Optimal taxation and OECD labor taxes

Andrew Scott

Department of Economics, London Business School and CEPR, UK

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Abstract

We derive simple expressions for optimal labor taxes under different assumptions about government bond markets. We use these to examine OECD labor taxes, estimate the excess burden of taxation and assess the ability of optimal tax models to match the data.

Optimal labor taxes are driven by: (i) a term reflecting Ramsey considerations which makes labor taxes vary positively with employment and (ii) a martingale component, reflecting the excess burden of tax, which shows persistent responses to shocks to the government’s intertemporal budget constraint. Under complete markets (when governments can issue a full set of contingent securities) only the first factor is relevant. We find substantial evidence that incorporating incomplete markets into the optimal taxation model is critical for empirical success. However, we find strongest support for the martingale component and only weak evidence for the Ramsey component.

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E-mail address: ascott@london.edu.

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1. Introduction

As shown in Fig. 1, labor tax rates show substantial variation across time. To what extent does the canonical tax smoothing model (as outlined in Ramsey, 1927; Barro, 1979; Lucas and Stokey, 1982) account for these variations? In attempting to answer this question recent research has stressed the importance of assumptions about the government bond market, as the stochastic properties of optimal taxes are not invariant to the nature of government financing (see Aiyagari et al., 2002). Therefore evaluating empirically the tax smoothing model involves assessing the relative importance of incomplete markets for fiscal policy.

The purpose of this paper is twofold. Firstly, it builds on the work of Zhu (1992) and Aiyagari et al. (2002) to show clearly the determinants of optimal taxes under both complete and incomplete markets. Under complete markets governments can issue a full range of Arrow Debreu contingent securities whereas under incomplete markets this is not the case. Using conventional assumptions about preferences and production and extending the model of Aiyagari et al. (2002) to include capital accumulation and productivity shocks we provide simple analytical expressions which lay bare the intuition behind optimal taxes under different assumptions regarding the structure of bond markets. Our extensions to the specific models used by Lucas and Stokey (1982) and Aiyagari et al. (2002) enable us to provide a more general insight into the relationship between taxes, government expenditure and the deficit. The second aim of this paper is to use OECD tax data to assess the validity of optimal tax models and the relative success of complete and incomplete market models.

The plan of the paper is as follows. Section 2 outlines our model and derives the behaviour of labor taxes under the assumption of complete markets. Section 3 introduces

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1Fig. 1 shows effective marginal labor tax rates taken from Mendoza et al. (1994).
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