EU fiscal stance vulnerability: Are the old members the gold members? ☆

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ABSTRACT

This paper investigates the effect of aggregate shocks on the fiscal stance of the EU, and of its old (OMS) and new (NMS) member states over a business cycle. The fiscal stance is measured by the government deficit. To study the impact of aggregate shocks, we use impulse responses derived from a pooled structural vector autoregression model estimated on annual panel data. We find that the fiscal deficits of OMS could be vulnerable to discretionary changes in government expenditures and revenues. In contrast, the fiscal stance of NMS shows vulnerability to GDP shocks, because the increase in revenues after a positive GDP shock is often outpaced by greater expenditure increases in NMS. The estimated fiscal vulnerabilities stem from disproportionate policy responses concerning government expenditures and a lacking discipline to control pro-cyclical fiscal spending. Our findings for the EU thus support application of fiscal rules focused on government expenditure rather than other fiscal variables.

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1. Introduction

Responsible and flexible fiscal systems can help countries efficiently respond and cope with aggregate shocks, while fostering fiscal sustainability and preserving fiscal space for main government programs.

The stability and growth pact (SGP) and the Maastricht criteria are the most relevant frameworks concerning fiscal discipline and fiscal stance soundness within the European Union (EU) and the Euro Area (EA) (European Commission, 2010; von Hagen et al., 2001). With the entry to the EU, the new member countries are obliged to keep their fiscal deficits under three percent of GDP within the SGP. As they progress in their integration, the prospective EA members need to satisfy the Maastricht criteria.

EU and EA countries, however, are allowed to exercise national discretion in their fiscal responses to the shocks they face, particularly in cases of large shocks (European Commission, 2010; Orban and Szapary, 2004). The latter could help motivate the country variations in fiscal responses during the recent crisis (Spilimbergo et al., 2008). The rules versus discretion debate, historically related to monetary policy, is equally relevant for fiscal policy. The debate is further set in the context of the different degrees of fiscal stance vulnerability across EU countries concerning budget deficit (flow) and government debt (stock) positions, their composition, and cyclical and structural components (European Commission, 2010; Lane, 2010).

This paper investigates the impacts of aggregate shocks on the fiscal stance of EU countries, including by looking into the differences in the shocks' impacts across the OMS and NMS over a business cycle. The motivation for contrasting the old and new EU members' fiscal stance vulnerability to aggregate shocks comes from numerous observations in the literature that the new, less developed members may have generally worse institutional and governance frameworks, lower fiscal discipline, capacity and technical skills, less effective automatic stabilizers, and greater structural deficits and output volatility (Cihak and Fonteyne, 2009; Coricelli and Ercolani, 2002; EC, 2010; Mara, 2012; Orban and Szapary, 2004; Zapal and Schneider, 2006).

The aggregate shocks of interest include macroeconomic shocks, such as the terms of trade, GDP and CPI inflation shocks; the financial shock, approximated by unexpected changes in the interest rate; and fiscal shocks, namely the discretionary changes in government expenditures and revenues. To analyze the fiscal response to these aggregate shocks, this paper estimates a pooled structural vector autoregression (PSVAR) model encompassing basic macroeconomic, financial and fiscal variables using a data panel for EU countries. The estimated pooled SVAR model is then used to derive impulse response functions (IRFs) and study the dynamic responses of the fiscal variables, such as government expenditures, revenues and the budget deficit, to shocks identified by the model.

We find that the fiscal stance (deficits) of OMS could be relatively more vulnerable to government expenditure and revenue shocks compared to new NMS.[1] Namely, the OMS finance discretionary expenditures by further debt accumulation, instead through revenues, and engage in excessive spending after revenue windfalls. On the other hand, the fiscal stance in NMS shows vulnerability to a GDP shock, because the increase in revenues after positive GDP shock is often outpaced by greater expenditure increases in NMS. The estimated vulnerabilities appear to stem from a disproportionate policy response, mostly on the government expenditure side, and a lacking discipline to diminish pro-cyclical fiscal spending.

Our paper fits into the literature analyzing the cyclicality and effects of fiscal policy in the EU. Recently, probably due to the impact of the financial and economic crisis, the dynamics of government budgets has been intensively analyzed in both academic and policy literature. Since the role of fiscal policy in a monetary union is crucial, a significant bulk of recent research focused on the EA. The contributions by Fatas and Mihov (2003) and Gali and Perotti (2003) are the cornerstones of the contemporary analysis of fiscal policy. In line with our results, Crespo-Cuaresma et al. (2011) show that fiscal deficits are a potential source of idiosyncratic macroeconomic fluctuations in the EU. This is because individual fiscal policies, reflecting national priorities, may become a potential source of asymmetric shocks and hinder the performance of monetary policy in a monetary union, such as the EA.

Using an estimated DSGE model for the EA, Ratto et al. (2006) find empirical evidence of systematic countercyclical fiscal policy in the EA, and argue that fiscal policy can be effective in stabilizing GDP in the presence of demand and supply shocks. Turrini (2008) analyzes the cyclical behavior of fiscal policy in the EA countries and concludes that the average stance of fiscal policy is expansionary when output is above potential, thus denoting a pro-cyclical bias in good times. This finding supports our empirical evidence on the pro-cyclical character of fiscal policy in the EU, and in the NMS in particular.

