



Government debt in EMU countries

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ABSTRACT

We investigate the sustainability of fiscal policy in a set of 19 European Monetary Union (EMU) countries over the period 1970–2016. Panel unit root tests in the presence of cross-section dependence show that the Government debt series is stationary, indicating that the solvency condition would be satisfied for the EMU-19 countries. This implies the effectiveness of the austerity measures implemented by member countries. Moreover, Markov-switching models estimates show that for 12 selected countries two different regimes exist, with statistically different coefficients across states. For all these countries, the mean of government debt in the more recent years (state 2) is incredibly higher than the mean of the 1970s (state 1).

1. Introduction

The sustainability of fiscal policies is a central topic in both economics and public policy. The rise of public sector debt in many industrial countries during the last decades of the Twentieth century caused increasing concern about potentially unfavorable effects on economic growth, inflation, international competitiveness, productivity, and unemployment. Theoretically, one would assume that equilibrium growth paths in the European Monetary Union (EMU) and member countries would be supported politically and economically by compatible fiscal policy chosen through majority rule collective decisions. As of April 1, 2014, the European Union (EU) had 25 member signatories to the Fiscal Stability Treaty, which requires countries to transpose the Fiscal Compact into their national legal framework. Their national public sector budget is required to be in balance (or surplus) as defined by the treaty. Signatories to the treaty are obligated to establish automatic mechanisms to correct deviations from stipulations in the Fiscal Compact, and to develop a national independent fiscal monitoring institution. Moreover, the EU's Fiscal Compact imposes the practical necessity of sustainable public sector accounts, keeping the public sector debt/GDP ratio below 60%, and defining budget balance as a public sector deficit/GDP ratio not to exceed 3%.

A major question emerging from the global economic and financial crisis of 2008 is how to restore a country's economic growth while assuring fiscal health and sustainability. This concern is especially relevant for the Eurozone, due to its dismal economic growth prospects coupled with high levels of public sector debt. High debt to GDP ratios and slow economic growth underscore the importance of understanding their effects on fiscal sustainability and economic growth and the trade-offs these often-conflicting goals may entail.

Many economists examined EU fiscal policy by empirically testing the present value of budget deficit constraints such as the EU 3%

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rule. These applied papers use stationarity tests for public sector deficits and debt in conjunction with cointegration tests between public expenditure and revenues. Fiscal sustainability for the Eurozone was addressed, among others, by Balassone, Franco, and Zotteri (2006), Claeys (2007), Afonso (2008), Ciżkowicz, Rzońca, and Trzeciakowski (2015), Esposito (2015), and Forte and Magazzino (2016). Our study, which is based on a panel approach, includes the crisis years and it is the first study that uses a panel data framework to examine fiscal sustainability of the Eurozone as a whole. Brady (2015) provided supply-side evidence of non-Keynesian expansions from spending cuts, identifying austerity and fiscal consolidation concerns for policy-makers. Forte and Magazzino (2016) evaluated fiscal adjustments that have occurred in the 18 EMU countries from 1980 to 2015, showing that adjustments by cutting current expenditures rather than by tax increases are more likely to boost economic growth. On the contrary, cuts to the investment expenditures might imply a GDP reduction.

Both monetary and fiscal policy play a role in the stabilization of the macroeconomic environment, while also serving broader goals of fiscal sustainability, inflation, and income redistribution objectives. A country's fiscal space determines the flexibility and effectiveness that fiscal policy plays in the economic cycle. Economists disagree on the specifics of fiscal policy, but have reached a consensus that spending-based fiscal adjustments are not only more likely to reduce the debt-to-GDP ratio than tax-based adjustment are, but also less likely to trigger a recession.

If we consider the results of Reinhart and Rogoff (2010), according to which for public debt ratios above 90% GDP growth would be roughly halved, actually seven Eurozone members (Belgium, Cyprus, France, Greece, Italy, Portugal, and Spain) overcome this threshold; this would imply a severe constraint to their economic performances. This complements the empirical findings by Baum, Checherita-Westphal, and Rother (2013), who suggested that the short-run impact of debt on GDP growth is positive and highly statistically significant, but decreases to around zero and loses significance beyond public debt-to-GDP ratios of around 67%. In addition, the long-term interest rate is subject to increased pressure when the public debt-to-GDP ratio is above 70%.

In the literature, we can find two groups of sustainability studies: (a) those that assess whether past policies have been sustainable; and (b) those that assess the sustainability of future budget balances. In this study, we will focus on the first class of studies, since the long-term projections needed for the forward-looking application tend to be subject to wide margins of error.

Finally, we estimated a Markov-switching models for time series that transition over a set of finite unobserved states. The time of transition between states and the duration in a particular state are both random. The transitions follow a Markov process.

We collected annual data on general government gross debt for the 19 Eurozone member countries from 1970 to 2016. This study sheds light on the fiscal sustainability of European Monetary Union (EMU) countries, taking into account the problem of cross-section dependence. In fact, given the heterogeneity in public accounts' conditions of the EMU members, a panel analysis can help to evaluate the overall fiscal solvency of the whole area.

Besides the Introduction, the remainder of this paper is organized as follows. Section 2 provides a survey of the literature. Section 3 presents the methodology and data, while section 4 shows the empirical results. Finally, Section 5 contains some concluding comments and policy implications.

2. Testing for fiscal sustainability: a review of the empirical evidence

The sustainability of the fiscal policies of Europe and the United States is in the headlines from the early 1990s. There is a large literature on the intertemporal budget constraint. The general conclusion to emerge from this is that fiscal policy is sustainable if the government budget constraint holds in present value terms. More precisely, the current debt should be offset by the sum of expected future discounted primary budget surpluses (Uctum & Wickens, 2000). The basic framework of the theoretical analysis on fiscal sustainability draws on contributions due to, among others, Trehan and Walsh (1988), Hakkio and Rush (1991), Afonso (2005), and Bohn (2005), to name a few. As explained, the standard approach in the economic literature to analyze the sustainability of fiscal policies implies stationarity and unit root tests for public debt and deficit, and cointegration tests between public expenditures and revenues.

Recalling the Intertemporal Budget Constraint (IBC), it is possible to present analytically two definitions of sustainability suitable for empirical testing (Hamilton & Flavin, 1986):

- (i) The value of current public debt equals the sum of future primary surpluses.
- (ii) The present value of public debt approaches zero in infinity.

To test the absence of Ponzi games, we inspect the stationarity of the first difference of the stock of public debt $\Delta GGCGD_t$, and cointegration between primary balance, $GGNPL$, and the (lagged) stock of the public debt, $GGCGD_{t-1}$ (Afonso & Jalles, 2015; Bohn, 2007):

$$GGNPL_t = \alpha + \beta GGCGD_{t-1} + \mu_t \quad (1)$$

This 'backward-looking' approach implies that past increases in the level of public debt would imply larger primary balances today. According to the transversality condition, the IBC implies that the current value of the outstanding public debt is equal to the present value of the expected future (primary) surpluses. Thus, this condition constrain the public debt to growth no faster than the real interest rate.

Bohn (2007) suggests that a positive (and statistically significant) response of the primary deficit to (lagged) debt in a fiscal reaction function is a sufficient condition for sustainability.

Moreover, Trehan and Walsh (1991) observe that the stationarity of the variation of public debt stock is a sufficient condition, and

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