Journal of Macroeconomics 31 (2009) 438–463

Contents lists available at ScienceDirect

Journal of Macroeconomics

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

Balanced budget vs. Tax smoothing in a small open economy: A welfare comparison ☆

Constantine Angyridis *

Department of Economics, Ryerson University, 350 Victoria Street, Toronto, Ont., Canada M5B 2K3

ARTICLE INFO

Article history:
Received 9 June 2006
Accepted 30 August 2008
Available online 17 September 2008

JEL classification:
E62
H21

Keywords:
Balanced budget
Complete markets
Incomplete markets
Welfare analysis

ABSTRACT

The objective of this paper is to investigate the effect of lending and borrowing constraints on the dynamics of public debt and optimal taxation policy in the context of a general equilibrium model with tax smoothing. The results from the numerical simulation of the model show significant welfare gains, provided that the policymaker is allowed to borrow and lend in order to smooth taxes across time instead of maintaining a balanced budget at all times. Moreover, for a specific process for asset prices, it is also shown that if the government can issue state-contingent debt then overall welfare can be further improved substantially.

© 2008 Elsevier Inc. All rights reserved.

1. Introduction

Is a series of continuous budget deficits necessarily bad? Besides being a clear sign of fiscal prudence, does a balanced budget rule also improve social welfare? How should tax rates and, consequently, public debt respond to innovations in government expenditures? Theoretical advancements on solving stochastic intertemporal optimization problems with implementability constraints,[1] have reinvigorated research on optimal debt issue and the implied structure of taxation policy.[2] The present paper applies this new technique in the context of a small open economy, in which the social planner (the government) is faced with stochastic expenditures. The objective is to study the welfare implications if the policymaker adopts a fiscal policy plan that deviates from a strict balanced budget rule. It is shown that there are significant welfare gains to be made if the government equates revenues with expenditures in a present value sense, instead of every period, such that its intertemporal infinite horizon budget constraint is satisfied.

☆ The author would like to thank Arman Mansoorian, Leo Michelis, Xiaodong Zhu, the co-editor and an anonymous referee for their valuable comments and suggestions. All remaining errors are my own.

* Tel.: +1 416 979 5000x7725; fax: +1 416 598 5916.
E-mail address: cangyridis@arts.ryerson.ca

[1] Standard dynamic programming techniques are applicable under the condition that the set of feasible current actions available to a social planner depend only on past variables. Implementability constraints imposed in contract and optimal fiscal policy problems usually depend on plans for future variables, thus constraining the set of current feasible actions available to the social planner. Extending the work of Kydland and Prescott (1980) for a general class of contract problems involving incentive constraints, Marcet and Marimon (1999) show how one can compensate for this lack of recursivity by expanding the state space to include a new variable that depends on past Lagrange multipliers.

[2] For example, see Aiyagari et al. (2002); Angeletos (2002); Buera and Nicolini (2001) and Marcet and Scott (2003).

0164-0704/$ - see front matter © 2008 Elsevier Inc. All rights reserved.
doi:10.1016/j.jmacro.2008.08.003

Stockman (2001) has performed a comprehensive analysis of the welfare effects of balanced budget restrictions in the context of a closed economy with exogenous growth. Using a similar framework to the one used in Chari et al. (1994, 1995), he considered the Ramsey problem for a model calibrated to the US economy, placing restrictions on the amount of debt that the government can issue. In his setting, he found substantial welfare losses associated with the balanced-budget restriction: depending on preference parameterization, consumption would have to increase from 0.61% up to 1.45% at each date and for each state in order to make the representative household indifferent between fiscal policy regimes.

Stockman's study builds on the work by Lucas and Stokey (1983) who considered a general equilibrium model with complete markets, exogenous Markov government expenditures and state-contingent taxes. The Lucas and Stokey framework emphasizes the role of state-contingent debt as an "insurance" against bad times, that allows the government to smooth tax distortions across both *time* and *states of nature*. As a result, in times of temporary increases in government expenditures, the level of public debt falls. In addition, Lucas and Stokey show that the serial correlations of optimal tax rates are closely related to those for government expenditures. In their model, tax rates are smooth only to the extent that they exhibit a smaller variance than a balanced budget would imply.

