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Periods of fiscal consolidation in selected European economies

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Abstract

Economic crisis exacerbated short-term overview for fiscal sustainability in the European Union member countries. Increased burden of the sovereign debt was followed soon by intention of governments to provide an effective timetable of crucial and inevitable fiscal consolidation procedures.

In the paper we provide an overview of main trends in public budgets and sovereign debts in European economies from the past Eastern block of countries during last two decades. We identify episodes of successful and unsuccessful (cold showers versus gradual) fiscal (expenditure versus revenue based) consolidations by analyzing effects of improvements in the cyclically adjusted primary balance on the sovereign debt ratio reduction. Effects of fiscal consolidating adjustments are evaluated for pre-crisis and crisis periods to reveal crisis effects on fiscal consolidation efforts. We also provide ideas about a feasibility of expenditure versus revenue based fiscal consolidation episodes (i.e. side effects on the macroeconomic performance).

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Keywords: fiscal policy adjustments, fiscal consolidation, cyclically adjusted primary balance, government expenditures, tax revenues, unrestricted vector autoregression model (VAR), vector-error correction (VEC) model

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1. Introduction

Fiscal implications of economic crisis significantly reduced maneuverability of fiscal authorities to provide crucial incentives to support economic recovery and thus to help to eliminate negative effects of a persisting recession. However, it seems that calls for fiscal incentives are contrary to the effective fiscal consolidation necessary to reduce excessive fiscal deficits and high sovereign debts. As a result, governments tend to reduce public expenditures and raise taxes during the periods lagging recession and thus cooling down economies. It is generally accepted that an appropriate composition of fiscal incentives without direct negative effect on the public budget and its revenue and expenditure sides may help to reduce negative budgetary pressures through increased tax capacity of the economy followed by stronger growth of real output.

Challenges addressed to the fiscal policy and its anti-cyclical potential rose steadily but not desperately since the beginning of the economic crisis. On the other hand, calls for fiscal consolidation became urgent almost immediately and this need significantly strengthen after the debt crisis contagion flooded Europe (O'Hara, 2013).

The success of the fiscal consolidation efforts seems to vary across countries reflecting the overall burden of sovereign debt and associated costs of debt service. Significant reduction in primary budget deficit (aiming to primary surplus during a reasonable period) is the only way to reduce a negative impact of sovereign debt on economic growth. While the need to reduce a fiscal imbalance is clear, the composition (expenditure versus revenues based consolidation) and nature (gradual or sharp consolidation) of fiscal consolidation, together with the role played by accompanied policies (quantitative monetary easing, exchange rate internal versus external devaluation, reforms of fiscal institutions, etc.), seems to be quite disputable (Barrios - Langedijk - Penc, 2010).

In the paper we provide an overview of main trends in public budgets and sovereign debts in ten European economies from the past Eastern block of countries during last two decades. We identify episodes of successful and unsuccessful (cold showers versus gradual) fiscal (expenditure versus revenue based) consolidations by analyzing effects of improvements in cyclically adjusted primary balance on the sovereign debt ratio reduction.

2. Fiscal stance

One the most crucial indicator representing one of the key feature of the general government financial stance we highlight risks of increasing sovereign debt burden associate with excessive fiscal deficits that European economies from the past Eastern block of countries experienced during the most of the period of last two decades (Table 1).

Detailed insight into main indicators of a fiscal discipline in the group of ten countries from the past Eastern block since 1995 revealed several implications. Countries that adopted hard peg (or soft peg regime with narrow bands) exchange rate regimes as the nominal anchor (Bulgaria, Estonia, Latvia and Lithuania) tend to experience considerably lower fiscal deficits in comparison with countries that adopted soft peg regimes with wide fluctuation bands or floating regimes. Thus, a commitment to maintain a fiscal discipline seems to be a crucial requirement to reduce internal imbalances (Bartoková, 2012). At the same time we observed that countries from this group were able to significantly reduce sovereign debt burden (Bulgaria) or to maintain its generally low levels during the whole pre-crisis period (all three Baltic countries). On the other hand, remaining countries that continuously increased the overall flexibility of their exchange rate regimes (Czech republic, Hungary, Poland and Slovak republic) and countries with flexible exchange rate arrangements (Romania and Slovenia) experienced relatively diverse trend in the sovereign debt to GDP ratio development but with generally higher fiscal deficits. Significant reduction or generally low levels of the sovereign debt burden helped particular countries to consistently improve their primary fiscal balances (Ďurčová, 2012).

