Income taxes, public investment and welfare in a growing economy

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Abstract

In a growth model with public capital and a spillover externality from private capital, we find that income taxes as part of an optimal fiscal policy is a more common result than usually thought. The commitment to finance an exogenous component of public expenditures in the form of an exogenous fraction of output may lead to the optimality of positive income taxes. This result is robust to alternative assumptions on depreciation rates and preferences. We show that welfare losses from deviations from the optimal policy are always smaller when compensated with changes in income taxes than when adjusting lump-sum taxes.
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1. Introduction

Clarifying whether factor rents should be taxed or subsidized continues to be a central issue when characterizing optimal fiscal policy. In a Ramsey-type setting with

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no externalities, taxing production factor incomes will generally undermine growth and welfare. In such a setup, Judd (1985), Chamley (1986) and Lucas (1990) propose zero taxes on capital in the long-run. Jones et al. (1997) and Milesi-Ferretti and Roubini (1998) extend the zero tax rate result to labor and consumption taxes in models with human capital. A government may even want to subsidize capital income when the presence of some externalities leads the competitive mechanism to an underaccumulation of physical capital (Turnovsky, 2000; Cassou and Lansing, 1997).

However, taxes on factor rents represent more than 50% of total tax receipts in developed countries. An answer to this apparent *puzzle* can be found in the literature on economies with heterogenous agents.[1] In a representative agent setting, the existence of externalities inducing over-accumulation of physical capital can also lead to the optimality of capital income taxes. Often, externalities of this kind have been introduced in the production function (Turnovsky, 1996; Fisher and Turnovsky, 1998; Corsetti and Roubini, 1996) or as a credit market imperfection in an stochastic environment (Chamley, 2001).[2] We attempt to contribute along this line of research. In a simple growing economy with infinitely lived agents, we find that positive income taxes as part of an optimal fiscal policy may be a more common result than usually thought. This comes about in spite of the fact that lump-sum taxes are allowed and that a spillover externality from aggregate private capital (Romer, 1986) and the presence of public capital in the production function (Glomm and Ravikumar, 1994, 1999; Turnovsky, 2000, 2004) both tend to support subsidies on the production factors.

Most papers leading to a zero distortionary tax rate in the long-run allow for debt issuing. Optimal policy then usually begins with a large capital tax levy that raises enough resources to finance public expenditures and allows for income taxes to go to zero in the long-run. We consider an income tax rate (i.e., labor and capital are uniformly taxed) in addition to a Ricardian-equivalent lump-sum tax, which makes our long-run tax results comparable to those obtained in the referred papers. What is new in our framework is the requirement that the government must finance a constant and exogenous fraction of public expenses to output every period. This commitment produces an important budget distortion in the form of a lower bound for government revenues. Since neither households nor firms internalize the fact that higher income will lead to extra public consumption, financing public expenditures through lump-sum taxes may lead to an excessive crowding-out of private consumption, so that collecting additional resources from income taxation may turn out to be preferable.[3] This simple but important effect has not been seriously considered when characterizing optimal tax policy in dynamic settings. Obviously,

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[1]Aiyagari (1995) and Domeij and Heathcote (2004), among others, show that the optimal income tax rate is positive and far from zero in an heterogenous agents framework with asset market incompleteness. Jones and Manuelli (1992) found a similar result in an overlapping generations framework.

[2]Caballé (1998) also found the optimality of capital income taxes in a framework with altruistic preferences and low elasticity of intertemporal substitution, without intergenerational transfers.

[3]This result is in line with Jones et al. (1997), who pointed out that certain *public policy constraints* could imply that taxing productive factors positively in the long-run might be optimal.