German fiscal austerity and its spillovers on the Central and East European Countries

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Abstract

The global financial crisis has lead to a discussion on feasibility of a fiscal stimulus. As Germany's policy of fiscal austerity used to be criticized by advocates of expansionary fiscal policies, it is of particular interest to study its effects upon the European Union periphery. Using quarterly data of seven Central and East European (CEE) countries over the 2002-2014 period, we find that widening of the budget deficit in Germany leads to a significant worsening of output, while the effects on the real exchange rate are rather marginal. Our results contrast with several other studies, which imply that a higher budget deficit in Germany is beneficial for other European countries. Among different spillover channels, demand and competitiveness effects seem to be outweighed by international flows effect. For the CEE countries, Germany's policy of fiscal austerity is evidently pro-cyclical. The strongest stimulating effect is obtained for Bulgaria and the Slovak Republic, which maintain fixed exchange rates, while expansionary effects are weaker for countries with a floating exchange rate regime, such as Poland or the Czech Republic.

Keywords: *fiscal austerity, Germany, fiscal spillovers, Central and East European countries*
JEL Classification: C5, E6, H6

1. Introduction

Although fiscal policy in Germany was not at all passive as the volume of the stimulus amounted to no less than 3.3 percent of GDP over the 2009-2010 period (Horn, 2011), policy of fiscal austerity in Germany used to be blamed for a slow recovery in the Eurozone and other European countries (Karger, 2014; Zezza, 2012). Assuming that the effects of fiscal policy in Germany are consistent with Keynesian models of the business cycle (Breuer and Buettner, 2010; Heppke-Falk et al., 2006), it is natural to assume that a higher budget deficit in Germany would stimulate domestic demand and affect relative prices thus having positive spillovers all over Europe. As Paul Krugman put it, to avoid a European depression, Germany needed to spend more as its neighbors were forced to spend less (2013). However, fiscal austerity can be justified when public debt and sovereign risk are high (Müller, 2014), thus weakening opposing arguments that multipliers tend to be large during recessions (Auerbach

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and Gorodnichenko, 2012), financial crises (Corsetti et al., 2012) and/or if monetary policy is constrained by the zero lower bound (ZLB) on the nominal interest rates (Christiano et al., 2011). There is evidence that fiscal multipliers are negative in high-debt countries (Ilzetzki et al., 2013). Although this argument is not relevant for Germany itself, it could be the case for the Eurozone as a whole thus affecting the fiscal spillovers.

Besides uncertainty, interest rate level and business cycle, there are a few other factors that potentially affect fiscal spillovers. Traditional analysis based on the Mundell–Fleming model implies that the fiscal multiplier is larger under a fixed exchange rate regime, while it is supposed to be zero in economies with a freely floating exchange rate (Born et al., 2013). While this kind of assumption seems to be too strong, it reflects a model-based implication that fiscal multiplier is supposed to be larger under a currency peg. In the same analytical setting, more open economies are supposed to have stronger fiscal spillovers as foreign income and relative price effects become more pronounced. However, an increase in the import penetration as another indicator of openness could work in the opposite direction thus weakening the fiscal multiplier. If there is a direct link between capital inflows and imports, higher openness of the economy is likely to weaken fiscal multipliers, as it is obtained by the NIGEM simulations for 18 OECD economies (Barrell et al., 2013).

The aim of this study is to assess empirically importance of German fiscal austerity to several CEE countries. The remainder of the paper is organized as follows. Section 2 surveys analytical issues. Section 3 outlines data and statistical methodology. Section 4 discusses the estimation results. Section 5 concludes.

2. Theoretical considerations and empirical evidence

Considering the impact of the austerity measures on growth abroad, several types of spillovers can be taken into account (Veld 2013):

1. *Demand spillovers*. Changes in aggregate demand influence import and export flows with partner economies thus affecting their foreign demand and growth. If austerity measures reduce domestic demand and growth, as it is as is implied by the conventional macroeconomic models, there is a negative demand spillover effect on other countries.
2. *Competitiveness (or relative price) effect*. If changes in aggregate demand exert upward (downward) pressure on prices and wages it reinforces positive (negative) demand spillover.

3. *International capital flows effect*. As changes in budget balance are likely to affect interest rate differentials, at least in the short-run, resulting capital flows should influence aggregate demand through movements in the exchange rate or money supply.
4. *Risk premium*. If austerity in Germany reduces uncertainties related to the sovereign debt in the Euro area, it can contribute to deviations of sovereign borrowing costs from their long-run equilibrium levels.