Table 1 Fiscal/primary stance and sovereign debt (1995-2012)

	fiscal deficit / surplus (% of GDP) (primary deficit / surplus) (% of GDP)				sovereign debt (% of GDP)			
	1995-1999	2000-2003	2004-2007	2008-2012	1995-1999	2000-2003	2004-2007	2008-2012
Bulgaria	-4,3 (6,8)	-0,3 (3,0)	1,5 (3,0)	-2,0 (-1,2)	87,9	58,8	25,8	15,2
Czech republic	-5,6 (-4,5)	-5,6 (-4,6)	-2,3 (-1,2)	-4,0 (-2,7)	13,8	24,3	28,4	35,4
Estonia	-0,2 (0,2)	0,6 (0,6)	2,0 (2,2)	-0,9 (-0,7)	7,1	5,3	4,4	6,1
Hungary	-6,3 (1,8)	-5,9 (-1,3)	-7,2 (-3,1)	-2,1 (2,2)	68,5	55,8	63,5	79,0
Latvia	-0,9 (0,0)	-2,2 (-1,3)	-0,6 (-0,1)	-6,4 (-5,1)	12,4	13,7	11,8	35,8
Lithuania	-4,5 (-3,6)	-2,5 (-1,0)	-0,9 (-0,1)	-6,4 (-5,0)	16,0	22,4	18,1	30,3
Poland	-4,1 (0,3)	-4,9 (-1,9)	-3,7 (-1,1)	-6,0 (-3,4)	42,8	40,9	46,4	52,3
Romania	-3,5 (-0,2)	-2,9 (-0,1)	-1,9 (-0,8)	-6,8 (-5,4)	14,1	23,6	14,9	25,2
Slovak republic	-6,5 (-3,8)	-7,4 (-3,9)	-2,5 (-0,9)	-5,7 (-4,3)	33,8	46,2	33,9	36,9
Slovenia	-3,4 (-1,2)	-3,2 (-1,0)	-1,7 (-0,1)	-5,0 (-3,5)	22,0	27,0	25,9	35,6

Source: Compiled by author based on data taken from Eurostat - Government Finance Statistics (June 2013) and IMF - International Financial Statistics (March 2013).

Fiscal implications of the economic crisis vary across European Union member countries provided quite differing financial discipline of fiscal authorities (levels of fiscal budget balance and sovereign debt), overall macroeconomic performance and high level of heterogeneity of individual markets that in common conjunction affects overall costs of fiscal consolidation (European Commission, 2012).

3. Overview of literature

Fiscal consolidation based on tax increases and expenditures cuts is well documented in empirical literature. Tsibouris, Horton, Flanagan and Maliszewski (2006) provided an overview of the experience of countries that have challenged large fiscal adjustments in the last three decades. By identifying periods of successful and unsuccessful fiscal consolidations authors provide operational guidance to policymakers related to various aspects of fiscal adjustments, including common policy approaches, institutional arrangements and causal implications of various fiscal decisions. Barrios, Langedijk and Pench (2010) from estimated econometric models revealed determinants of successful fiscal consolidation while considering large scale of preconditions, including impacts of financial crisis, debt and deficit levels, real exchange rate adjustments, effects on economic growth as well as types of fiscal consolidation. Alesina and Perotti (1997) analyzed how the composition of fiscal adjustments (gradual versus sharp consolidation, expenditures versus tax revenues based consolidation) influences their likelihood of success in the view of long lasting deficit reduction, and their macroeconomic consequences. Overall success of fiscal consolidation is also evaluated concerning initial fiscal stance. Briotti (2002) analyzed the fiscal consolidation process in EU countries over the 1990s. From observed periods of fiscal adjustments authors highlight that revenue based adjustments have generally preceded expenditure based adjustments. Alesina and Ardagna (2009) examined the evidence of fiscal stimuli and fiscal adjustments episodes in OECD countries from 1970 to 2007. Authors discuss effects of adjustments on the spending and revenues sides concluding that tax cuts seem to have higher expansionary potential that spending increases while spending cuts associated with fiscal adjustments are more appropriate for stabilizing the sovereign debt than tax increases while having less deteriorating effect of the real output performance.

4. Fiscal consolidation

4.1 Methodological notes to fiscal consolidation

Fiscal consolidation is usually addressed to the set of fiscal arrangements on the side of revenues and/or expenditures of the government budget in order to reduce a burden of sovereign debt via improved fiscal stance. As a result, crucial fiscal adjustments are employed relying primarily on expenditures cuts (especially in the area of government consumption and social security transfers) and much lower portion is based on tax increases (Alesina and Perotti, 1997). Another type of fiscal adjustments rely especially on the tax and social contributions increases. While the first type of fiscal adjustments is expansionary and usually has longer durability, second type of fiscal adjustments is restrictive, having contractionary effects on the economy and thus representing risks associated with future reductions in the tax capacity of the country.

