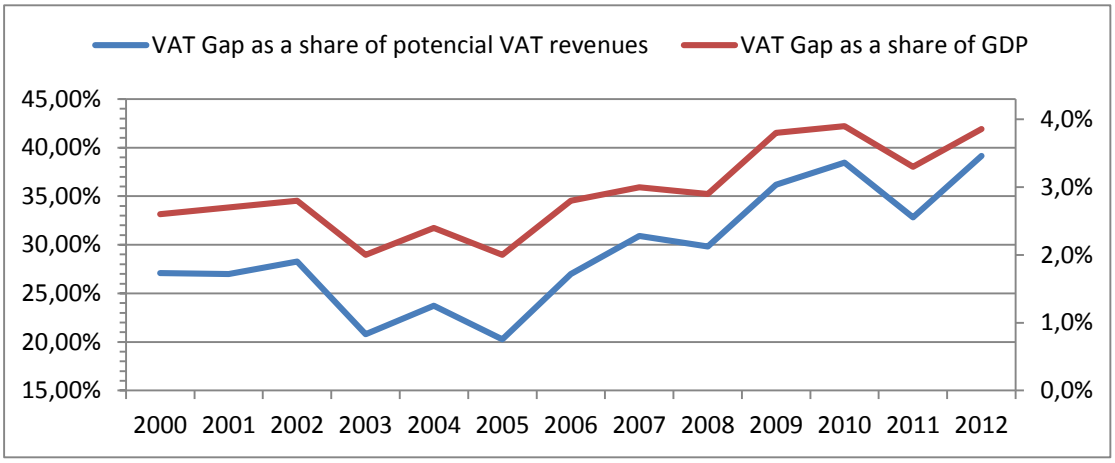


Source: Barbone

The increase in the gap between 2008 and 2012 (Fig. 7) corresponds to the steeper decline of actual collections as a percent of GDP compared with the potential revenues. There is indeed a negative correlation (correlation coefficient is equal - 0.585) between VAT gap and CER. It means that in the case of higher collection efficiency the gap is going down.

The Figure 8 displays a summary of the estimates of the total loss in VAT receipts for the years 2000-2012 and the VAT gap estimate.

Figure 8 - VAT gap as a share of potential VAT revenues and GDP



Source: Barbone

The total VAT loss amounted to 30 % of the theoretical VAT on average, which represents an annual VAT shortfall of 3.2 % of GDP. In terms of the VAT gap trend, the size of the tax loss expressed as percentage points of the theoretical VAT has been steadily rising since 2005.

Tax gap has been increasing last years not only in absolute terms but also in the ratio of the total theoretical VAT or of GDP expressed in the current prices. This development is shown in the Figure 8. According to Barbone (2013, 2014), tax gap expressed as the proportion to theoretical VAT reached 39% in 2012, and as the proportion to GDP expressed in current prices reached 3.9%. In the period 2000 – 2012 tax gap (% of theoretical VAT) increased by 12%. Tax gap in proportion to GDP in the current prices increased by 1.3%.

Conclusion

The analysis presented in this paper shows considerable scope for reducing the VAT gap in Slovakia and the potential for enhancing the collection efficiency. Although VAT has been in force since 1993, the growth of VAT gap shows that the VAT system (Slovakia has changed its standard and reduced rates twelve times over 1993-2015) has evolved from the phase, in which sporadic frauds were possible, into a more mature phase with more complex and serious VAT frauds. It means that an application of modern methods and mechanisms to combat frauds at a national level is necessary. Efficient VAT collection requires the strengthening of legal sanctions and reducing the level of high corruption in the country.

Approximately 80% of tax gap is concentrated in some sectors of economy. Retail, wholesale, building, industrial production, professional scientific and technical performances and agriculture belong to the most risky sectors from a point of view of losses in evaded VAT. The estimate of tax gap in the period 2000 – 2012 in Slovakia had increasing character in absolute terms or as the proportion to theoretical VAT or GDP in current prices. Therefore the approach to success of VAT collection to the average of other countries could mean the substantial increasing of revenues from taxes in Slovakia.

