Debt Sustainability

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Introduction

The outbreak of the mortgage crisis in the USA caused the global financial and economic crisis. Both crises have had to cope with the reduction of global demand, significantly reducing export growth, dropping foreign direct investment and deteriorating fiscal sustainability\(^1\).

The main goal of this paper is to analyze the theoretical approach of fiscal sustainability, in particular, debt sustainability. Although the global financial and economic crisis is not over, there is still growing uncertainty concerning debt sustainability, mainly in some developed countries.\(^2\) For putting the world economy, mainly economies of developed countries on a sustainable, solid and balanced path, fiscal consolidation would be needed.

The present literature offers many sources on fiscal sustainability and sustainability of public debt. For fiscal and public debt sustainability, it is important to understand how the theoretical approach has been developing till the present.

Theoretical Approach

Historically, there have been some attempts to analyze fiscal and public debt sustainability\(^3\). Based on Keynes’ approach to public debt, Domar (1944) defined all the necessary conditions for fiscal sustainability. However, he did not include in his model some necessary variables such as interest rate and rate of GDP growth. Later, a new model has been developed by Buiter (1985), which has then been further developed by (Blanchard 1990)\(^4\).

\(^1\) General government deficit and public debt has significantly increased in a majority of developed countries such as Japan and USA, but particularly in some eurozone countries, now well-known countries PIIGS. In emerging market economies, mainly in BRICS and in some Southeast Asian countries and some Latin American countries, fiscal sustainability was at a managable level. Global recession has had a strongly negative impact on developing countries, in particular for the least developing countries. The majority of countries around the globe have had significantly deteriorating both fiscal deficits and public debt. Supporting economic growth, a majority of countries have implemented fiscal stimulus, which were operated on the spending side. However, most debtor countries have faced scarce financial resources. In order to fulfill the financing gap, the debtor countries applied for additional financial assistance from international financial institutions.

\(^2\) The present development of deterioration of the public debt crisis is unprecedented since the Great Depression. The important point to note is that most of the developed countries are becoming the most highly indebted ones.

\(^3\) One of the first, a comprehensive analysis for public debt sustainability was proposed by Domar, (1944).

\(^4\) Both Buiter and Blanchard created a new model, which was based on government interporal budget constraint that follows the two main conditions for fiscal sustainability: a) the ratio of public debt to GDP should converge in the long-run to its initial level, and b) the present value of the ratio of primary budget deficit to GDP should be equal to the negative of the current level of public debt to GDP.
During the 60s, there was significant contribution to the analysis of the fiscal and debt sustainability. A new approach was developed by Diamond (1965) in analyzing the general equilibrium framework. Based on this approach, Rankin and Roffia (2003) developed a model of debt sustainability. Two years later, Brauninger (2005) and later Yakita (2008) included in this model the endogenous growth setting.

In line with the outbreak of the global financial crisis, substantial deterioration of public debt sustainability has occurred. A new comprehensive framework for assessing the public debt sustainability was proposed by Ghosh et al. (2011). This approach offers important elements related to inability-to-pay its obligations. This framework clearly defines the main distinction between long-term public debt and the concept of maximum sustainable public debt.

Based on this theoretical framework, the long-term public debt level converge to the point $d^*$ (see figure 1). In case threshold rises above the debt level, then the primary balance should be offset by the higher interest payments, returning the debt to its long-term average. At the point $\bar{d}$ obviously the country loses market access due to the lack of a sequence of positive shocks to the primary balance that would be sufficient to offset the rising interest payments, as interest rate follows the path to infinity. At this stage, international financial markets do not wait until maximum sustainable debt level is breached and start charging higher interest rates at lower debt levels.

Figure 1. Theoretical Approach for Public Debt Threshold Determination

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5 The main idea of Diamond approach was to analyze effect of a positive stock of debt on long-term competitive equilibrium of an economy with neoclassical technology.