Extra arguments in favor of fiscal austerity emerge when the monetary authority is constrained by the ZLB on the nominal interest rate, which is a distinct feature of the post-crisis environment. As it is demonstrated by Johannsen (2014) with a New-Keynesian model with endogenous capital accumulation, uncertainty about fiscal policy can cause large declines in consumption, investment, and output under ZLB. It confronts the arguments by Christiano et al. (2011) that the government-spending multiplier can be much larger than one when the zero lower bound on the nominal interest rate binds.

Although the predictions of the Mundell–Fleming model are supported by empirical findings, there is no evidence that it is attained due to a significant real exchange rate appreciation or a substantial crowding out of net exports under floating exchange rates. For an unbalanced panel of OECD countries over the 1985 to 2011 period, it is found by Born et al. (2013) that the difference of the fiscal multiplier across exchange rate regimes is driven by differences in the monetary policy stance, as in the Mundell–Fleming model, but it is due to an adjustment of the level of private expenditure rather than through a redirection of trade flows. Similar results are obtained by Cardi and Müller (2011) for an open economy version of the neoclassical model with endogenous terms of trade and habit persistence in consumption, as the current account tends to be larger and the effects on output smaller in more open economies. Assuming asymmetrical changes in the current account, it implies a stronger positive spillover effect of German austerity on other European countries.

Although more open and financially liberalised economies tend to have smaller multipliers (Barrell et al., 2013), it does not imply fiscal policy ineffectiveness *per se*, assuming importance of such issues as the choice of expenditure or tax instruments, state of the economy and country-specific features. For example, Baum et al. (2012) demonstrate that fiscal multipliers differ across G-7 countries, being dependent on the the position in the business cycle (on average, multipliers tend to be larger in downturns than in expansions). Van Aarle et al. (2003) establish that individual EU countries often react rather differently to monetary and fiscal policy innovations, suggesting diverging adjustment dynamics of output and prices across EU countries. As found by Alesina and Ardagna (2009), austerity measures

realized through spending cuts could stimulate growth by lowering interest rates and encouraging investment. Consumer spending could increase as well if economic agents are convinced that even harsher fiscal adjustments will not be needed later.

On the whole, empirical results are not in favor of austerity spillovers. Beetsma et al. (2006) find that a 1 percent of GDP fiscal stimulus in Germany leads to an increase in foreign GDP by 0.12 percent for a spending increase and 0.03 percent for a net tax cut. Ivanova and Weber (2011) obtain that small and open European economies (Austria, Belgium, Ireland, the Netherlands) are to be substantially affected by aggregate negative spillovers from fiscal consolidation in the context of a coordinated exit from crisis management policies, but this is not the case for larger economies. Moreover, it is argued that a reduced consolidation effort by Germany alone would have a limited impact on the European periphery, though it is admitted that credibility or other non-demand driven effects are not accounted for.

3. Data and statistical methodology

Our VAR model includes three variables: the budget balance in Germany (in percent of GDP), $bdger_t$, the logarithm of the real effective exchange rate (index, 2010 = 100), rer_t, output (in percentage points of GDP relative to trend), yc_t. The Germany's budget balance is used in its structural form, i.e. adjusted for a lagged business cycle position. As presented in Fig. 1, the budget surplus had been substantial over the 2006-2008 period and again in 2011--2012, with a somewhat smaller surplus since then. The real effective exchange rate and output series are obtained from the IMF's *International Financial Statistics* database (www.img.org). The Hodrick–Prescott filter is used for obtaining output trend.

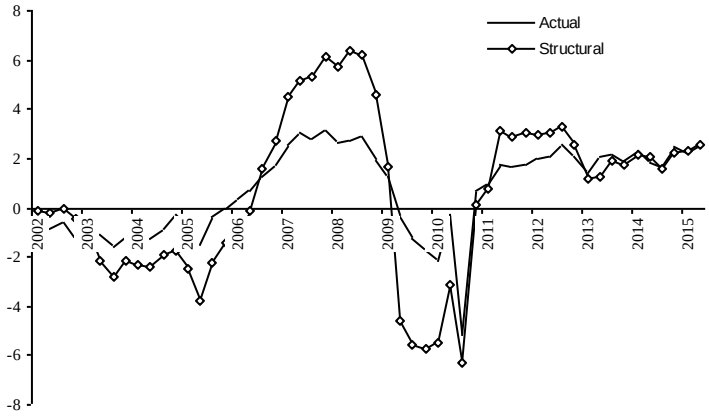

Fig. 1. Germany's budget balance (percent of GDP), 2002-2015.