Summary

This paper presents the results of applying the VAT gap estimation methodology to Slovakia for the period 2000 - 2012. The methodology employs a top-down approach for estimating the potential VAT base. The estimated gap is hump-shaped with an upward trend. Based on the obtained findings about the efficiency of VAT collection in the Slovak Republic we found out that Slovakia belongs to the EU countries with very high levels of VAT gap.

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FISCAL SUSTAINABILITY OF THE CZECH PUBLIC FINANCE: SOME REFLECTIONS

Pavel Štěpánek, Eva Zamrazilová

Abstract

An adverse feedback loop between banking sector and public finance has been a part of the crisis story in many countries, in particular in Europe. However, fiscal developments in many advanced economies were already on an unsustainable path even before the financial crisis. The lesson to be learnt from the crisis is how quickly the government debt can change from sustainable to unsustainable, thereby causing sovereign risk to materialise. The variation of debt in a given year depends on the amount of debt from the previous year, the implicit interest rate at which the country pays the debt and the primary government balance. Presently, sustainable fiscal policies should be targeting a surplus of the primary balance which would cover the cost of service of the existing stock of public debt. At first sight, the Czech fiscal situation for both balance and debt is currently considered as sustainable. However, there are many challenges for the long-term sustainability of Czech public finance. A higher than present level of indebtedness could easily become risky as any unanticipated adverse events could lead to its further sharp increase, quickly turning apparently sustainable fiscal position into unsustainable one. Seen from the prospective of confidence of the financial market into the stability of public finance, the sooner structural reforms, especially those aimed at addressing the ageing population issue are launched the better.

Keywords: fiscal sustainability, financial stability, public debt, primary deficit, debt dynamics

JEL Classification: E62, G01, H63

1 FINANCIAL AND FISCAL SUSTAINABILITY GOES HAND IN HAND

Banking sector balance sheet weaknesses are often closely tied to exposure to over indebted borrowers – this is not so much visible in the case of state as a debtor as it is in the case of corporate sector. State bonds were long perceived as risk-free assets, however, in the course of previous years the market perception of sovereign risk has changed**.** The crisis has brought to light anew the interdependence between public and bank balance sheets. Reinhardt and Rogoff (2010) have proven strong correlation between banking crises and fiscal debt crises. Simply said – fiscal problems deteriorate the health of banking sectors and, on the other hand, worsening quality of banking assets leads very often to fiscal expenditures (increasing public indebtedness).

In fact this scenario worked during the crisis in previous years: an adverse feedback loop between banking sector and public finance has been a part of the crisis story in many countries, in particular in Europe, see e.g. BIS (2014). Soon after the spill-over of the financial crisis from the US to Europe, banking sector vulnerabilities stemming from toxic assets in the bank's balance sheets became evident. Financial intervention aiming to save banking sector from collapsing became a heavy burden for many European governments. This public support to the

banking sector was the primary channel of the transmission of risk from banks to state. The following phase of crisis hit the real economy and thus depressed public revenue and pushed up social expenditure. This was an indirect channel of risk transmission from the banking sector to the public one as the limited credit activity was one of the reasons of economic downturn.

However, fiscal developments in many advanced economies were already on an unsustainable path even before the financial crisis. The public debt in many countries soared to peace time records and to such an extent that investors changed their perception of sovereign risk. Government debt and deficits that had been still tolerated before the crisis were no longer considered sustainable. These developments have led to higher sovereign credit default swap spreads (CDS) and sovereign credit rating downgrades, most notably in the cases of Greece, Ireland, Italy, Portugal and Spain. In case of high sovereign risk and high exposure of banks to public debt on the asset side, funding costs went up. This has further damaged the health of financial institutions and their ability to provide normal financial intermediation. The mutual amplifying of these factors caused a dangerous vicious circle which is still difficult to escape from. Regulatory activities aiming at creating additional buffers do not seem to be a sufficient condition as yet for coping with this problem as it is of vital importance that both the banking sector and the public finance are stable (Caruana and Abdijev, 2012).

