Journal of Macroeconomics 34 (2012) 504–522

Contents lists available at SciVerse ScienceDirect

Journal of Macroeconomics

journal homepage: www.elsevier.com/locate/jmacro

Fiscal policy reforms in general equilibrium: The case of Greece

Dimitris Papageorgiou *

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

ARTICLE INFO

Article history:
Received 29 December 2010
Accepted 31 December 2011
Available online 11 February 2012

JEL classification:
E62
H63
O52

Keywords:
Fiscal policy
Debt consolidation
Welfare
General equilibrium

ABSTRACT

This paper quantifies the macroeconomic and welfare implications of (i) changes in the tax-spending mix and (ii) debt consolidation policies. The setup is a neoclassical growth model augmented with a relatively rich public sector. The model is calibrated to the Greek economy. The results suggest that, if the goal of fiscal policy is to stimulate the economy and increase welfare by changing the tax mix, then it should decrease the tax rate on labour income and increase the consumption tax rate. While higher public investment spending is good for the economy, it is lower public consumption spending that is found to be expansionary. The results also suggest that both tax- and expenditure-based debt consolidation policies lead to worse economic activity in the short run, but they have strong beneficial effects in the medium and long run when the consolidation period finishes.

1. Introduction

This paper employs a neoclassical growth model augmented with a relatively rich public sector to examine the general equilibrium implications of fiscal policy reforms in Greece. The approach of the paper can be summarised as follows. First, we calibrate the model to data for the Greek economy. In turn, departing from the calibrated pre-reform economy, we study the effects of altering the tax-spending mix; this mix is considered to be one of key factors of potential growth. We then examine the effects of various debt consolidation policies based on tax increases or spending cuts. We study the implications of such fiscal policy reforms for key macroeconomic variables (including growth and budget deficits) as well as for social welfare.

The discretionary fiscal stimulus adopted by many countries during the 2008–2009 world crisis, being followed by a dramatic reversal in policy as the same countries are now trying to stabilize their public finances, has led to a renewed interest in the effects of fiscal policy.[1] Issues pertaining to how to reduce public debt, as well as how to stimulate the economy, take on particular importance in Greece, where the crisis has exposed the weak fiscal position and has raised serious doubts about government's solvency. A significant rise in public spending and a sharp fall in tax revenue pushed the Greek government deficit to 15.5% of GDP in 2009, when public debt reached 127% of GDP. It has risen to 149% in 2011 due to a vicious cycle of deficits and recession. The strong deterioration in the fiscal position made international markets increasingly concerned about the ability of Greece to service its maturing debt obligations, leading to a sharp rise in spreads on government bonds since the end of 2009. In May 2010, Greece narrowly avoided default with the help of a financing package of a total amount of €110 billion from the euro

* Address: Economic Research Department, Bank of Greece, 21 E. Venizelou Avenue, 102 50 Athens, Greece. Tel.: +30 210 3203847.
E-mail address: dpapag@aueb.gr

[1] Recent papers by e.g. Cogan et al. (2010), Uhlig (2010) and Leeper et al. (2010a,b) quantify fiscal policy multipliers and evaluate the stimulus plans used to counter the crisis. Corsetti et al. (2010) study fiscal reversals and stabilization. See also e.g. Eldeberg et al. (1999), Blanchard and Perotti (2002), Gali et al. (2007), Mountford and Uhlig (2009) and Romer and Romer (2010) for an empirical examination of government spending and tax shocks on economic activity.

0164-0704/$ - see front matter © 2012 Elsevier Inc. All rights reserved.
doi:10.1016/j.jmacro.2011.12.008

area member states and the IMF, in exchange for tough budget and economic overhauls. A new support package was agreed in July 2011 although its terms are still open.[2]

Nowadays, Greece is facing a double challenge: On one hand, it has to achieve a sustained and sizable fiscal consolidation so as to restore public finance sustainability and market confidence. On the other hand, it is important for Greece, as well as for other countries trying to stabilize their public finances, to implement policy reforms that raise potential growth and thus help the debt dynamics. In this context, fiscal reforms involving changes in the tax-spending policy mix have emerged as a new focus for the European policymakers (see e.g. European Commission, 2010a,b).

