



Fiscal rules and fiscal counter-cyclicity[☆]

João Tovar Jalles^{*}

Centre for Globalization and Governance, Nova School of Business and Economics, Campus Campolide, Lisbon, 1099-032, Portugal
UECE – Research Unit on Complexity and Economics, Portugal



HIGHLIGHTS

- We assess the effect of fiscal rules on a new time-varying measure of fiscal counter-cyclicity.
- We look at a sample of 60 countries over the period 1980–2014.
- We find that fiscal counter-cyclicity is positive and has been increasing over time, being larger in advanced economies.
- We find that fiscal rules reduce the degree of fiscal counter-cyclicity, particularly for debt-based rules in advanced economies.

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ABSTRACT

We assess the effect of fiscal rules on a new time-varying measure of fiscal counter-cyclicity computed for 60 countries over the period 1980–2014. First, we find that fiscal counter-cyclicity is positive and has been increasing over time, being larger in advanced economies. Second, we find that fiscal rules reduce the degree of fiscal counter-cyclicity. The result is especially strong for debt-based rules in advanced economies. Some design features hinder the degree of fiscal counter-cyclicity (such as escape clauses or enforcement procedures), while others (such as transparency) foster it.

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1. Introduction

The legacy of the Global Financial Crisis put fiscal policy at the centre of the debate about the policy mix needed to help economies attain a sustainable growth path. In addition to the allocation and distribution roles, fiscal policy is also responsible for stabilization against business cycle fluctuations. Since output volatility can negatively affect medium-term growth through its effects on investment and productivity, fiscal policy can foster

growth by reducing macroeconomic volatility (Ramey and Ramey, 1995; Aghion et al., 2005). Critical policy challenges revived the debate on the effectiveness of fiscal policy as a stabilizer (van der Ploeg, 2005). Several countries turned to fiscal policy as their main stabilization instrument (Spilimbergo et al., 2008).

At the same time, many countries have introduced fiscal rules of different types to help containing unwanted deterioration in public finance's health. In fact, fiscal rules have been shown to be an effective instrument to prevent the build-up of public debt. The literature on fiscal rules' effectiveness has been motivated by the establishment of tax and expenditure limits in US federal states in the 1970s and the Maastricht fiscal rules in Europe in the 1990s. The effectiveness of two different types of rules has been studied: rules for the budgetary processes (von Hagen and Harden, 1995); and numerical fiscal rules (Eichengreen and Bayoumi, 1994; Debrun et al., 2008). Overall, this literature is positive about the fact that rules are effective to enforce fiscal discipline (Debrun et

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^{*} Correspondence to: Centre for Globalization and Governance, Nova School of Business and Economics, Campus Campolide, Lisbon, 1099-032, Portugal.

E-mail address: joaojalles@gmail.com.

al., 2008). However, it is silent on how fiscal rules can affect the degree of fiscal stabilization. This is the gap this paper aims to fill.

More specifically, we add to the literature in two main ways. First, we provide new time-varying country-specific measures of fiscal policy counter-cyclicality for a large sample of 60 countries between 1980–2014. Several empirical studies recognize the difficulties in providing accurate estimates of fiscal stabilizers. However, they also acknowledge the need to have at least approximations of it (Auerbach and Feenberg, 2000). Second, mindful of difficulties in identifying the effects of fiscal rules (Heinemann et al., 2014), we rely on the recently updated IMF dataset on fiscal rules to empirically assess to what extent they foster or hinder fiscal stabilization.

We find that fiscal counter-cyclicality is positive and has been increasing over time, being larger in advanced economies. Moreover, we find that fiscal rules reduce the degree of fiscal counter-cyclicality and the result is especially strong for debt-based rules in advanced economies. Some design features hinder the degree of fiscal counter-cyclicality (such as escape clauses or enforcement procedures), while others (such as transparency) foster it.

2. Methodology and data

In a static setting, the empirical approach to measure the contribution “on impact” of fiscal policy to aggregate stability involves the estimation of the response of a budgetary indicator to changes in economic activity (Lane, 2002; Fatás and Mihov, 2012). One good candidate variable is the budget balance which is a proxy for the aggregate demand's effect of fiscal policy in a given year (Blanchard, 1993). That is,

$$BB_i = \alpha_i + FC_i * GAP_i + \varepsilon_i \quad (1)$$

where BB is the budget balance-to-GDP ratio, GAP_i is a measure of the output gap¹ and FC measures the degree of fiscal counter-cyclicality, with larger values of the coefficient denoting higher counter-cyclicality. We then generalize Eq. (1) by introducing the assumption that the regression coefficients (FC) may vary over time:

$$BB_{it} = \alpha_{it} + FC_{it} * GAP_{it} + \varepsilon_{it}. \quad (2)$$

The coefficient FC is assumed to change slowly and unsystematically over time, with its expected value being equal to its past value. The change of the coefficient is denoted by $v_{i,t}$, which is assumed to be normally distributed with expectation zero and variance σ_i^2 :

$$FC_{it} = FC_{it-1} + v_{it}. \quad (3)$$

Eqs. (2) and (3) are jointly estimated using the Varying-Coefficient model proposed by Schlicht (2003). This method has several advantages compared to other methods to compute time-varying coefficients such as rolling windows and Gaussian methods (Aghion and Marinescu, 2008). For our purposes the most important advantage is the fact that it reduces reverse causality problems when fiscal counter-cyclicality is used as explanatory variable as the degree of fiscal counter-cyclicality depends on the past.