The basic recommendation is the need to achieve a sustainable sovereign debt level. However, also in this case, it must be stressed that "one size does not fit all". The sustainability of public debt depends to a large extent on creditor confidence in the government fiscal policy. It may be generally stated that biggest and most developed countries with well performing and highly liquid financial markets can afford higher level of debt than emerging and small countries. Countries with larger internal market have been less vulnerable than small highly open economies since the latter are less capable to withstand external negative shocks. United States may serve as an example of very high tolerance of financial markets, while Baltic countries represent the opposite extreme. The credit history of the state as a borrower is also a very important factor that may influence the risk tolerance of the markets. Countries with short-term public debt history must be therefore much more careful than old democracies.

High public debt is dangerous for couple of other reasons than mere unsustainability. First, as debt rises, so do interest payments. And higher debt service means higher taxes and lower productive government expenditure. When a significant share of debt is held by foreigners, fewer resources are available for investment and domestic consumption. Maybe even more damagingly, the higher tax rates needed to service the higher debt may further depress growth. Reliance on debt as a demand factor has been increasing in the Keynesian world, even though the efficiency of fiscal policy in stimulating the economy is declining as public debt indebtedness (public debt ratio to GDP) is increasing. Fiscal stimulus is also a bad substitute for structural productivity enhancing reforms. At the same time, high debt levels reduce the room for countercyclical policy. This results in higher volatility, greater uncertainty and, again, lower growth.

2 FISCAL DEBT DYNAMICS

A comprehensive overview of the fiscal sustainability maybe found e.g. in Balassone and Franco (2002). Fiscal sustainability is defined in IMF (2002) as "the debt that can be serviced without an unrealistically large future correction in the balance of income and expenditure".

The analysis of sustainability is then based on the equation for debt dynamics which can be simplified[1] to the form

$$D_t = D_{t-1} \cdot (1 + r_t) + PS_t \text{ , where} \quad (1)$$

D - the amount of debt in year **t** and **t-1**

r_t - the average interest rate, at which the state operates the public debt in year t, in %

PBt - primary government balance (after the exclusion of interest payments) in year t

This simple equation shows that the amount of debt in a given year depends on the amount of debt from the previous year, the implicit interest rate at which the country pays the debt rt and the primary government balance PBt. If the national government decides to control the relative amount of indebtedness, for practical application the breakdown of general government balance into primary balance and the cost of servicing the public debt is useful. Separation of the part showing the amount that will be paid for servicing is important because servicing the public debt is an absolutely essential priority which every country must have under control. Primary balance is a very important concept because it will provide a view of the public finances, adjusted for expenses associated with the servicing of the public debt. Primary balance can be specifically targeted by fiscal policy. This breakdown is based on accounting procedures and therefore the chance of possible inaccuracies is relatively low.

After some simple adjustments this relationship can be converted into a debt dynamics equation in relative

$$\frac{D_t}{Y_t} = \frac{D_{t-1}}{Y_{t-1}} \cdot \left(\frac{1 + r_t}{1 + g_t} \right) - \frac{PS_t}{Y_t} \text{ , where} \quad (2)$$

D, PS and r were explained in equation (1)

Y - GDP at current prices in year **t** and **t-1**

g_t - growth rate of GDP at current prices, in %

This analytical view is even more important as the proportion of debt to GDP (relative amount of indebtedness) is the indicator is essential for markets and is used as a measure of sustainability of the debt. This indicator has been and always will be important, if not essential, for the protagonists on the financial market. Although there is no hard and fast rule for what level of debt is acceptable for an individual country, a safe debt target of 60% of GDP for advanced economies and 40% for EME maybe recommended (BIS 2014). The level of debt for advanced economies also corresponds to the respective Maastricht criterion. Moreover, the debt dynamics is sometimes more important for the investors that the actual indicator. This applies very much in present post-crisis world - investors are currently more sensitive to change than to present level of indebtedness.