Source: Eurostat.

Collecting the endogenous variables in the *k*-dimensional vector X_t the reduced-form VAR model can be expressed as follows:

$$X_t = C + A(L)X_{t-1} + u_t \quad (1)$$

where C includes deterministic terms (constant and linear trend), $A(L)$ is a matrix polynomial in the lag operator L, u_t is a $k \times 1$ vector of reduced-form disturbances which are assumed to be normally distributed white noise $\mathrm{E}[u_t] = 0$ with a constant covariance matrix $\mathrm{E}[u_t u_t'] = \Sigma_u$ and $\mathrm{E}[u_t u_s'] = 0$ for $s \neq t$.

The vector of endogenous variables, X_t, is given by $X_t = [bdger_t, rer_t, yc_t]$. It is assumed that the Germany's budget balance is predetermined relative to the other variables in the VAR model, being independent of economic developments in the CEE countries on impact. Two other variables are allowed to respond contemporaneously to a fiscal shock. Our sequencing of fiscal spillovers is as follows. First, the real exchange rate responds to the Germany's budget balance. If fiscal austerity is associated with a downward pressure on the aggregate price level, the RER appreciation is expected. Second, relative prices affect the domestic business cycle, in addition to a direct response to the external fiscal shock from abroad. If the demand and competitiveness effects dominate, the total effect of Germany's austerity is expected to be contractionary. However, a decrease in the risk premium in the Eurozone which is supposed to be expansionary combined with a capital outflows abroad due to unfavourable interest rate differential should bring about positive fiscal spillovers for the CEE countries. We use from two to four lags in our VAR specifications, as suggested by the Akaike criterion.

4. Estimation results

Our results for the VAR model regarding dynamic effects of an exogenous increase in the Germany's budget balance upon real exchange rate and output of seven CEE countries are presented in Fig. 2 and 3, respectively. On the vertical axes, real exchange rate is measured in first differences of its log-level (Fig. 2), and output is measured in percentage difference between actual and trend GDP. The horizontal axis measures time in quarter units.

Regardless of the exchange rate regime and other country-specific features, Germany's budget balance seems not to have any significant effect on the real exchange rate (Fig. 2). Romania is the only country where it is possible to report a statistically significant effect on

impact, but it is short-lived. Contrary to the predictions of the Mundell–Fleming model, a fiscal austerity in Germany is associated with a sharp depreciation of local currency.

Note: the solid line is the point estimate, while the dotted lines represent a two-standard error confidence band around this point estimate.

Fig. 2. Germany's budget balance effects on the real exchange rate (in first differences).

On the other hand, the response of output to German austerity is uniformly positive in the short-run, with a gradual decline after the initial impulse. However, there are several differences in the dynamic adjustment across exchange rate regimes as well as between countries with a floating exchange rate regime. Under fixed rates, the impact effect ranges between 0.37 (Slovenia) and 0.65 (Slovakia) for the first year after the shock. It means that a percentage point of an improvement in the Germany's budget balance contributes to an increase in GDP above its trend by 0.37 and 0.65 percent, respectively. For Bulgaria, a positive spillover effect is as high as 0.52 percent of cyclically adjusted output growth. The impact of German austerity is quite persistent, as during the second year the magnitude of the effect declines only by a third.

Except Romania, the impact of German austerity is much weaker and least persistent for countries with a floating exchange rate regime. The impact effect for Hungary and Poland is obtained at 0.23 and for the Czech Republic at 0.32, which is about a half of the effect upon countries with a fixed exchange rate regime. Moreover, the fiscal spillover fades away completely during the second year after the shock for Hungary and the Czech Republic, while

being halved for Poland. As for Romania, the second-year effect increases to 0.49, which is the single example of such dynamics among seven CEE countries.

