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Optimal taxation and intergovernmental transfer in a dynamic model with multiple levels of government

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Abstract

In this paper, we study the optimal choices of the federal income tax, federal transfers, and local taxes in a dynamic model of capital accumulation and with explicit game structures among multiple private agents, multiple local governments, and the federal government. In general, the optimal local property tax is zero if the local property tax is constrained to be nonnegative, whereas the optimal local consumption tax is always positive. When the local consumption tax is chosen optimally, the federal income tax can be either positive or negative. For most reasonable parameter values, our numerical calculations have shown that with a positive local consumption tax there exists a reverse transfer from local governments to the federal government.

JEL classification: E0; H2; H4; H5; H7; O4; R5

Keywords: Income tax; Property tax; Consumption tax; Intergovernmental transfers; Capital accumulation; Fiscal federalism

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1. Introduction

In an earlier contribution to optimal taxation and revenue-sharing in the context of fiscal federalism, Gordon (1983) has utilized a static model to consider how local governments set the rules of local taxes including tax rates and types of taxes in a decentralized form of decision-making, while allowing the federal government the role of correcting externalities through grants, revenue-sharing, and regulations on local tax bases. Recently, Persson and Tabellini (1996a, b) have considered risk-sharing and redistribution across local governments in a federation in static models involving risk.

Following Gordon (1983), and Persson and Tabellini (1996a, b), we analyze the optimal choices of federal taxes, federal transfers, and local taxes in a dynamic model of capital accumulation with multiple levels of government.[1] This study considers multiple private agents and multiple local governments and it allows us to see how the optimal choices of federal taxation and federal transfers relate to heterogeneity across different private agents and different local governments.

Our approach goes one step further in bringing the existing optimal taxation study closer to reality. In the existing literature on optimal income and commodity taxation,[2] the government is often taken to be a single identity, without introducing the structure of tax assignments and expenditure assignments among multiple levels of government. But in reality, the income tax is collected by central governments in Europe and jointly by the federal government and state governments in the United States; the property tax is collected by local governments, and the commodity tax is collected by both central governments and local governments in Europe, and by local governments in the United States. In most developed countries, each level of government has the power to determine tax rates and tax bases. In addition, there exist intergovernmental transfers in various forms among different levels of government in every country of reasonable population size. It is natural to see how the structure of fiscal federalism affects the structure of optimal taxation and intergovernmental transfers.

Our dynamic approach is timely given that the design of tax assignments, expenditure assignments, and intergovernmental transfers among different levels of government has received considerable attention in the 1990s in the context of fiscal federalism, public sector reforms, and economic growth for both developing and developed countries. One of the most important goals of

[1] See Zou (1994, 1996), Brueckner (1996), Devarajan et al. (1996, 1998), Davoodi and Zou (1998), and Zhang and Zou (1998) for related dynamic approaches to multi-level government spending, intergovernmental transfers, federal taxes, and local taxes in a 'federation'.

[2] Classical contributions include, for example, Ramsey (1927), Mirrlees (1971), Diamond and Mirrlees (1971), Atkinson and Stiglitz (1972, 1976), and Samuelson (1986). For comprehensive literature reviews see Atkinson and Stiglitz (1980), and Myles (1995).