The simple relationship (2) breaks down the relative amount of debt in the relevant year t into two components:

[1] In this simplified version, there is omitted the impact of the exchange rate and other factors. The reason for this simplification was the fact that further analysis will be devoted to the Czech situation, where majority of public debt is issued in domestic currency.

1) component reflecting the amount of debt in the preceding year, including taking into account the level of rates at which the debt is financed in the relevant year t and the nominal GDP growth in year t;
2) relative size of the primary deficit as % of GDP.

It also shows that the relative amount of debt in a given year is based on the amount of debt in the preceding year and is also directly proportional to the interest rate, at which the government on average finances the debt rt, and indirectly proportional to the dynamics of nominal GDP gt (i.e. GDP at current prices). Input data are either routinely available to the fiscal authorities or, in the case of nominal GDP forecasts, are a normal part of the process of creating the state budget. This purely accounting and simply arithmetical breakdown that does not require any virtual variable or model acrobatics provides valuable analytical information. It can be used to make a basic consideration of the conditions under which it is or is not possible to actually pull on the debt brake.

The essential information is that if the average rate, at which the debt is financed, is higher than the growth of GDP at current prices (nominal growth), then a country's relative debt will rise even if the primary government balance ends as balanced. Therefore the fraction in the brackets $\left(\frac{1+r_t}{1+g_t}\right)$ maybe referred to as a coefficient of the debt trap.

If the coefficient exceeds 1 because the nominal GDP growth in % is lower than the implicit interest rate, at which the debt is on average financed in the relevant year, the debt component relating to the previous deficit level automatically goes up. If in these years the fiscal authorities do not want to allow a rise in relative debt, they are under heavy pressure to create a primary surplus. If the fraction is equal to 1, then the value of indebtedness in year t is changed only by the primary budget balance. If the coefficient is below 1, the independent debt component decreases and the primary budget balance may have relatively a little more space.

The current fiscal policies usually try to separate fiscal balance for cyclical developments and aim to achieve some level of structural fiscal balance – see Mourre et al (2014). In fact it would really be optimal to separate the primary balance into structural and cyclical component:

$$PB_t = PB_{STR,t} + PB_{C,t} \tag{3}$$

However, the main weakness from this perspective is that structural deficit is essentially a virtual theoretical term, not a reportable accounting or at least a statistically measurable indicator. The breakdown of the government balance is thus no trivial task. Instead it is a complicated process, burdened by a number of uncertainties of a methodological and statistical nature. The initial idea is that an economy operating at the level of its potential cannot, by definition, generate cyclically induced revenues or expenses. An economy at its potential does not generate the cyclical component of the general government balance or, rather, this component is equal to 0. So, if the general government balance of an economy, whose performance is equal to its potential, is non-zero, it is completely the structural component of the general government balance. So, if we get an idea of how high the income and expenditure of public finances would be at the level of the potential output of an economy, the difference between them will represent the structural component of the general government balance. An estimate of the structural component of the general government balance then involves three basic stages.

1) An estimate of potential output and the output gap
2) An estimate of the elasticity of individual income and expense items in relation to GDP – an estimate of the percentage change of a particular item at a 1 % change in GDP
3) An estimate of hypothetical revenue and hypothetical expenditure of the public finances at the level of potential output – the difference between them is the structural component of the general government balance.

A crucial problem is the very first stage, i.e. the estimate of potential output. The term 'potential output' began to be used in practical economic policy by the Council of Economic Advisors in the USA in the 1960s. A number of methodologies were gradually developed to estimate potential product – filtering by using different filters (the Kalman Filter, the Hodrick-Prescott Filter), estimates based on various types of production function, beta convergence or temporal detrending of data methods. All these methods are burdened by basic types of uncertainties.

Model uncertainty. There is no consensus as to which method is more accurate or more reliable. With each method you need to estimate one or more parameters that cannot be observed. These parameters are not stable over time and they change, for example, as a consequence of structural changes in the economy. For example, estimates made at CNB for the Czech Republic for the pre-crisis year of 2007 based on various modelling techniques ranged from 3.5 – 5.5 % - see CNB (2010).

