DEBT SUSTAINABILITY AND FISCAL POLICY RULES IN THE EUROPEAN UNION

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Abstract: *The sustainability of fiscal policy represents a subject which was studied extensively and the general conclusion of these studies is that fiscal policy is sustainable provided the intertemporal budget constraint is satisfied. The future expected discounted primary surpluses should exceed the value of public debt in order for public debt to be sustainable. The ability of governments to repay the debt will depend on the capacity to achieve future primary surpluses and on the stock of past debts. Fiscal policies are thus dependent on the intertemporal budget constraint, in case this condition is not fulfilled, then governments will have to change fiscal policies.*

Keywords: fiscal policy, intertemporal budget constraint, primary surplus, public debt, fiscal rules

JEL Codes: H60, H63, E62

Introduction

The economic and financial crisis which started in 2008 had a negative impact on public debt in many EU countries. Because of these debt crises the debate about debt sustainability has become a common topic for many governments and international institutions. At the same time, the evolution of public debt is correlated with the possibility of default, therefore many governments pay attention to the evolution of this indicator.

European Union countries confront with high levels of public debt and bigger deficits as a result of the last economic crisis. This macroeconomic context, dominated by budget deficits and pro-cyclical policies, together with bigger tax burdens have determined European Union to adopt strict fiscal rules in order to cope with these situations.

The fiscal policies adopted by EU member countries must comply with the intertemporal budget constraint, that is the government can borrow only up to a certain limit, which is given by the fact that the governments must intertemporally balance their budget so that the current value of the debt is equal to the discounted sum of expected future surpluses. If the intertemporal budget constraint is not respected, then the fiscal policy will not be sustainable, because the rate of debt increase will surpass the rate of economic growth.

Debt sustainability means that any deviations from the sustainable path must be corrected and therefore it is not necessary that budgets be balanced all the time. When deficit

becomes too big, then the capacity of the government to pay the debt becomes problematic. A debt is considered sustainable as long as the government can afford to repay the debt and the interest of its future revenues. Solvency supposes that governments respect the intertemporal budget constraint, which represents the criteria for assessing debt sustainability usually used.

The European Union has strict fiscal rules concerning the level of debt and deficits, which were first stipulated in the Maastricht Treaty regarding the excessive deficit procedure. According to this rule, government deficit should not exceed 3% of GDP, while public debt should remain within the limit of 60% of GDP. Only deviations in exceptional situations are allowed, but under some very strict conditions. The Stability and Growth Pact contains more restrictive rules imposing to member states to maintain cyclically adjusted budgetary positions close to balance or in surplus.

Definition

There have been proposed several modalities in order to define debt sustainability – depending on the time horizon chosen, debt sustainability can be regarded as a short, medium or long-term concept. Debt and deficits can be measured gross or net, depending on the inclusion of social security contributions.

The definition proposed by Blanchard (1990) for public debt sustainability should answer the following question: Can the actual course of fiscal policy be sustained without affecting or provoking an explosion of debt? Or the government will have to resort to another solution such as increasing taxes, decreasing spending or resort to monetization or even repudiation?

The definition of debt sustainability proposed by the International Monetary Fund is that a debt is sustainable if it satisfies the solvency condition without a major correction […]given the costs of financing.

Literature review

In this context, two different empirical approaches to analyzing the sustainability of fiscal policies have been used. The first consists of testing the stationarity of the public debt or deficit. The results vary with the specification of the government budget constraint. Hamilton and Flavin (1986) showed that if deficits and government debt follow a stationary process, intertemporal budget balance is satisfied. They found stationarity of undiscounted U.S. debt under the assumption of constant real interest rates. Wilcox (1989) allows for stochastic interest rates and finds that discounted U.S. debt is nonstationary.

There are also studies using cointegration tests which search for a relation of cointegration between the primary deficit, the stock of outstanding debt and interest payments. Trehan and Walsh (1988, 1991) find support for the sustainability of U.S. fiscal policies. In contrast, Kremers (1991) and Hakkio and Rush (1991), allowing for stochastic real interest rates and for a growing economy, show that in recent years fiscal policy violates the intertemporal budget constraint.

Bohn (1995, 1998) has made a critique of these tests because they make assumptions on future states that are difficult to estimate from an observation of time series data. Bohn provides also a new econometric approach in order to test the sustainability of public debt, a sustainability test in order to find out whether a given time series of public debt is sustainable.

In a stochastic economy, discounting future government spending and revenues by the interest rate on government bonds is incorrect. The discount factor on future spending and revenues depends on the distribution of these variables across possible states. At the same time, Bohn proposes to test if the primary deficit to GDP ratio is a positive linear function of the debt to GDP ratio. If this test is satisfied, then the fiscal policy can be considered sustainable.

