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Myopic governments and welfare-enhancing debt limits



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ABSTRACT

This paper studies welfare effects of a soft borrowing constraint on sovereign debt. The constraint is modeled as a proportional fine per unit of debt in excess of a specified reference value, resembling features of the Stability and Growth Pact. Sovereign debt is the result of myopic fiscal policy. It reduces welfare in the absence of lump-sum taxes. The paper shows that the borrowing constraint enhances welfare by reducing long run debt. In an economy calibrated to a generic OECD country, the maximum attainable welfare gain of debt consolidation, which is induced by imposing the optimally parameterized constraint, amounts to 0.5% in terms of consumption. The short run welfare costs of the constraint, which arise from restricting the use of debt to smooth taxes, are quantitatively negligible.

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1. Introduction

According to standard economic theory a benevolent government uses debt only to smooth taxes over the business cycle. In the long run debt should be near zero or even negative (see [Aiyagari et al., 2002](#); [Adam, 2011](#)). However, in 2011 debt exceeds 100% of GDP in the OECD. In the absence of lump-sum taxes high debt reduces social welfare due to the deadweight loss of the taxes needed to service that debt (see [Elmendorf and Mankiw, 1999](#); [Forni et al., 2010](#)). In this paper, I analyze how government debt and the associated welfare costs can be reduced. I propose a legal restriction in form of a debt constraint and I show that this constraint enhances social welfare.

The setup of the model is as follows. There are two distortions in the economy. First, the government has only access to distortionary labor taxes to finance a stochastic stream of government consumption. Second, the government is myopic which gives rise to a 'debt bias'. Higher debt requires higher distortionary taxes which reduce social welfare. This is the motivation for an analysis of a debt constraint.¹ The proposed constraint includes a threshold on debt but full compliance is not ensured. The government can violate the threshold but it then has to pay a fine. The proposed mechanism is a 'soft borrowing constraint' rather than a hard 0/1 constraint. It resembles the debt-based criterion of the Stability and Growth Pact. But it could as well be implemented at the US federal level, restricting excessive state debt, or at a national level by changing the constitution, as with, for example, the German debt brake. In the limit, i.e., for very high fines attached to a violation of the threshold, and a threshold value of zero debt, the soft borrowing constraint implies a balanced budget rule.

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¹ It is not the aim of the paper to provide a model of sovereign default risk and its costs (see, for example, [Bi, 2012](#) or [Juessen et al., 2011](#) for recent work on this topic) or of the European debt crisis which is beyond the scope of the analysis.

The model builds on [Aiyagari et al. \(2002\)](#). The government has to finance a stochastic stream of expenditures. It has access to linear taxes on labor income and, for the sake of realism, to non-state-contingent bonds. Markets for government bonds are exogenously incomplete. [Adam and Grill \(2013\)](#) provide a microfoundation for non-state-contingent government debt based on contracting frictions such that incomplete markets arise endogenously. There are two additional features to this setup.

First, the government is myopic, i.e., it has the same instantaneous utility function as the households but a lower discount factor, following [Grossman and Van Huyck \(1988\)](#) and [Kumhof and Yakadina \(2007\)](#).² While [Grossman and Van Huyck \(1988\)](#) assume a myopic policy maker in the context of a small open economy to analyze the role of government debt as a contingent claim for risk shifting between borrowers and lenders, [Kumhof and Yakadina \(2007\)](#) discuss in detail the effect of policy myopia on the level of debt and taxes in a closed economy. In this paper, before the introduction of the soft borrowing constraint, the effect of policy myopia is as in [Kumhof and Yakadina \(2007\)](#). The government implements debt-financed tax cuts to stimulate output in the near future. This policy leads to positive debt in the long run which in turn requires higher taxes to finance higher debt servicing costs. Since taxes are distortionary this reduces welfare relative to the zero debt benchmark allocation under the fully benevolent Ramsey planner who has the same discount factor as the households.