Data uncertainty. With the addition of further data to the time sequence estimates of potential output and related variables change retroactively. In addition, published data are subject to revisions which are most pronounced for the "youngest data". Estimates are then revised in time and within each specific method. This factor is again crucial because the economic policy protagonist needs to have the most reliable estimate in real time and in order to adjust the structural deficit or surplus it should have a reliable prognosis available. Overall, there may be a combination or accumulation of data uncertainty with model uncertainty.

The problems of estimating potential output have been looked into, for example, by the ECB (2005) where one of the conclusions is that the extent of the difference between the estimate of the output gap published in a given year and the last (final) estimate for that year is significant, and sometimes even exceeds the estimate of the output gap itself and sometimes even has opposite signs.

The concept of potential product and the related estimates of the output gap or the structural deficit of public finances certainly have their place in macroeconomic analysis and a variety of fields of academic research. They can provide national economic policy protagonists with interesting information but they cannot give reliable guidance. Having been used for 50 years it is evident that they can significantly distort the position of the economy in the cycle. All the types of uncertainties that have been described above can, on the contrary, be actively misused. Manipulating the parameters of a model world can easily be used for creative accounting, theoretically resulting (with only a slight exaggeration) in any preselected value of the structural deficit.

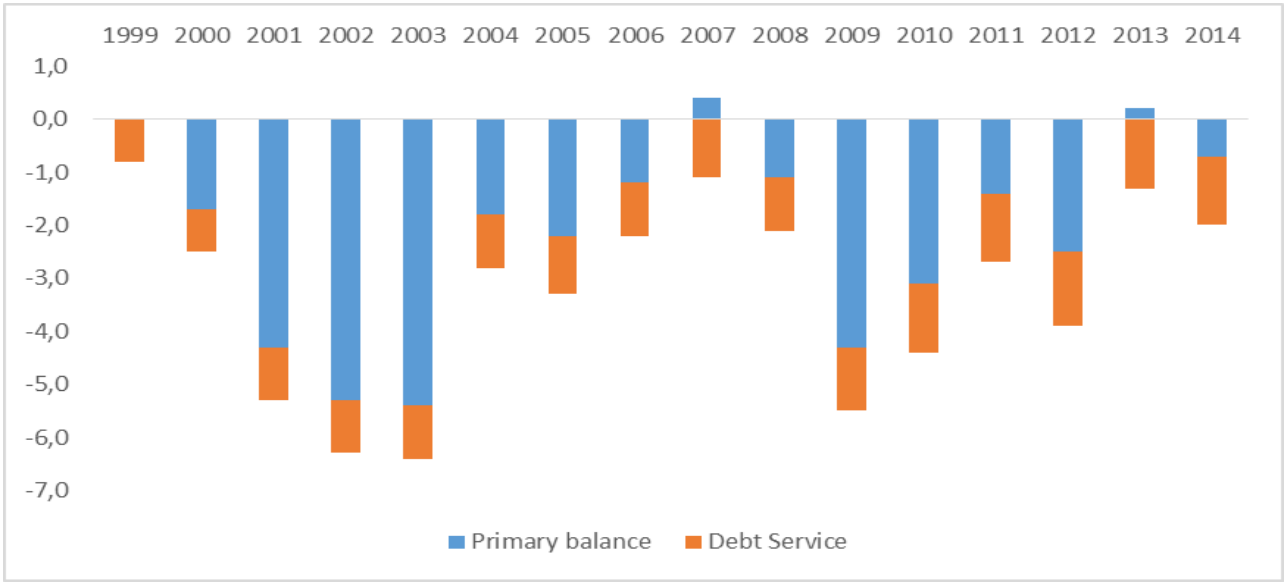
The conceptual problem with targeting structural deficit is likewise reflected in the Keynesian view of the world – where the guarantee of rational management is not guaranteed. Therefore, we will limit our analysis of the Czech situation merely on the decomposition of relative indebtedness based on equation (2).