6 Some countries, mainly those in the eurozone have a problem with debt repayment. If some country is not able to repay its obligations, it comes to the position called „Default“.
Researchers, academia and policy-makers generally agreed that for debt sustainability analysis are crucial the so called „debt burden thresholds”, which depend on committing appropriate authorities to deal with the public debt.

**Empirical Evidence**

Based on empirical evidence, researchers, academia and policy-makers came to the conclusion that public debt sustainability is related to the partial equilibrium framework. Building on both Buiter (1985) and Blanchard (1990), which took into consideration that expected future primary balances, interest rates, and growth rates are approximated by historical averages, might be the best for assessing future public debt sustainability⁷.

Some economists such as Mendoza and Oviedo (2003) came to the conclusion that public debt sustainability is dependant on governments’ commitment to fulfilling all the necessary requirements under any circumstances to pay their debt obligations⁸.

Recently, Ostry et al (2010) has proposed a unifying empirical framework for the partial equilibrium-based approach. This framework combines the non-linear nature of the relationship between the primary balance and debt with uncertainty related mainly to potential adverse shocks, quantifying long-term public debt and maximum sustainable public debt⁹. For analyzing the present and future debt development and for assessing debt sustainability, analysis is essential.

**Debt Sustainability Analysis**

The global financial crisis has had significant impact on debt vulnerabilities in many countries¹⁰. For assessing this vulnerability, researchers and policy-makers have used debt sustainability analysis. This analysis indicates the level of external and domestic financial requirements needed for financing public debt¹¹. For debt sustainability analysis, debt vulnerability is very important (see Figure 2). To analyze debt vulnerabilities, a focus on debt structure and liquidity indicators is needed¹².

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⁷ This partial equilibrium framework is an appropriate concept of long-term sustainable public debt.

⁸ Based on this approach (2003), the threshold for advanced economies and for emerging market economies was within the range 100-150 %, 35-75 % of GDP, respectively.

⁹ Ostry (2010) and Ghosh (2011) proposed three steps of the following approach: a) estimate a primary balance reaction function, b) determine the appropriate interest rate-growth rate differential and c) calculate each country’s debt limit.

¹⁰ There is evidence that the global financial crisis was caused mainly by: lowering the real GDP, deteriorating the current account deficit, reducing the inward flow of foreign direct investment, increasing the primary fiscal deficit and growing the public debt.

¹¹ For assessing the public debt sustainability, the following indicators are use in particular: the present value of public debt to GDP, the present value of public debt-to-export, the present value of public debt-to-revenues, the ratio of public debt service-to-revenues and the ratio of public debt-to-exports.

¹² For debt sustainability analysis, the following six main indicators are critical: average maturity (in years), five-year CDS spreads (basic points), short-term debt (percent of GDP), foreign currency debt (percent of GDP), and EMBI spreads (percent).
For assessing the public debt sustainability all indicators are crucial. Based on an empirical study, there is a big difference between domestic and public debt e.g., Japan has much higher public debt (224 % of GDP) when compared to that of Greece (162 % of GDP), but the public debt of Greece is much more vulnerable because it is mostly denominated in foreign currency. In addition, it is necessary to take into account the financing gap when performing the debt sustainability analysis. If the debtor country has strong economic growth and the economy is highly competitive, it is obviously able to fulfill the necessary financial requirements. The level of five-year spreads is important for the assessment of public debt sustainability. The higher the CDS spreads, the more complicated it is to receive financial resources from the international financial markets, e.g., at present this is the case for Greece (the risk premium is very high). The longer the maturity, the more complicated is the position for the debtor country.

For analyzing the public debt sustainability, it is important to recognize the distinction between the gross and net debts. The difference depends on whether the increase of gross debt is accompanied by an increase in assets. Gross debt includes only those liabilities that are in the form of debt instruments, which refer to the financial claims and require the payment of principal and interest.

