The Journal of Economic Asymmetries 12 (2015) 34–40

Contents lists available at ScienceDirect

The Journal of Economic Asymmetries

www.elsevier.com/locate/jeca

The impact of government debt on economic growth: An empirical investigation of the Greek market

Stella Spilioti *, George Vamvoukas

Athens University of Economics and Business, Department of Business Administration, Patission 76, 10434, Athens, Greece

ARTICLE INFO

Article history:
Received 9 April 2014
Received in revised form 25 September 2014
Accepted 7 October 2014
Available online 13 January 2015

Keywords:
Government debt
Economic growth
Time series analysis

ABSTRACT

This paper investigates the relationship between the government debt and economic growth using Greek data for about 40 years starting in 1970, taking into consideration the different levels of economic growth in Greece during the examined period. The empirical results suggest a positive and statistically significant impact of debt on GDP growth. In our estimation of the growth equation we also include other variables such as: 1) the fiscal policy indicators affecting economic growth, 2) the indicators of the openness of the economy and the external competitiveness and 3) other control variables related to the demographic characteristics of the economy as well as indicators of its ability to invest and in the short run finance its expenses.

1. Introduction

It is observed that Greece's government debt has increased considerably over the past decades, a trend which is generally correlated with the expansion in the size of public sector in many industrial countries where the growth of general government expenditures has been enormous. An important question that arises from such instances is whether high levels of public debt have a negative impact on economic growth. The theoretical literature focuses on the relationship between public debt and economic growth and realizes in the long-run a negative relationship. This idea is supported by the results of many empirical studies that have proven the above relationship in advanced and emerging economies (see for example, Diamond, 1965; Saint-Paul, 1992; Schclarek, 2004; Adam & Bevan, 2005; Aizenman, Kletzer, & Pinto, 2007).

Economic and financial crises, reducing the economic growth rate, have contributed to the build-up of government debt as shown by Reinhart and Rogoff (2009) who analyze the post-Word War II financial crisis. In this economic context, the 2008–2009 crisis has already put considerable strains on public debt in the euro area. Both government deficit ratio and the gross government debt ratio in the euro area countries have increased rapidly during the period 2007–2011, having as a result a negative effect in the long-term fiscal sustainability.

In this economic and financial background we could pose another important research question which refers to the economic consequences of a regime of high and potentially persistent public debt. While high levels of public debt are likely to be deleterious for growth, this negative effect is non-linear and is observed only above a certain level of debt. There are a lot of empirical studies which focus on developing countries and look at the relationship between external debt and economic growth. These empirical studies support that the debt is negatively correlated with economic growth and that this correlation becomes particularly strong when debt reaches a certain threshold (see, for example, Pattillo, Poirson,

* Corresponding author.
E-mail addresses: spilioti@aueb.gr (S. Spilioti), gvamv@aueb.gr (G. Vamvoukas).

http://dx.doi.org/10.1016/j.jeca.2014.10.001
1703-4949/

& Ricci, 2002; Reinhart & Rogoff, 2010; Kumar & Woo, 2010; Cordella, Ricci, & Ruiz-Arranz, 2010; Cecchetti, Mohanty, & Zampolli, 2011; Checherita & Rother, 2012).

For the Greek Economy, in spite of the importance of the topic, there is limited empirical literature (see, for example, Alogoskoufis, 2012; Laopodis, Merika, & Triantafillou, 2014) examining the impact of different levels of public debt to the economic growth during the economic and financial crisis. This is precisely the motivation of this paper: we aim to investigate the impact of government debt on GDP growth using Greek data for about 40 years starting in 1970, taking into account the different levels of economic growth in Greece during the examined period. In our estimation of the growth equation we also include some other variables such as: 1) the fiscal policy indicators affecting economic growth, 2) the indicators of the openness of the economy and the external competitiveness and 3) other control variables related to the demographic characteristics of the economy as well as indicators of its ability to invest and finance its expenses in the short run.