3 THE CZECH CASE

The Czech fiscal situation for both balance and debt is currently considered at first sight as sustainable. The general government deficit reached 2.0 % in 2014 and is expected at 1.9 % in 2015. The government debt amounted to 42.6 % of GDP in 2014 and is expected to remain at a similar level in 2015. The Czech bond market has been enjoying a high level of trust.

However, there continue to be many challenges as for the long-term sustainability of Czech public finance. An analytical view of the breakdown of debt (1) illustrated by Figure 1 indicates that the main part of the Czech government balance for almost the whole period of 1999 – 2014 was represented by the primary balance. The part of balance representing debt service oscillated between 1 and 1.3 % of GDP. It is also evident that the primary balance did not improve very much in the years with robust economic growth - see also Table 1. In the phase of economic upswing in the years 2001- 2006, the primary deficit of public finance declined very moderately with an average of 3.3 % of GDP. In the phase of boom there was only one year (2007) to reach a surplus of primary balance and yet the surplus was very low (0.4 % of GDP). This evidently shows the pro-cyclicality of fiscal policy in the years preceding the financial crisis. And this also suggests that the system of the welfare state exceeds the possibilities of the national economy to finance it.

Figure 1 - Budget balance: primary balance and debt service



Source: Czech Ministry of Finance

The last column in Table 1 also shows the above mentioned coefficients of the debt trap – the ratio between GDP growth in nominal terms and implicit interest rates paid on public debt (described in equation 2). It is evident that favourable economic conditions, namely high economic growth and low implicit interest rates supported the sustainability of public finance. The levels of this coefficient around 0.9 caused that the deficits of public finances in fact did not lead to corresponding increases of public indebtedness. This gave room for reckless fiscal expenditures. If the debt trap coefficient were at level of 1 (meaning that nominal growth is equal to implicit interest rate paid on public debt) public finance deficits would have been added to previous relative debt ratios (equation 2). This would have led to the situation illustrated by

Figure 2, which shows hypothetical indicators of public debt in % of GDP under the circumstances of accumulating budget deficits. Even under these very favourable economic condition for debt dynamics, the public indebtedness rose from 15 % in 2000 to 28 % in 2007. In 2007 also the highest difference between the actual indicator of public debt and the hypothetical one (in % of GDP) can be observed. The hypothetical indebtedness would have amounted to 48 % of GDP instead of 28 %. The difference can be attributed to lose fiscal policy that did not use good times for consolidation of public finance. It is noteworthy to mention that the limit for Maastricht criterion of indebtedness would have been reached as soon as in 2011.

Table 1 - Budget balance, GDP, debt trap coefficient

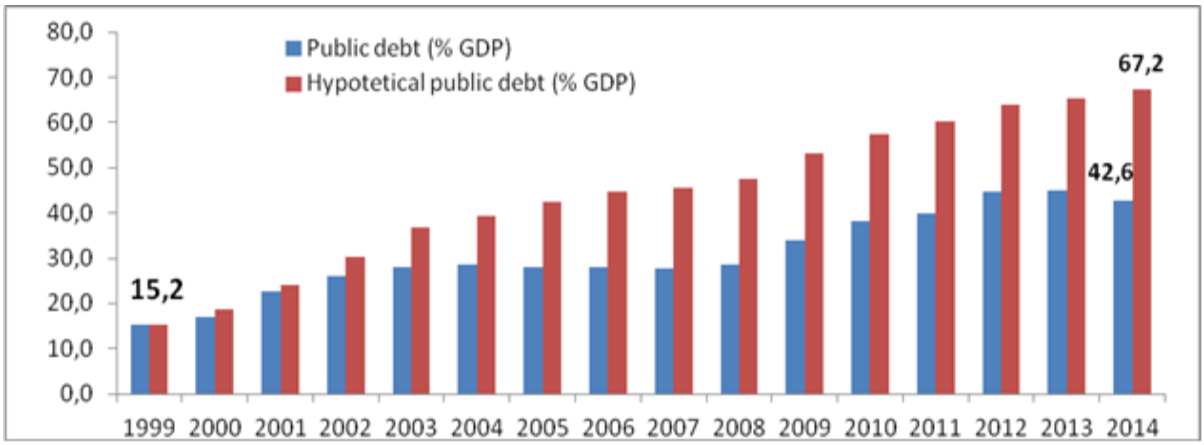
	Total balance (% of GDP)	**Primary balance (% of GDP)**	**Debt Service (% of GDP)**	**GDP (y/y, %)**	**Debt trap coefficient**
2000	-3,5	-1,7	-0,8	4,3	1,01
2001	-5,3	-4,3	-1,0	3,1	1,09
2002	-6,3	-5,3	-1,0	1,6	0,91
2003	-6,4	-5,4	-1,0	3,6	0,88
2004	-2,7	-1,8	-1,0	4,9	0,95
2005	-3,1	-2,2	-1,1	6,4	0,91
2006	-2,3	-1,2	-1,0	6,9	0,95
2007	-0,7	0,4	-1,1	5,5	1,01
2008	-2,1	-1,1	-1	2,7	1,03
2009	-5,5	-4,3	-1,2	-4,8	1,04
2010	-4,4	-3,1	-1,3	2,3	1,03
2011	-2,7	-1,4	-1,3	2	1,01
2012	-3,9	-2,5	-1,4	-0,9	1,06
2013	-1,2	0,2	-1,3	-0,5	1,2
2014	-2,0	-0,7	-1,3	2	0,93