The remainder of the paper is organized as follows. Section two describes the employed data and their sources. Section three describes the applied model and estimation methodology. Section four discusses the estimation results for the EU as a whole, and then separately for the pools of the old and new member states. Section five concludes.

2. Data description

The data series for EU countries employed in our study were obtained from the AMECO database, except for the interest rate series. The latter was taken from the IMF's International Financial Statistic and, for Bulgaria and Romania, supplemented by authors' calculation based on national and IMF country desk information for the years preceding 2000. The frequency of the data series is annual covering the period 1993–2010. The detailed data description and sources are provided in Table 1.

The real GDP is constructed from the nominal GDP and the GDP deflator. The long-term real interest rate is obtained for most countries from the Eurostat, except for Bulgaria, the Czech Republic and Estonia for which it is taken from IMF IFS; Romania and Slovenia for which it is taken from the ECB database; and Slovakia for which it is taken from the OECD database. For the purpose of estimation, all variables are in logs. Table A1 in Appendix A provides data summary statistics for the employed data series in the panel structure.

3. Model and estimation methodology

We use a pooled vector autoregression (PVAR) model to estimate the impact of aggregate shocks on fiscal variables and other main

macroeconomic fundamentals within the EU. The PVAR relates the macroeconomic and fiscal variables of interest to their lagged values, similarly as in Melecky and Raddatz (2011), and can be written as:

$$A_0 x_{i,t} = \sum_{j=1}^{q} A_j x_{i,t-j} + \theta_i + \theta_t + \gamma_i t + \varepsilon_{it} \qquad (1)$$

where $x_{i,t} = (TT_{i,t}, EXP_{i,t}, GDP_{i,t}, INF_{i,t}, R_{i,t}, REV_{i,t})'$, $x_{i,t}$ is the vector of endogenous variables including the percentage change in the terms of trade index, the (log of) real government expenditures (EXP), GDP per capita in constant 2000 US dollars (GDP), the inflation rate (INF), nominal interest rate (R), and government revenues (REV).

The main focus of the paper is on budget deficits and EXP and REV, and we include GDP, inflation and interest rates in the vector of endogenous variables as controls for other macroeconomic conditions and to identify macroeconomic and financial shocks of interest. This set of variables includes all the conventional macroeconomic variables typically included in macroeconomic models (see Monacelli (2005), Linde et al. (2009), and Adolfson (2001), among others). The parameters θ_i and θ_t are country and year fixed-effects that capture long-run differences in all the variables across countries, and the impact of global factors that are common to all countries in the sample and can be understood as the world business cycle. The coefficient γ_i captures a country-specific trend. The residual term $\varepsilon_{i,t}$ corresponds to an error term that is assumed to be i.i.d ~ $(0, \sigma)$.

The number of lags, q, is set to two. This is despite the indication of the conventional lag length selection criteria (Akaike and Schwartz information criteria) that one lag could be optimal for the VAR at hand. To ensure a satisfactory diagnostic of the estimated residuals, specifically to reduce their autocorrelation, we find that the VAR(2) specification is more appropriate in our case.[2] The model parameters are contained in matrices A_j, and the structural interpretation of the results depends on the identification of the parameters of the contemporaneous matrix A_0. Although we are interested in analyzing the impulse response function for the government deficit, we do not include it explicitly as a variable into the model. The model includes logs of expenditures and revenues, which are by definition always positive. The logged government deficit is constructed based on the dynamics of the two variables and their steady state (average) shares in the deficit in the studied countries.

The main identification assumption imposes a diagonal structure on the A_0 matrix. This implies that the terms of trade respond to other macroeconomic variables only with a lag. This is a conventional assumption implying that all countries in our sample are small open economies and price takers in international trade. Further, output, inflation, interest rates and revenues respond contemporaneously to changes in expenditures, but government expenditures respond to changes in a country's macroeconomic conditions and fiscal revenues only after a year. Similarly, revenues are assumed to respond contemporaneously to changes in expenditures, GDP, inflation, and interest rates, but these variables respond to shocks to revenues only with a one year lag.

The assumptions on the ordering of fiscal variables relative to GDP are similar to those in Blanchard and Perotti (2002) and Ilzetzki et al. (2010), but the use of annual data makes them more controversial. Although one may reasonably argue that expenditures are planned on an annual basis and do not respond to a contemporaneous quarterly innovations in GDP, assuming that they do not respond to innovations to GDP within the calendar year could be more extreme. We will assess this ordering assumption and its implications for our results in the robustness analysis.

The ordering of inflation and interest rates relative to output also follows the standard ordering in the monetary policy literature (Christiano

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[1] The OMS include Belgium, Germany, Ireland, Greece, Spain, France, Italy, Luxembourg, Netherlands, Austria, Portugal and Finland. NMS include Bulgaria, The Czech Republic, Estonia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Romania, Slovenia and Slovakia.

[2] We do not report the results here to save space. However, they are available from the authors upon request. We test the implications of this modeling choice for our baseline estimation results in the robustness analysis.