2. Literature review

The theoretical literature supports a negative relationship between public debt and economic growth. The results of many empirical studies show the existence of a negative correlation between public debt and GDP growth (see for example, Diamond, 1965; Saint-Paul, 1992; Schclarek, 2004; Adam & Bevan, 2005; Aizenman et al., 2007). Most empirical literature on this topic examine the impact of external debt and debt restructuring on growth in developing countries, while empirical studies across developed countries, particularly in the euro area, are virtually absent. Several empirical studies on euro area economies examine the impact of fiscal variables (such as government debt and taxes) on long term interests rates or spreads as an indirect approach affecting economic growth (see for example, Hiebert, Lamo, & Vidal, 2002).

Diamond (1965) examines the effect of taxes on capital stock and differentiates between public external and internal debt. He concludes that, through the impact of taxes needed to finance the interest payments, both types of public debt reduce the purchasing power of tax payers, as well as their savings, and thus the capital stock. In addition, he contends that internal debt can produce a further reduction in the capital stock arising from the substitution of government debt for physical capital in individual portfolios.

Adam and Bevan (2005) examine the relation between fiscal deficits and growth for a panel of 45 developing countries. Based on a consistent treatment of government budget constraint, they find evidence of a threshold effect at a level of a deficit of about 1,5% of GDP. While there appears to be a growth payoff to reducing deficits to this level, this effect disappears or reverses itself for further fiscal contraction. They also find evidence of interaction effects between deficits and debt stocks, with high debt stocks exacerbating the adverse consequences of high deficits.

Saint-Paul (1992) analyzes the impact of fiscal policy in a neoclassical growth model and finds a negative relation between public debt and growth rate. More specifically, he shows that an increase in public debt reduces the growth rate, so there will always be a burden on a future generation. In addition, Aizenman et al. (2007) evaluate optimal public investment and fiscal policy for countries characterized by limited tax and debt capacities. They study an endogenous growth model where public expenditure is an input in the production process and they find a negative relation between the public debt and the growth rate although the flow of public expenditures raises productivity.

Krugman (1988) examines the tradeoffs facing creditors of a country whose debt is at such levels that the country cannot attract voluntary new lending. If the country is unable to meet its debt service requirements out of current income, the creditors have two choices: either to finance the country by lending at an expected loss in the hope that the country will eventually be able to repay its debt, or to forgive by writing off debt to a level that the country can repay. The post-1983 debt strategy of the IMF and the US has relied on financing, but many current calls for debt reform call for forgiveness instead. More specifically, Krugman shows that the choice between financing and forgiveness represents a tradeoff. In this line of research, Schclarek (2004) explores the relationship between debt and growth for a number of developing and industrial economies and covers the period 1970–2002. For developing countries, he finds that lower external debt levels are associated with higher growth rates, and that this relationship is driven by the incidence of public external debt, and not by private external debt. On the other hand, for industrial countries, he does not find any significant relationship between government debt and economic growth.

In the same line Aschauer (2000) develops a non-linear theoretical relationship between public capital and economic growth using data of 48 contiguous U.S. states over the period 1970–1990. The empirical results of the study provide evidence that the relationship between public capital and economic growth is non-linear. In addition the results show that assuming that government debt is used partly to finance productive public capital, an increase in debt would have positive effects up to a certain threshold and negative effect beyond it.

Despite the importance of the topic, the large amount of empirical studies focus only on the negative relationship between debt and growth, with very limited empirical studies addressing the levels that the external debt has a negative impact on economic performance. The empirical results examining the impact of different levels of public debt to the economic growth, find that this negative relationship exists only after a certain debt-to-GDP ratio. Among other studies, Pattillo et al. (2002) examine the non-linear impact of external debt on growth using a large panel data set of 93 developing countries over 1969–1998. They find that the negative impact of external debt on per-capital GDP growth exists only when the net present value of debt levels are above 35%–40% of GDP. Clements, Bhattacharya, and Nguyen (2003) investigate the same relationship for a panel of 55 low-income countries over the period 1970–1999 and find that the turning point in the