Source: Czech Ministry of Finance, Czech Statistical Office, own calculations

This points again to the deep roots of the Czech fiscal challenges. As soon as the crisis hit, these weaknesses were brought to light quite rapidly. The crisis has been a turning point (for many European economies) in the long-term relatively favourable relationship between long-term interest rates and nominal growth. As a consequence, the coefficients of debt trap immediately turned into dangerous territory (above 1). This led to the debt dynamics of the type that not only the budget balances were added to the previous relative indebtedness but unfavourable economic situation led to autonomous increases of indebtedness stemming from the fact that nominal growth was lower than the implicit interest rates. At the same time it is evident that fiscal consolidation, started in 2009, had been necessary in spite of a wide-spread criticism. It was important to avoid that the legacy of badly managed public finance starts threatening the credibility of fiscal policies. As a result, the fiscal consolidation strategy has helped to promote confidence of the financial markets into the sustainability of the Czech public finance with a

favourable consequence on lower cost of public debt management. Otherwise, Czech credit default swaps could have increased and so would the debt trap coefficient.

Figure 2 - Public debt: real and hypothetical (in % of GDP)



Source: Czech Ministry of Finance, own calculations

Despite recent fiscal consolidation efforts, substantial further improvements in underlying primary balances are needed to ensure sustainability. To assess these needs, it is important to determine what level of debt is in fact sustainable. The recommendation of BIS applying for developed countries for the level of debt ceiling at 60 % of GDP should not be perceived as a benchmark for a country which belongs to quite developed countries as for GDP per capita is concerned but which credit history does not go back more than 20 years. Moreover, it must be stressed that the increase of indebtedness of the Czech Republic was very rapid from the initial level around 15 % at the start of the new millennium and that only a part of this huge increase can be attributed to the crisis story.

However, it can be also said that currently the Czech economy is in a situation when simply stabilising the level of debt could become an important factor of a long-term sustainability of public finance. This is a very comfortable situation if compared to some European peers (where the challenge consists of reducing the level of that indicator). As a matter of fact, the current situation of some countries is heading towards creating a debt spiral. In order to reduce debt they would have to generate primary surpluses. However, that would necessarily mean a further tightening of fiscal policy and hence also the hampering of the rather weak economic recovery. But a combination of higher rates and low growth increases the value of the "debt trap coefficient" and increases relative debt. At the top of the debt spiral there is potentially a financial collapse of the state – Greece is a textbook example.[2]

Although the above described scenario is not threatening in the short-term horizon in the case of Czech public finance, a higher than present level of indebtedness could easily become risky as any unanticipated adverse events could lead to its further sharp increase, quickly turning apparently sustainable fiscal position into unsustainable one. This is clearly illustrated by the developments of the debt trap coefficient and its impact on debt dynamics. Moreover it must be stressed that debt service costs increase in absolute and relative terms with the amount of debt.