There seems to be several approaches to measure fiscal consolidation and to evaluate a success of fiscal consolidation episode. For example, Alesina and Ardagna (2009) identify three types of fiscal adjustment episodes. For the purpose of our study we employ two of these measures slightly revised by Barrios, Langedijk and Pench (2010): (1) Fiscal consolidation is the year at which CAPB improves by at least 1.5 percent of GDP (so called *cold shower*) or (2) takes the place over three years provided CAPB will not deteriorate by more than 0.5 percent of GDP (so called *gradual consolidation*). Considering both definitions, cold showers (consolidations during one year) are recognized as full episodes of fiscal consolidation and each year of gradual consolidation are considered as episodes on their own. The last measure reflects the overall success of fiscal consolidation. Fiscal adjustments are evaluated according to their effects on sovereign debt and fiscal CAPB ratios to GDP and real output performance. (3) Fiscal consolidation is revealed as successful provided it helps to reduce sovereign debt to GDP ratio by 5 percent during three subsequent years after we have recognized an initiation of the fiscal episode. At the same time, successful fiscal consolidation is considered to be an effective only if it is able to bring down a debt ratio while not having deteriorating effect on real output.

4.2 Cyclically Adjusted primary balance

To assess detailed overview of fiscal consolidation effects it is necessary to estimate an influence of fiscal adjustments based on tax and/or expenditures changes on fiscal balance. However, it seems to be necessary to reveal changes on revenues and expenditures sides of government balance associated with automatic effects induced by changes in macroeconomic environment and effects of discretionary fiscal policy actions. In first case, i.e. a cool-down of real output growth may be followed by a cut in government revenues (due to reduced tax capacity of an economy in the time of crisis) and an increase in government expenditures (i.e. due higher unemployment benefits). As a result, deterioration of a fiscal balance will occur. At the same time, similar effects on the fiscal balance will be followed by discretionary taxes cuts or expenditures increases. A fiscal stance of a government budget may thus reflect mixed effects of automatic changes in budgetary revenues and expenditures associated with business cycle fluctuations as well as discrete changes on both sides of government budgets associated with discrete fiscal policy actions.

To eliminate effects of a business cycle to the fiscal stance of a government budget it is necessary to eliminate influence of cyclical movements of fiscal variables. As a result of filtered business cycle impacts, together with some other adjustments (i.e. exclusion of interest payable on the side of government expenditures), cyclically adjusted primary balance (CAPB) will be calculated. Empirical literature provides many approaches to calculate CAPB. In general, main algorithm follows the same procedure: (1) estimation of the potential GDP, (2) determination and calculation of key revenues and expenditures categories responses to the fluctuations in cyclical GDP, (3) adjustments in budgetary revenues and expenditures according to the cyclical effects in both sides of government budget. As a result we obtain cyclically adjusted structural or primary balance. On the other hand we have found some differences in step (2) in current empirical literature reflecting relative diversity in approaches employed to estimate income elasticities of main budgetary variables (on both revenue and expenditure sides). At the same time, most studies calculated cyclical component in real output by estimating potential output (and output gap) using simple HP filter[†] or potential employment based on de-trending NAIRU calculations.

Bouthevillain et al. (2001) calculated fiscal elasticities using econometric regressions or derivation from tax or expenditures laws and from detailed information on the distribution of income and revenue. Altãr, Necula and Bobeica (2010) estimated tax and revenues elasticities by applying methodology similar to that employed by OECD and by the European Commission. Authors decomposed main components of revenue and expenditure budgetary sides using linear system of equations. Girouard and André (2005) calculated income elasticities of four different types of taxes while on the expenditure side there is only single item - unemployment related transfers - that authors treated as cyclically sensitive.

Günaydın and Uğraş Ülkü (2002) employed vector-error correction (VEC) model to estimate income elasticities of budgetary components. Provided there is a long-run equilibrium (cointegration) between GDP and budgetary variables, expected elasticity coefficients are represented by normalized cointegrating coefficient derived from cointegrating equations.

To cyclically adjust a government budget, that is to estimate the underlying fiscal position when cyclical and/or automatic components are removed we follow a VEC methodology implemented by Günaydın and Uğraş Ülkü (2002). For more detailed information about methodology used see Mirdala (2013).