Bohn (1998) suggests a different interpretation for the inter-temporal budget constraint, using methods for testing whether the primary balance reacts in a positive manner to the public debt dynamics.

$$pb_t = qb_t + aZ_t + \in_t$$

where pb_t is the ratio of primary balance over GDP, b_t represents the ratio of public debt over GDP, while $\in_t$ is the error term. Z_t is a vector that includes several determinant variables of the primary balance other than public debt. When applying this model for U.S. data, Bohn concludes that q>0, thus implying a positive reaction coefficient of the primary balance to the increasing stock of debt. As a conclusion, the government fiscal policy function can be considered to be sustainable even in an uncertain world.

Bohn (1998, 2007) also relates the fiscal reaction function to the model proposed by Trehan and Walsh (1988, 1991). This model analyses the reaction of the government in order to adjust the budget balance to keep pace with changing public debt.

Trehan and Walsh (1991) state that the budget is sustainable if the present value of future stock of public debt converges to zero. The Non-Ponzi game condition is thus satisfied if the future discounted expected stock of debt will converge to zero. The authors have shown that in order for this condition to be satisfied public debt and deficit without interest must be co-integrated.

Mendova and Oviedo (2004) proposed a model for the evaluation of fiscal sustainability in a state of "fiscal crisis", a state that reveals for a specific country a "natural debt limit". This framework models precisely the intention of the government to remain solvent, under three main assumptions: the government is extremely averse to suffering a collapse in its outlays; there is a non-zero probability of facing a fiscal crisis and the government is averse on default on its debt.

Mendova and Oviedo have demonstrated that in the presence of a shock fiscal policies considered sustainable on a canonical long-term based analysis would not satisfy the condition of solvency. This condition excludes a Ponzi scheme, where the debt is permanently renewed. Without this condition, the government can cut current taxes without modifying future expenses.

The intertemporal budget constraint

The formal condition of sustainability is based on the inter-temporal budget constraint: the public sector is solvable when the actualized value of future primary surpluses is equal to the current value of public debt. This means that the debt will tend to zero in the long term and the public sector can not be a net debtor in terms of actualized value. Solvability requires that at a certain moment in the future the primary balance will become positive.

The equations of the inter-temporal budget constraint are:

$$d_t = (1 + r_t - y_t)d_{t-1} - s_t$$

$$\Delta d_t = d_t - d_{t-1} = (r_t - y_t)d_{t-1} - s_t$$

where d represents the debt, r is the interest rate for the debt and y is the rate of economic growth, while s represents the primary surplus. The increase of the debt represents thus the difference between the debt of previous period adjusted with the rate of economic growth. In case that the interest rate r exceeds the growth rate of the economy y, the debt ratio will increase if budgetary surpluses are not enough to compensate for the increasing debt.

The intertemporal budget constraint represents the key to understanding debt sustainability. According to the intertemporal budget constraint, the current spending on goods and services and the cost of interest for the current debt should be equal to government revenues and the new issued debt.

$$G_t + (1 + i_t)B_{t-1} = T_t + B_t$$

where G_t represents the government spending, T_t refers to the tax revenues in period t, and B_t is the government debt contracted in period t.

We can note by g_t, τ_t, b_t the ratios of government spending for goods and services, tax revenues, and debt issuance to GDP in period t, respectively.

Thus we have the following equation

$$d_t + \frac{1 + i_t}{1 + y_t} b_{t-1} = b_t$$

where $d_t = g_t - \tau_t$ is the primary budget deficit ratio and y_t is the growth rate of GDP. According to this equation, the debt ratio increases if the government runs a deficit and, at the same time, the nominal interest rate exceeds nominal GDP growth.

In the long run governments cannot run Ponzi games, specifically governments can not pursue fiscal policies that use the issuance of new debt in order to finance old debt and to pay the interest for the already contracted debt.

The present discounted value of government debt, calculed all over the future periods, must be zero. Thus, the government intertemporal budget constraint becomes like in the following equation:

$$\sum_{t=1}^{\infty} \left(d_t \prod_{s=1}^{t} \frac{1 + y_s}{1 + i_s} \right) + b_0 = 0$$

where b_0 is the current debt ratio. This condition must be respected in order for fiscal policy to be sustainable. The idea of this equation is that the present discounted value of primary deficits plus the value of current debt must be zero. A conclusion that derives from this equation is that running substantial deficits over a long time is compatible with sustainability only with the condition that these deficits can be compensated for by sufficiently high future surpluses.

The fiscal policy sustainability is mainly correlated to the evolution of the rate public debt/GDP. A fiscal policy is considered sustainable when the level of public debt is finite.

Public debt sustainability

There is another interpretation of sustainable fiscal policy which takes into account the evolution of debt on the medium term. Sustainability is considered as a reduction of the debt to GDP ratio over a given time horizon towards a certain target ratio. This modality of interpreting

debt sustainability starts from the observation that governments that have high debt levels are less likely to respond to adverse shocks, as high debt servicing costs do not allows enough space for fiscal policy measures.