[2] As for the fiscal pact, introducing a structural deficit ceiling of 0.5 percent does not resolve the nature of the problem because essentially it blurs the differences in the amount of debt in individual countries, their debt operation conditions and growth perspective.

The relatively low debt level and persisting favourable market conditions may be tempting for postponing of necessary fiscal reform. However, the gradually rising debt burden is increasingly limiting the room for countercyclical fiscal policy in the future – see also BIS (2015).

Besides this rather technical view there are other factors challenging Czech public finance. It is widely accepted that the likely evolution of the public debt needs to be measured against the implicit future government liabilities such as the ageing of population. Ageing populations compound this challenge in at least two ways. Economically, they make the debt burden much harder to bear due to future increases in pension and health care spending. Politically, they heighten the temptation to boost output temporarily through demand management policies.

In the Czech Republic, the majority of public debt is held by domestic entities. A quite specific feature in the Czech economy is that quite a high portion of government bonds is held by domestic banks: the share of domestic government bonds in assets is around 15 % which is above average by international comparison (and certainly compared to the Eurozone). This underlines in the Czech case even more the importance of links (and interdependence of stability) between domestic banking and government sectors as outlined in the first part of this paper. While the higher proportion of sovereign risk in the balance-sheets of banks is not a source of immediate concern for bank´s stability – as the public finance is currently perceived to be stable by the markets – it should remain an area where some action could be needed in the future.(should the condition of public finance deteriorate). Actually, also the supervisor - Czech national bank - has indicated in its Financial Stability Reports (CNB, 2013) that it closely monitors the build-up of sovereign exposures in domestic banks' balance sheets.

Conclusions

This contribution underlines how easy it is for fiscal policies to fall into a debt trap. European troubles must serve for economists and policy makers as a reminder of the everlasting rule that underestimating the value of healthy public finance does not pay off. The lesson to be learnt from the crisis is how quickly the government debt can change from sustainable to unsustainable, thereby causing sovereign risk to materialise. This rapid change is fostered primarily by a change in the confidence of creditors investing in government debt. The speed of this change depends on creditor type, debt maturity and the currency of issue of government debt. So, the recent experience has clearly shown that losing the confidence of investors is closer - and the problems of financing public debt may arrive sooner - than before. The importance of relative indebtedness and debt dynamics has also been underlined by the current crisis, showing the importance of relationship between economic growth and interest rates paid on public debt. A combination of high debt and weak economic growth can set in motion a downward spiral.

Another recent lesson learned is, that international benchmarks for debt sustainability – such as the 60% to GDP criterion – should be taken with some caution. We argue that the factual sustainability of the public debt and fiscal policy should rather be assessed against a set of criteria, measuring the overall economic performance of the country, its credit history, liquidity of financial markets, the sentiment of investors etc. Consequently, the 60% statistical criterion should not be seen as a uniform benchmark or even a recommendation for debt levels, but strictly as a ceiling, while for some countries - as our own - the actual level should be maintained at lower levels.

Also, it is always tempting to use short-term measures instead of aiming to long-term sustainability.

However, the fundamental sustainability factors of public finance remain – as always before - the quality and structure of budget revenues and expenditures.

Population ageing will contribute significantly to deterioration in public finances in the future. In this, the Czech public finance challenges are no different. This will directly affect budget revenues and expenditures and thus further limit the scope for achieving the primary balances needed to safeguard debt sustainability.

In sum, seen from the financial market and bank prospective, the Czech public finance is not an ill patient (actually, it is not a patient at all at this moment in time), however this does not mean that structural reforms are less needed that in the medium and long run. In fact, the sooner they will be launched the better. Not only would that be beneficial to taxpayers, but - seen from the angle of this article - it would reduce the cost of debt service to the public debt, help to maintain the credibility of the fiscal policies and public finance and, last but not least, promote the stability of the financial industry (including banks) in the country.

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