¹ We apply Hamilton's (2017) recent filter to extract the cyclical and trend components of GDP. We do so since we are aware of the criticisms surrounding, for instance, the use of the Hodrick–Prescott (HP) filter, particularly in the context of a large heterogeneous sample (Cogley and Nason, 1995). Results using the standard HP filter instead yield qualitatively similar conclusions. The output gap is expected to mirror the dynamics of temporary demand disturbances. But we also estimated using the real GDP growth as the proxy for economic activity, which would capture a mix of both demand and supply shocks. Results are qualitatively unchanged.

To estimate the impact on fiscal rules on our measure of fiscal counter-cyclicality, we run:

$$\widehat{FC}_{i,t} = \alpha_i + \delta_t + \beta rules_{i,t} + \gamma X'_{i,t-1} + \varepsilon_{i,t} \quad (4)$$

where α_i are country-fixed effects to capture unobserved heterogeneity across countries, and time-unvarying factors such as geographical variables; δ_t are time effects to control for global shocks; and X_{it} is a vector of time-varying macroeconomic variables. This vector includes: (i) real GDP per capita (Talvi and Vegh, 2005); financial development (Aghion and Marinescu, 2008); trade openness, proxied by ratio of total exports and imports in GDP (Lane, 2002), capital account openness, proxied by the Chinn–Ito index (Aghion and Marinescu, 2008), and government size, proxied by government expenditure-to-GDP ratio (Debrun et al., 2008).² To reduce reverse causality, all these variables enter the specification with one lag.³ Our main regressor, the fiscal rules variable, $rules_{i,t}$, comes from (IMF, 2009) and can take multiple forms.⁴ Rules can be of 4 types: expenditure (ER), revenue (RR), budget balance (BBR) and debt (DR). Additionally, we created a dummy variable FR_1 , denoting existence of any of these fiscal rules in a given country i and year t . The dataset also contains information about monitoring, enforcement and escape clause for each type of rules. If any of the fiscal rules applied in a country had a monitoring of compliance in place, the variable $FR_monitor$ assumes value 1 and zero otherwise. The same is the case for formal enforcement ($FR_enforce$) procedure and escape clauses (FR_escape)⁵ whereas independent monitoring body ($independent_monitor$)⁶ and $transparency$ ⁷ are taken “as they are” from the database (see Schaechter et al., 2012; Lledó et al., 2017 for further details).

Since the dependent variable in Eq. (4) is based on estimates, we correct for the presence of the resulting un-measurable error term by using Weighted Least Squares (WLS), with weights given by the inverse of the estimated standard deviations of the fiscal counter-cyclicality coefficient for each country i .

Our sample consists of a total of 60 advanced and developing countries between 1980–2014, for which we have estimates of fiscal counter-cyclicality for at least 20 years and for which the IMF's fiscal rule dataset has information on.

Fig. 1 reports the average level and the time path of the FC coefficient estimated in Eqs. (2) and (3) for our sample of 60 countries by income group. We note that the time-average fiscal counter-cyclicality is positive (about 0.3), a finding consistent with that of Lane (2002), Frankel et al. (2013) and Vegh and Vuletin (2015). Moreover, the degree of fiscal counter-cyclicality has increased over time.

3. Results

In Table 1, we display the estimates from running Eq. (4) for the whole sample and two income groups separately. We can observe that, regarding the vector of controls, fiscal counter-cyclicality is positively and robustly associated with the level of trade openness:

² Unless otherwise specified, macroeconomic variables come from the IMF's International Financial Statistics.

³ Similar results are obtained using contemporaneous regressors (not shown but available upon request).

⁴ See here: <http://www.imf.org/external/datamapper/fiscalrules/map/map.htm>.

⁵ Escape clauses can provide flexibility to rules in dealing with rare events.

⁶ An increasing number of countries are using independent bodies to further enhance the credibility of their fiscal rules such as independent Fiscal Councils. These or other independent committees can also provide key budgetary assumptions and methodologies which are key inputs into the implementation of rules.

⁷ Fiscal rules can be supported by fiscal responsibility laws which typically set out procedural and transparency requirements.

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