4.3 Income elasticities of budgetary categories

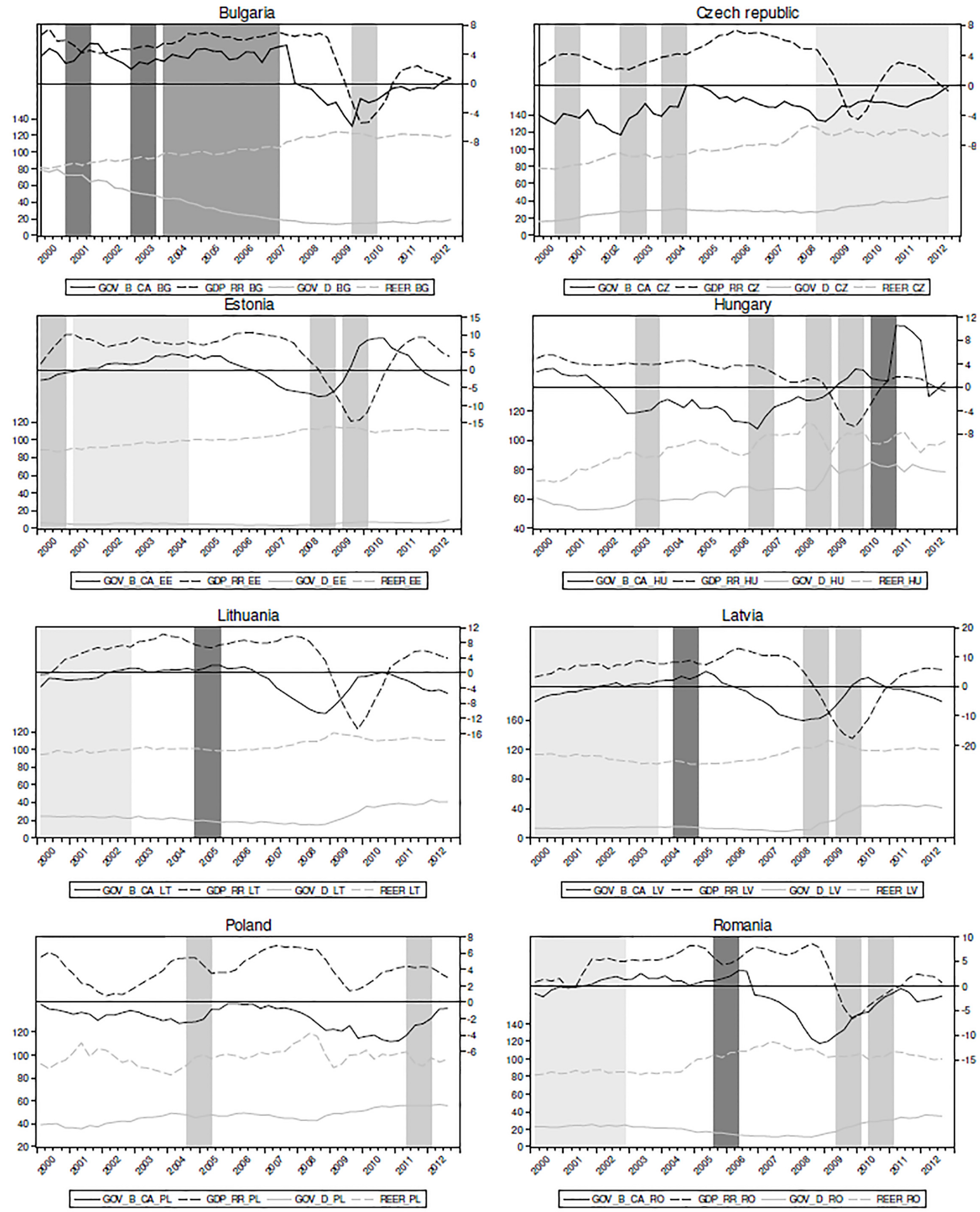
In our model we include three types of budget revenues (revenues from direct taxes, indirect taxes and social contributions) and one budget expenditure category (unemployment related transfers) that seem to respond to short-run (cyclical) movements in real output. As a result, we expect that selected fiscal variables automatically respond to the cyclical fluctuations in real output.