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13 Differences arise on the level of the debt, which is related to large assets held by some governments, e.g., Finland, Japan, Norway and some other Scandinavian countries.
to creditors. Net debt includes specific financial assets from the gross debt definition. For assessing government indebtedness, it is necessary to include the specific public sector obligations to the gross debt measure such as equity, investment fund shares and financial derivatives.\(^\text{14}\)

The global financial crisis significantly contributed to the deterioration of fiscal sustainability in eurozone countries (see table 1). The table clearly demonstrates two groups of countries. On one side, there are countries, (e.g., Finland, Germany and Netherlands) that have done structural reforms in the past and have relatively high productivity growth and their products are very competitive in the international market. These countries do not have problems with the sustainability of public finance and debt sustainability. This group of countries has reached current account surplus even when the global economy was in a mild path of the recovery (2010 – 2011). High productivity growth combined with highly competitive products significantly contributes to the positive external positions in these countries.

On the other side, countries (e.g., Greece, Ireland, Italy, Portugal, Spain, including Slovakia) with a low level of structural reforms, very low productivity growth and with relatively very low level of competitiveness have reached a current account deficit.\(^\text{15}\) Based on the latest economic outlook provided by the EC, ECB, IMF and OECD the deterioration of public finance, namely fiscal Table 1

Real GDP growth, current account, fiscal deficit, public debt in some selected eurozone countries

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Source: Table set from Eurostat, ECB, IMF and OECD data.

\(^{14}\) There are some difficulties in comparison between countries mainly due to: substantial differences between countries in terms of reported assets, some countries provide information only on liquid assets (government’s deposits), and information on total financial assets and liabilities is provided only on some developed countries.

\(^{15}\) Researchers, academia and policy-makers generally agree that the higher the current account deficit, the higher the public debt.
deficit will improve during 2011 – 2013; however, the public debt sustainability will follow, although mildly, a deteriorating path for the same period for all debtor countries, such as Greece, Ireland, Italy, Portugal, Spain, including Slovakia.

The lesson we learn here clearly shows that countries that lose their competitiveness have problems with fiscal and debt sustainability. The lack of competitiveness together with poor fiscal discipline caused the present unprecedented deterioration of public debt sustainability.

Conclusion

The global financial crisis significantly contributed to the deterioration of public finance. A majority of countries faced unprecedented financial needs for financing public debt.

The article provides the latest contribution to the theoretical approach for assessing fiscal, but mainly to debt sustainability, analysis. Based on debt sustainability analysis, by using the vulnerabilities indicators, the article came to the conclusion that the higher the foreign debt, the more complicated the situation is for debtor countries (e.g. Greece, Ireland, Italy, Portugal). In addition, the shorter the maturity of public debt, the better it is for debtor countries. Furthermore, the high risk premium increases the risks in relation to receiving financial sources from the international capital markets (such countries in the case of Greece, Ireland and Portugal).

In analyzing the relationship between the external balance and fiscal sustainability, the paper came to the conclusion that the higher the current account deficit, the higher the deterioration of debt sustainability. The theory has been confirmed that the higher the economic growth, which is generated by export, the stronger the contribution to both fiscal and debt sustainability.

It can also be concluded that those countries that lose competitiveness and have poor fiscal discipline came under big pressure to receive additional financial resources for fulfilling their obligations to all creditors.

Lately, developing the indicators of vulnerabilities for public debt sustainability clearly demonstrates the reality of their applications for assessing the sustainability of public debt. The higher the foreign borrowing, the more complicated the situation becomes for debtor countries. It has been confirmed that the higher the risk premium caused, the higher is the payment for their obligations.

In assessing public debt sustainability, some analysis should be supported by deeper analysis related to for example, maximum sustainable debt levels, estimated public debt thresholds for individual countries etc.

References

(3) IMF. 2010-2011. Fiscal Monitoring.
(8) Eurostat, ECB, IMF, and OECD data.