In Greece, the tax-spending mix appears to be quite different from that in the euro area. Looking at the recent composition of distorting tax rates, a comparison of Greece with the euro area, using for instance Eurostat's implicit or effective tax rates, reveals that the tax rate on labour income is 33.8% in Greece, close to the euro area average level of 34%. On the other hand, the effective tax rates on capital income and consumption are much lower in Greece than in the euro area. For instance, the effective tax rate on consumption of 15.4% is well below the euro area average rate of 21% and indeed one of the lowest in the euro area.[3,4] Concerning the composition of the main types of government spending (public consumption, investment and transfers), the share of output that goes for public investment is 3% in Greece, slightly above the euro area average of 2.6%. In contrast, government consumption and transfer payments as shares of output in Greece are respectively 16.5% and 20.5%, well below the euro area averages, which are 20% and 23.5%, respectively.[5]

In light of the above differences with the euro area as well as the required fiscal adjustment, this paper studies the quantitative macroeconomic and welfare implications of fiscal policy reforms in Greece. Despite the need for policy reforms, applied research based on micro-founded dynamic general equilibrium models is limited in Greece.[6] The present paper tries to fill this gap. But the paper is more than a country study. It also contributes to the literature on the effects of policy reforms.[7]

In particular, we consider the effects of: (i) changes in the composition of distorting tax rates; (ii) changes in public consumption or public investment met by adjustments in one of the distorting tax rates; (iii) various debt consolidation strategies, where, by debt consolidation, we mean a reduction in public debt to an exogenously set target within a given period of time achieved by tax-based or spending-based policies. All reforms satisfy the government's intertemporal budget constraint. We explore how these reforms affect the economy both in long-run and along the transition path to a new post-reform steady state. We also provide a quantitative assessment of the welfare effects associated with alternative policy reforms.

When we depart from the calibrated pre-reform economy, our main results are as follows. First, if the goal of fiscal policy is to stimulate the economy both in the short and long run by changing the tax mix, then it should decrease the tax rate on labour income and increase the consumption tax rate. Second, the effects of higher government spending depend on the type of spending and the policy instrument used to ensure fiscal solvency. In particular, an increase in public investment, financed by higher consumption taxes, leads to an expansion of output both along the dynamic path and at steady state. The opposite applies to public consumption: an increase in the latter, when financed by higher distorting taxes, has a negative effect on output both in the short and long run. Thus, fiscal contractions, in the form of lower public consumption, are expansionary. Nevertheless, rises in both government consumption and investment lead to a welfare loss, and this is regardless of the policy instrument used to maintain fiscal solvency. Third, both tax- and expenditure-based debt consolidation policies hurt the economy in the short run, but have beneficial effects in the medium and long run. The reason behind the positive medium- and long-run effects is the improvement in public finances that allows the government to reduce tax rates, and/or to increase spending, after the debt target is achieved and consolidation finishes. The policy instrument that causes the smallest fall in the level of output during the consolidation period is public consumption spending, being followed by the consumption tax rate. In terms of lifetime welfare, the best ways of reducing the public debt is via adjustments in government spending or capital tax rates.

The rest of the paper is as follows. Section 2 presents the model. Section 3 discusses calibration, the long run solution and transition dynamics. Section 4 studies tax-spending reforms. Section 5 examines debt consolidation policies. Section 6 concludes.

[2] See European Commission (2011a) for a chronology of events concerning the sovereign debt crisis in Greece.

[3] The effective tax rate on capital income is about 18% in Greece compared to 24% in the euro area. Data for the implicit or effective tax rates are from European Commission (2011b) and refer to the period 2000–2008, with the exception of the tax rate on capital that refers to the period 2000–2005.

[4] Similar conclusions appear in a recent study by Kollintzas et al. (2010). In particular, they show that the effective tax rate on employed labour income in Greece has increased by more than 10 percentage points over the period 1990–2005, and has converged close to the euro area average rate since 2000. On the other hand, while the effective tax rate on capital income has also increased significantly, particularly over the period 1994–2000, is below the euro area average rate.

[5] Data for Greece and the euro area are from the OECD Economic Outlook no. 87 and no. 88 respectively, and refer to the period 1995–2008. The main conclusions do not change if we consider alternative time periods, e.g. 1970–2008.

[6] See Kollintzas and Vassilatos (2000) and Papageorgiou (2009) for the Greek economy.

[7] For the effects of tax reforms in general equilibrium see Lucas (1990), Cooley and Hansen (1992), Mendoza and Tesar (1998), Yang (2005), House and Shapiro (2006), Leeper and Yang (2008) and Angelopoulos et al. (2011). See, among many others, Baxter and King (1993), Burnside et al. (2004), Forni et al. (2009), Uhlig (2010) and Leeper et al. (2010a,b) for the general equilibrium effects of public spending reforms. For the effects of debt consolidation policies in general equilibrium see Ardagna (2001), Coenen et al. (2008) and Forni et al. (2010). There is also a large amount of empirical work that studies the economic outcomes of fiscal consolidations. See e.g. Alesina and Perotti (1995), Alesina and Ardagna (1998, 2009), Ardagna (2004), Kumar et al. (2007) and European Commission (2007).