Second, taking the debt bias as given, I introduce a soft borrowing constraint into the model, following [Beetsma et al. \(2008\)](#). The constraint includes a reference value of debt which is taken into account by the government when maximizing its objective. If the government violates the reference value it has to pay a proportional fine per unit of excessive debt. The reference value and the proportionality of the fine payments are treated as if controlled by a supranational institution. They are taken as given by the government.

Analyzing the effect of the debt constraint, I first show that it counteracts the effect of the debt bias and thereby enhances welfare. More precisely, I analytically show that it reduces long run debt and that it is possible to implement the same long run allocation as under the Ramsey planner by setting its parameters appropriately. While the constraint prevents excessive borrowing by increasing the costs of debt, in the long run these costs do not materialize because the government does not violate the debt threshold.

Then, I numerically quantify the welfare gains of the debt constraint and I determine its welfare-optimal parameterization. In particular, I consider the following four scenarios in an economy calibrated to a generic OECD country. First, I only look at steady state effects, i.e., I neglect the period of transition between two steady states with different debt levels. Second, taking into account the full period of transition, I consider the case where the economy starts with zero initial debt and where the government accumulates debt up to 107% of GDP. This is the average OECD debt/GDP ratio in 2011 (see [OECD, 2011](#)). Third, again taking into account the full transitional period, I consider a constraint-induced consolidation where the economy starts in a steady state without borrowing constraint where debt/GDP is 107% and where it then converges to a new steady state under the constraint. The speed of debt consolidation and the new steady state depend on the parameterization of the constraint. Finally, holding the steady state constant, I only look at the short run effects of the constraint. Here, the constraint increases the costs of using debt to smooth taxes over the business cycle.

In the first three scenarios imposing the debt constraint enhances welfare and these gains amount to 1.30%, 0.64%, and 0.50%, respectively, in terms of consumption. In the currently most relevant case of debt consolidation (scenario 3), the optimal parameterization of the constraint implies a reference value of debt/GDP of 40% and fine payments of 0.013% of GDP per percentage point exceeding this value. This parameterization induces a consolidation effort of 2.7% of the debt/GDP ratio per annum. In scenario 4, the constraint reduces welfare. However, these costs amount only to 0.02%.³ Overall, these figures are reminiscent of [Lucas \(2003\)](#) where in an endowment economy the welfare gains from improved long run policies exceed the potential from further improvements in short run policies. In a two-country model with nominal and real frictions and ad hoc fiscal policy feed-back rules, [Forni et al. \(2010\)](#) analyze welfare effects of debt consolidation of 10 percentage points of GDP. They find welfare gains from reduced labor taxes of up to 3.1% in the long run and of up to 2.8% when taking into account the transitional period.

Taking the debt bias as given, the contribution of the paper is to show that the proposed soft borrowing constraint enhances welfare in an economy where the optimizing government takes into account the equilibrium reaction of the private sector. The paper quantifies these welfare gains and it computes the optimal parameterization of the constraint. To this end, the assumption of a myopic but otherwise benevolent government allows staying conceptually close to the standard normative approach of the Ramsey planner which serves as a natural benchmark to evaluate the welfare effects of the debt constraint. Alternative approaches to model a debt bias include, among others, [Persson and Svensson \(1989\)](#) and [Alesina and Tabellini \(1990\)](#) who model the political process as a conflict between different interest groups.⁴

The next section lays out the model. [Section 3](#) presents the calibration and the welfare measure. [Section 4](#) provides the results. [Sections 5](#) and [6](#) discuss the results and their robustness before [Section 7](#) concludes.

² Following [Grossman and Van Huyck \(1988\)](#), myopia could be interpreted as the result of an expected finite planning horizon which corresponds to the prospective duration of the government's survival in power.

³ [Stockman \(2001\)](#) finds larger welfare costs associated with a balanced budget regime. However, he derives his results from an economy with capital and complete markets. Further, I do not consider the role of balanced budget rules as an additional source of instability as in [Schmitt-Grohé and Uribe \(1997\)](#) and the benefits of government debt for households as in [Aiyagari and McGrattan \(1998\)](#).

⁴ See [Alesina and Perotti \(1994\)](#) for a review of the political economy of budget deficits.

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