Aiyagari et al. (2002) reconsider the Lucas and Stokey economy under the restriction that the government cannot issue state contingent debt; but rather it can borrow and lend at an endogenous risk-free rate. In their attempt to replicate Barro (1979) classic "tax smoothing" result in a general equilibrium environment, they show that this restriction (i.e., market incompleteness) imposes additional implementability constraints with respect to the equilibrium allocation, beyond the single implementability constraint imposed under complete markets. In particular, these constraints require the allocation to be such that at each date the present value of the budget surplus evaluated at current period Arrow prices be known one period ahead. Under the condition that an ad hoc limit is imposed on the government's asset holdings, the authors show that the Ramsey equilibrium exhibits features shared by both Barro's and Lucas and Stokey's economies, but the dynamics of debt and taxes actually resemble more closely Barro's "tax-smoothing" result.[3]

Recently, several authors have reported tax smoothing behavior for various small open economies. Among others, Strazicich (1997) using annual time-series data over the period 1929–1990, fails to reject the tax-smoothing hypothesis for the Canadian federal government. Cashin et al. (1998) find that the behavior of the central government of India is consistent with the tax-smoothing hypothesis for the period 1951–1952 to 1996–1997. A similar result is obtained by Cashin et al. (1999) for Pakistan during the period 1956–1995, but the hypothesis is rejected for Sri Lanka during 1964–1997. Strazicich (2002) considers a panel of 19 industrial countries over the period 1955–1988 and finds evidence in support of tax smoothing as a theory of public debt. Adler (2006) finds that Barro's model can explain about 60 percent of the variability in the Swedish central government budget surplus for the period 1952–1999.

These empirical studies point to the need to analyze the tax smoothing motive in the context of a small open economy facing exogenous asset prices. This provides one motivation for the present paper. We consider an asymmetric small open economy with respect to accessibility to financial markets: households are allowed to perform transactions involving state-contingent financial claims, while the government is restricted to borrow and lend only at a constant risk-free interest rate.[4] A possible justification for this assumed financial asymmetry might be the inherent "moral hazard" that is present if the government is allowed to issue state-contingent debt or bonds. The return on these bonds would have been linked to the level of macroeconomic variables, such as the inflation rate or the Debt/GDP ratio. However, these variables are under the strong influence of the government's actions, thus damaging the marketability of these bonds among private agents. Another justification for such an asymmetry follows from the work of Sleet (2004) and Sleet and Yeltekin (2006), who demonstrate that if the government has access to a complete set of contingent claims markets but is unable to either commit to future debt repayments or truthfully reveal private information regarding its spending needs, then the market for public debt becomes endogenously incomplete.

Studying the implications of the coexistence of complete and incomplete markets in a small open economy is new in the literature on optimal taxation. [5] Furthermore, if one wishes to maintain the representative agent framework, the simplest environment to discuss the implications of this asymmetry is that of a small open economy.[6]

In our setting, the government is required to determine the optimal fiscal policy plan as of time zero that maximizes the welfare of the representative household, given a stream of stochastic government expenditures. These expenditures are

---

[3] Barro (1979) demonstrated that debt policy between 1916 and 1976 in the U.S. and United Kingdom was consistent with the predictions of his theory. Sargent and Velde (1995) argue that the behavior of British debt during the 18th century conforms with Barro's theory, since it closely resembles a martingale with a drift. Extending Barro's model to allow for stochastic variation in interest and growth rates, Lloyd-Ellis et al. (2001) show that the US debt policy is also in agreement with the theory of tax smoothing during the transition period from the large budget deficits of the 1980's to the high surpluses in the mid 1990's. Finally, based on the persistence properties of public debt and its positive response to an innovation in government expenditures, Marcet and Scott (2003) argue that the behavior of the US public debt can be accounted for by a model in which the government issues only one-period risk-free bonds.

[4] The existence of a market for riskless government bonds is redundant from the point of view of the households, since it does not alter their trading opportunities: households can always adjust their portfolio of state-contingent securities in such a way to obtain the same return as that of a government bond.

[5] The literature on optimal fiscal policy for a small open economy focuses exclusively on factor income taxation, incorporates capital stock accumulation and assumes away uncertainty. Recent studies include Atkeson et al. (1999); Chari and Kehoe (1999); Correia (1996) and Razin and Sadka (1995).

[6] The existing literature has considered different degrees of market completeness between the public and private sectors of a closed economy. For instance, Aiyagari et al. (2002) assume that the government faces ad-hoc debt and asset limits that are more stringent than those faced by the representative household. On the other hand, Schmitt-Grohé and Uribe (2004) consider a stochastic production economy with sticky product prices in which households can acquire two types of final assets: fiat money and one-period state-contingent nominal assets. In contrast, the government can print money and issue nominal non-state contingent bonds.

دریافت فوری ← متن کامل مقاله

ISIArticles
مرجع مقالات تخصصی ایران

✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
✓ امکان دانلود نسخه ترجمه شده مقالات
✓ پذیرش سفارش ترجمه تخصصی
✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
✓ دانلود فوری مقاله پس از پرداخت آنلاین
✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات