Economic Modelling 61 (2017) 207–223

Contents lists available at ScienceDirect

Economic Modelling

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

Equitable fiscal consolidations☆

Maria Ferrara[a], Patrizio Tirelli[b,*]

[a] Università Napoli Parthenope, Italy
[b] Università Milano-Bicocca, Italy

A R T I C L E I N F O

JEL classification:
E32
E62
E63

Keywords:
Fiscal Consolidation
DSGE modelling
Rule of Thumb Consumers
Fiscal Policy
Monetary Policy
Zero Lower Bound

A B S T R A C T

Empirical research has uncovered an equity-efficiency trade-off in alternative fiscal consolidation strategies. Spending-based adjustments are associated with more limited output losses but greater inequality than tax-based adjustments. Moreover, spending-based adjustments are less likely to be reversed, but an increase in inequality reduces the likelihood of achieving a successful consolidation. We investigate the issue of designing a debt consolidation plan which is achieved through a reduction in public consumption and yet is equitable because temporary targeted transfers and tax reductions stabilize consumption of the poorer part of the population. This causes a limited slow-down in the pace of debt reduction because fiscal multipliers associated to the tax/transfer policies are large.

1. Introduction

Following the large increases in public debt-to-GDP ratios observed in the aftermath of the 2007-financial crisis, the issue of fiscal consolidation, i.e. a reduction in the debt-to-GDP ratio, has come to the forefront of political debate and macroeconomic analyses (OECD, 2012). In the Eurozone, debt consolidation is a key concern of the European Commission, and institutional arrangements such as the Maastricht Treaty and the Stability and Growth Pact (SGP) should oblige member states to pursue a 60% debt-to-GDP ratio. The 'corrective arm' of the SGP should be activated whenever public debt exceeds 60% of GDP and the excess debt is not reduced by 5% per year on average over three years (European Commission). As a matter of fact, consolidations are a politically divisive issue, and long-term sustainability of fiscal adjustment plans cannot be taken for granted. Austerity in the Eurozone is increasingly challenged for its apparently modest effects on the debt-to-GDP ratios and for its undesirable social implications (Corsetti, 2012; Darvas and Tschekassin, 2015).

In empirical research, early enthusiasm towards the expansionary effects of public consumption contractions seems to have vanished (Perotti, 2012), but several contributions emphasize the importance of relying on expenditure cuts as a key driver of consolidations. Nickel et al. (2010) find that major debt reductions in the EU-15 during the period 1985–2009 were mainly caused by strategies based on reduction of government consumption, whereas revenue-based consolidation efforts were less successful. The same conclusion is reached in Alesina et al. (2012), who argue that spending-based adjustments are associated with mild and short-lived output losses, while tax-based adjustments are associated with deep and prolonged recessions.

There is, however, another side to the coin. In fact, a growing body of empirical evidence points at the distributive implications of consolidations. Ball et al. (2013) examine the distributional effects of fiscal consolidations in a sample of 17 OECD countries over the period 1978–2009 finding that fiscal consolidation has typically raised inequality. Further, Woo et al. (2013) find that spending-based consolidations tend to worsen inequality more significantly than tax-based consolidations. Similar results are obtained in Agnello and Sousa (2014).

Another related issue concerns the sustainability of consolidations. According to a popular view adjustment programmes relying mainly on expenditure cuts rather than on tax revenue increases are less likely to be reversed (Alesina and Ardagna, 2010, 2013; Molnar, 2012). However, equitable distribution of fiscal adjustment costs is found to raise the chance of consolidation success, thus providing the "double dividend" of sustainable consolidation and enhanced social cohesion (Kaplanoglou et al., 2015).

So far, the debate on the equity-efficiency tradeoff in fiscal consolidations has typically focussed on empirical evidence. By contrast, in this paper we investigate the issue of designing a debt consolidation plan which is achieved through a reduction in public

☆ The paper is part of the RastaNews project funded by the European Community's 7th Framework Programme (FP7). EC project 320278-RASTANEWS.
* Corresponding author.
E-mail addresses: maria.ferrara@uniparthenope.it (M. Ferrara), patrizio.tirelli@unimib.it (P. Tirelli).

http://dx.doi.org/10.1016/j.econmod.2016.11.022
Received 27 June 2016; Received in revised form 17 October 2016; Accepted 26 November 2016
0264-9993/

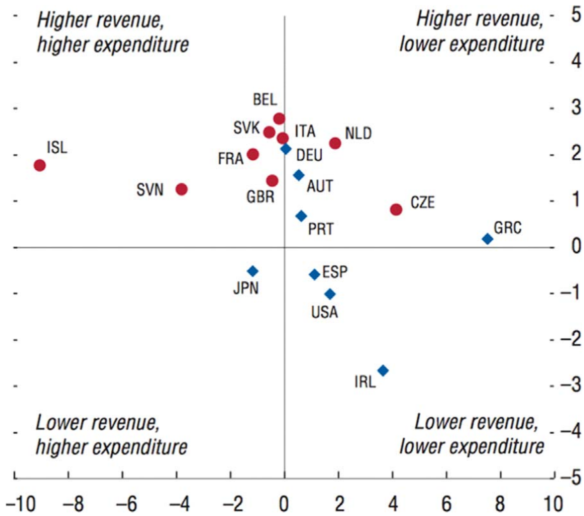

Fig. 1. Change in planned measures 2009–2013. (Source: IMF, 2013). Horizontal axis: expenditure cuts relative to plans (% of potential GDP). Vertical axis: revenue increases relative to plans (% of potential GDP).

consumption and yet is equitable.

Within the theoretical framework of DSGE models characterized by complete financial markets and optimizing households, expenditure-based fiscal consolidations are a win–win strategy that reduces steady state distortionary taxation and raises private consumption even in the short run. This latter effect obtains because, despite the output drop, a *positive wealth effect* is in place, driven by the expectation of permanently lower taxes. From this viewpoint, the NK-DSGE model gives similar predictions to those of RBC models (see, for example, Linnemann and Schabert, 2003). Therefore, expenditure-based consolidations produce a *gain without pain*, as the policy entails a short-run consumption boom and a fall in labor effort.

The assumption of homogeneous and forward-looking households is at best only partly consistent with actual consumer behavior. The predicted effect of fiscal consolidations may look rather grim if one takes into account the hypothesis of Limited Asset Market Participation (LAMP henceforth),[1] implying a distinction between a fraction of households who have full access to financial markets (Ricardian households, henceforth) and a fraction of households who do not participate in financial markets and just consume their current income (Rule of Thumb, RT henceforth). For these households the fiscal consolidation envisages a *gain with pain* if the short-run decline of output is associated to a reduction in their disposable income (Coenen et al., 2008, CMS henceforth; Almeida et al., 2013). This result has been implicitly acknowledged in policy-oriented research that emphasizes the importance of pursuing “equity friendly” consolidation plans (OECD, 2013; Rawdanowicz et al., 2013).

We investigate the contribution of fiscal and monetary policies that may stabilize consumption of RT consumers, potentially restoring the *gain without pain* result. When all households are Ricardian, consumption choices mainly react to the present value of future tax payments, and the selected time path for the tax reduction plan is almost irrelevant. Under LAMP a fraction of households would certainly react to tax reductions implemented in the early phase of the consolidation process, when employment falls due to nominal rigidities. In addition, an important role might be played by temporary public transfers, that would be irrelevant under the representative household assumption. Another important issue is whether such policies might indeed have a limited effect on the pace of debt consolidation due to their stimulus to output growth and therefore to fiscal revenues. Finally, monetary policy might have a powerful stabilizing effect on the consumption of constrained households if it exploited the complementarity between the consumption of Ricardian households, stimulated by the interest rate fall, and the labor income accruing to RT households.

We design a consolidation experiment where the long-run debt reduction is obtained through a temporary fall in public consumption and is associated to a permanent fall in tax rates. During the transition period we allow taxes (and public transfers) to react to the temporary drop in output. One important distinction between our work and previous contributions is that in our framework reducing public consumption is, by assumption, costly for the policymaker. This issue is typically neglected in the theoretical literature on fiscal consolidations, despite the apparent difficulties that governments meet when attempting to cut their expenditures. However this assumption has no direct effect on the distribution of welfare gains between the two households groups because the costs of public consumption reductions are symmetrical.

In a nutshell, our results are summarized as follows. First, we show that it is possible to both reduce public debt and boost consumption of RT households. This is obtained by allowing taxes to immediately undershoot their post-consolidation steady-state values. These “over-expansionary” fiscal policies allow to raise the disposable income of RT consumers, and yet we do not observe a significant slow down in the pace of debt reduction due to the favourable impact of consumption growth on output and government revenues. A similar result is obtained if temporary public transfers to RT households are exploited to stimulate demand. This is in sharp contrast with recent consolidation plans in advanced countries, that apparently rely on both expenditure reductions and tax hikes (Fig. 1). Our findings suggest that such a policy mix is bound to depress consumption and economic activity. In fact, this study calls for new tax/transfer policies that limit the consumption gap between Ricardian and RT households and improve the short-medium run performance of the macroeconomy.

Second, we find that an interest rate rule which reacts not only to inflation but also to the output gap is an effective complement to fiscal policy as a stabilization tool. In fact, the output gap target induces the Central Bank to implement a stronger interest rate cut which triggers a surge in the consumption of Ricardian households. This, in turn, has beneficial effects on labor incomes and on RT households’ consumption. We obtain the apparently paradoxical result that such a policy allows to obtain better control of inflation, limiting deflationary pressures. Third, our analysis also highlights the risk that, without an “aggressive” fiscal policy, a large debt consolidation causes a slump so deep that the nominal interest rate is driven down to the zero lower bound. In this regard, we reach the important conclusion that transfer policies are far more effective than tax reductions. Both policies have a stabilizing impact on aggregate demand, but tax reductions also lower marginal costs and inflation, causing a downward pressure on the nominal interest rate.

One strand of literature apparently related to our study is concerned with tax reforms and with the identification of the (Ramsey optimal) financing mix between labor and capital taxation (Chamley, 1986; Judd, 1999; Guo and Lansing, 1999; Greulich and Marcet, 2008; Garcia-Milà et al., 2010). In fact our focus is quite different because we are mainly interested in the identification of a short-run policy mix that can enhance the sustainability of long term debt reductions. At first sight, our contribution is akin to Cogan et al. (2013) who consider the effects of fiscal consolidations in a model that accounts for LAMP and emphasizes the importance of phasing in tax reductions. Indeed there are some important differences between their work and ours. First, their definition of LAMP is such that a fraction of households do not participate in stocks and bonds markets but are allowed to hold money. Therefore, to the extent that their initial holdings of money balances

[1] The LAMP assumption finds considerable empirical support (Campbell and Mankiw, 1989; Fuhrer, 2000; Cowell et al., 2012; Anderson et al., 2013; Iacoviello and Pavan, 2013).