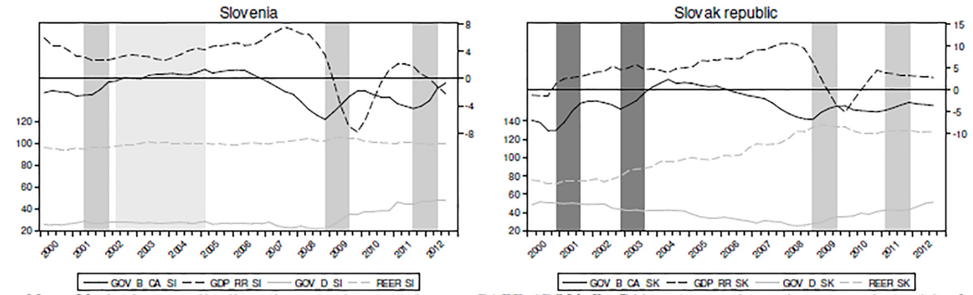
To estimate income elasticities of budgetary categories we expect that there is a long-run equilibrium relationship (cointegration) between each included fiscal variable and real output. Cointegration methodology introduced by Johansen (1988, 1991) and Johansen and Juselius (1990) will be employed to estimate the long-rum equilibrium relationships between different types of budgetary variables and real output in European economies from the past Eastern block of countries. For more detailed information about methodology used see Mirdala (2013).

[†] Despite a wide criticism of Hodrick-Prescott (HP) filter for inducing a spurious cycle in the time series (i.e. it cannot reflect an impact of structural breaks) as well as for poor approximation near the endpoint (so called endpoint bias), it still represents one of most frequently used filter in the current empirical literature.

4.4 Episodes of fiscal consolidation

The figure 1 reveals identified episodes of fiscal consolidation in European economies from the past Eastern block of countries as well as the degree of their success since 2000. Individual countries have experienced several episodes of fiscal consolidation that in total represents 37 episodes of both types - one year consolidation (30) and gradual consolidation (7). However, we have assessed only 27 percent success in one year episodes of fiscal consolidations (8 *cold showers* succeeded).





Note: Variables - cyclically adjusted primary balance - CAPB (GOV_B_CA) and annual rate (on quarterly basis) of the real GDP growth (GDP_RR) are expressed in percentage (right axis in figures). Sovereign debt (GOV_D) is expressed as percentage share on GDP (left axis in figures). Real effective exchange rate (REER) is expressed as index (left axis in figures) (2005 = 100)

unsuccessful one year consolidation | unsuccessful gradual consolidation
successful one year consolidation | successful gradual consolidation

Source: Author's calculation.

Fig 1 Fiscal consolidation episodes (2000Q1-2012Q3)

We have investigated only one successful gradual consolidation (14 percent degree of success). Our results are contrary to conclusions assessed by i.e. Barrios, Langedijk and Pench (2010) who performed investigation about a degree of fiscal consolidation success on the sample of EU15 countries since 1970. It seems that governments in our sample of countries significantly seek an effort to undertake gradual multi-year fiscal consolidations and thus strengthen financial discipline during a significant period of their political cycle. At the same time, none of six gradual consolidations (only one of them was successful) undertaken during the pre-crisis period was associated with deteriorating effects on the overall macroeconomic performance, revealing wasted chance of potentially effective fiscal consolidation.

5. Conclusion

In the paper we have analyzed main trends in the financial stance of general governments in ten European economies from the past Eastern block of countries during last two decades. Brief overview of main trends in selected fiscal indicators and rapid deterioration in the fiscal policy stance during the crisis period revealed a crucial need of fiscal consolidation as it became urgent almost immediately after the debt crisis contagion flooded Europe.

We have identified episodes of successful and unsuccessful (cold showers versus gradual) fiscal (expenditure versus revenue based) consolidations by analyzing effects of improvements in cyclically adjusted primary balance on the sovereign debt ratio reduction. Individual countries have experienced several episodes of fiscal consolidation that in total represents 37 episodes of both types - one year consolidation (30) and gradual consolidation (7). However, we have assessed only 27 percent success in one year episodes of fiscal consolidations (8 *cold showers* succeeded). We have investigated only one successful gradual consolidation (14 percent degree of success). It seems that governments in our sample of countries significantly seek an effort to undertake gradual multi-year fiscal consolidations and thus strengthen financial discipline during a significant period of their political cycle. At the same time, none of six gradual consolidations (only one of them was successful) undertaken during the pre-crisis period was associated with deteriorating effects on the overall macroeconomic performance, revealing wasted chance of potentially effective fiscal consolidation.

Crisis period accelerated negative side (macroeconomic) effects of fiscal adjustments associated with tax and expenditure based fiscal consolidation in European economies from the past Eastern block of countries. Generally, we emphasize increased durability of deteriorating effects of fiscal adjustments (both revenue and expenditure based) on the real output. Provided that a degree of success of fiscal adjustments during the crisis period is reduced due to excessive pressures on both revenues and expenditure sides it seems, that increased durability of real output deterioration, followed by tax and/or revenue based adjustments, significantly reduced a degree of success to perform an effective (without deteriorating side effects on real output) fiscal consolidation.

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