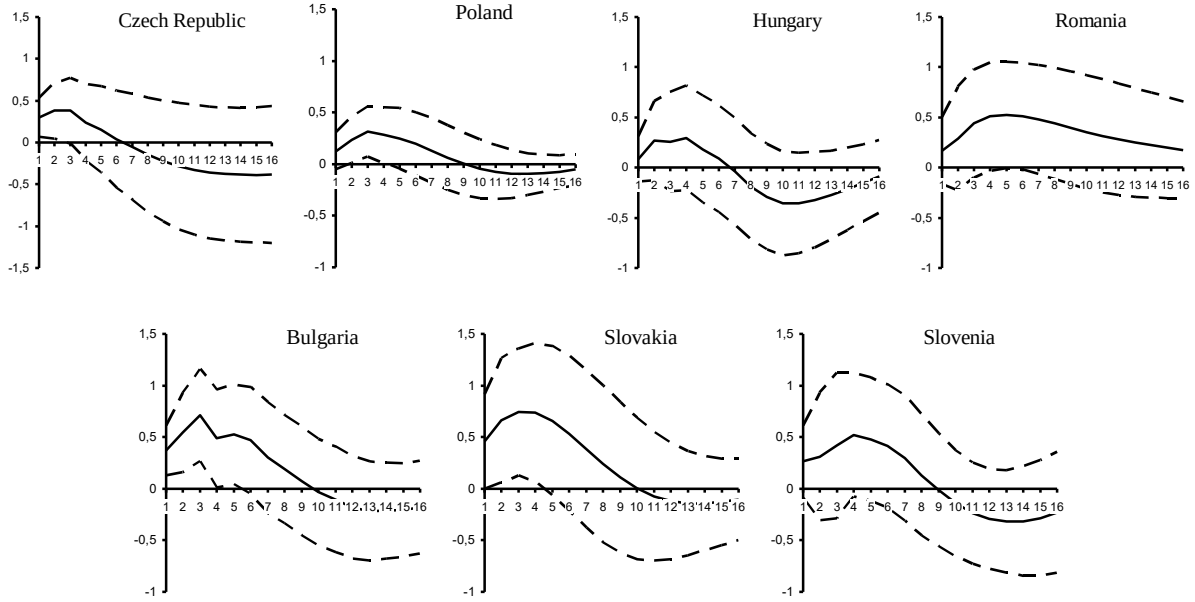

Fig. 3. Germany's budget balance effects on output.

Our estimates are in support of previous studies, see, for instance Born et al. (2012), that fiscal multipliers are larger under a peg. However, there is no support for findings by Beetsma et al. (2006) that a fiscal stimulus in Germany leads to an increase in output abroad. For CEE countries, it is just the opposite. Among different spillover channels, our results suggest that demand and competitiveness effects are outweighed by international flows effect. It is possible to argue that the policy of Germany's austerity is associated with lower uncertainty related to the sovereign debt and thus contribute to capital inflows into the CEE countries.

Table 1 reports the portion of the forecast error variance decomposition (FEVD) in the real exchange rate and output at different forecast horizons that is attributable to innovations in the Germany's budget balance. Fiscal spillovers do not play any significant role in the relative prices, as their contribution to changes in the RER is below 10 percent for all countries. However, Germany's fiscal shocks account for a significant portion of changes in output for Bulgaria and Slovakia (above 30 percent at different time horizons), Poland and Romania (between 20 and 30 percent). For the Czech Republic, Hungary and Slovenia, fiscal spillovers seem to be much weaker.

Among other results, it is found that the RER depreciation contributes to a temporary increase of output above its trend in Slovenia (its contribution to changes in the business cycle gradually increases from 8 to 40 percent), while the opposite short-run contractionary effect is observed in the Czech Republic (between 9 and 25 percent) and Bulgaria (20 percent). For Hungary, Poland, Romania and Slovakia, the RER does not play any role in the business cycle.

Responses of	**Innovations in**	**Country**	**Forecast horizons**			
			4	**8**	**12**	**16**
RER (*Y*)	BDGER	Bulgaria	4	4	5	5
		Czech Republic	3	3	5	7
		Hungary	7	8	8	8
		Poland	3	4	4	4
		Romania	8	9	9	10
		Slovakia	3	4	4	4
		Slovenia	4	5	5	5
Output (*Y*)	BDGER	Bulgaria	35	37	34	34
		Czech Republic	15	9	11	14
		Hungary	7	8	16	19
		Poland	21	25	26	27
		Romania	9	20	24	26
		Slovakia	26	33	31	32
		Slovenia	9	12	13	14

Table 1. Forecast error variance decomposition.

Conclusions

For seven CEE countries (Bulgaria, the Czech Republic, Hungary, Poland, Romania, Slovakia, Slovenia), it is found that Germany's policy of fiscal austerity have positive expansionary spillovers, while being pro-cyclical at the same time. On the other hand, the effects on the real exchange rate are rather marginal. The strongest stimulating effect is obtained for Bulgaria and the Slovak Republic, which maintain fixed exchange rates, while expansionary effects are weaker for countries with a floating exchange rate regime, such as Poland or the Czech Republic. Our results contrast with several other studies, which imply that a higher budget deficit in Germany is beneficial for other European countries. Among

different spillover channels, demand and competitiveness effects seem to be outweighed by international flows effect.

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