The budget constraint of the government can be expressed in the following manner:

$$\Delta b_{t+1} = b_{t+1} - b_t = (r - n)\, b_t + d_{t+1}$$

where r denotes the real interest rate and n is the real GDP growth rate. Thus, in order to reduce the public debt ratio, the primary surplus must be larger than debt servicing, which can be expressed as

$$-d_{t+1} \geq (r - n)\, b_t$$

According to this equation, the debt ratio will increase indefinitely if the real interest rate is bigger than the rate of GDP growth unless the primary budget is in sufficient surplus.

As far as the econometric analysis of fiscal sustainability is concerned, there are two approaches usually implemented. According to the first theory, it is examined whether the time series of public debt is nonstationary, that is whether the debt to GDP ratio has an increasing trend and exceeds future discounted surpluses. In case it is not found to be the case, the fiscal policy is considered sustainable.

Fiscal rules

The high budgetary deficits have contributed to a change in the discretion of the fiscal policy and the introduction of fiscal rules. During the last 15 years, EU states have resorted to fiscal rules, which were expressed either by numbers or an explicit target for fiscal variables.

The adoption of fiscal rules represents an efficient modality to assess the performance of a government in the respect of public expenditures and budgetary deficits. A fiscal rule makes it easy to assess the performance of a government. The arguments for restricting the discretion of fiscal policy rely on three types of adverse effects that government policies can produce: excessive deficits; increased variability and pro-cyclicality of the fiscal policy. The benefits that come from restricting the behavior of fiscal policy are related to a better fiscal discipline and a better coordination between monetary and fiscal policies.

The reaction of fiscal policy to economic fluctuations has to be counter-cyclical: during the boom periods budgetary surplus and during recessions deficits. In many situations, the fiscal policy is procyclical, which means that during a period of boom the expenditures grow faster than revenues. Due to the fact that the elasticity of expenditures with reference to economic activity is smaller than the elasticity of revenues, a growth of expenditures during expansion period will lead to excessive deficits during recessions.

The fiscal rules can be differentiated depending on the budgetary variable targeted and application. These rules establish limits for the fiscal deficit or for the public debt and they can also re-equilibrate the budget structure, and stop the increase of some categories of expenditure.

According to a survey of the Working Group on the Quality of Public Finances realized in 2006, around 2/5 of the fiscal rules in vigor in the EU member countries are budget balance rules, around 1/4 impose restrictions on borrowing and debt, 1/4 target expenditures, and 1/10 revenues. The results of this study show also that the majority of deficit and public debt rules apply to regional and local budgets. While most expenditure rules refer to central and social security budgets.

Fiscal rules can be applied both at national and supranational level. The fiscal rules for the EU member states are established within the Stability and Growth Pact.

There are several criteria used for analyzing the quality of fiscal rules in EU.

For instance, Kopits and Symansky (1998) consider that an ideal fiscal rule should be well-defined (clear, simple, transparent, consistent, and flexible), should allow its effective implementation (by incorporating ex ante and ex post enforcing mechanisms, and also, the opportunities for an efficient monitoring process), and should be enforceable (with respect to decision, amendment and sanctions).

These criteria were used in order to evaluate the quality of domestic fiscal rules, on a national plan. In order for these rules to be valid at supranational level, these rules should be altered taking into account the principle of national sovereignty. Fiscal rules should be as neutral as possible with reference to the heterogeneous social preferences of the countries.

Inman (1996) considers that an efficient fiscal rule should target ex post and not the ex ante deficit; should be impossible to be temporarily suspended or abrogated by simple majority of the parliament; should offer free access to the information to all interested parts, to indicate eventually slippages; and should provide substantial penalties.

To summarize information about the coverage and the strength of the numerical fiscal rules, Ayuso-i-Casals *et al.*, (2007) design a Fiscal Rule Index, comprising the following aspects:

- statutory basis of the rule: statutory or legal base of the rule, and room for setting or revising objectives;
- body in charge of monitoring respect of the rule;
- body in charge of enforcement of the rule,
- enforcement mechanism of the rule, and
- media visibility of the rule.

By replacing the information on the strength of individual fiscal rules by information on the properties of each fiscal rule with respect to stabilization, the authors obtain the Fiscal Rule Cyclicality Index.

Conclusion

The UE debt crisis and the necessity to stabilize the large fiscal imbalances and high budget deficits of countries which implemented fiscal package of measures have led to an extensive application of fiscal rules as an instrument to support fiscal discipline and sustainability of public finances. Fiscal rules are defined as permanently restrictions on fiscal policy by limiting the values of the budget parameters. These fiscal rules are designed to ensure greater fiscal responsibility and sustainability of public debt through fiscal discipline which will lead to an efficient public finances management.

Motivation for the creation of rules guiding EU member countries emerged from the belief that a single rule applicable across countries was necessary to establish a single currency that would promote long-term fiscal responsibility and sustainability; and short-term macroeconomic stabilization.

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