Tax evasion in a model of endogenous growth

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Abstract

This paper integrates tax evasion into a standard AK growth model with public capital. In the model, the government optimizes the tax rate, while individuals optimize tax evasion. It studies tax rate, tax evasion and economic growth, and compares them with otherwise identical economies except those without tax evasion. It inquires into the effects of three government policies on tax rate, tax evasion, and economic growth. It finds that an increase in both unit cost of tax evasion and punishment–fines reduces tax evasion, whereas an increase in tax auditing reduces tax evasion only if the cost of tax enforcement is not too high. The three policies theoretically have ambiguous effects upon economic growth, due to their indirect effects upon tax evasion and optimal tax rate. The model is calibrated to quantitatively assess the effects of the three above-mentioned policies. It finds that the three policies are quantitatively effective in discouraging tax evasion, but with small growth effects, unless the degree of government externality is very high.
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1. Motivation

This work integrates tax evasion into a general-equilibrium, economic growth framework. Two lines of conventional wisdom are related with this topic: the optimal income taxation and tax evasion initiated by Mirrlees (1971), and the endogenous growth pioneered by Romer (1986). While the main focus of the former line is the effectiveness of various policies upon tax evasion (e.g., Schroyen, 1997), the major emphasis of the latter line is the effect of policies upon long-run economic growth (e.g., Rebelo, 1990). Conven-

tional works on income taxation and tax evasion conduct analysis in a partial-equilibrium setup, without taking into account an economy's resource constraints and feedback effects, whereas existing general-equilibrium endogenous growth models do not analyze the implications of tax evasion on economic growth.[1] It is worthwhile to determine the tax rate under tax evasion, and to explore the effectiveness of deterrence policies upon tax evasion and economic growth in a general-equilibrium framework.

Tax evasion is examined in East Asian economies, where some economies have a severe tax evasion problem and others do not.[2] Existing growth models (Lucas, 1993) and data (Summers and Heston, 1991) indicate that East Asian tigers have performed equally well and extraordinarily better than all other areas in the past two decades. These above stylized facts seem to indicate that policies leading to more severe tax evasion, do not necessarily hurt economic growth in East Asia. This paper attempts to analyze economic growth in models of tax evasion, and to probe into their possible reasons.[3]

As a first attempt, this paper follows the standard AK model in Barro (1990), and considers a twist in tax evasion. In the model, the government provides productive services that externally enhance private production. Provision of public services offers a rationale for taxation. The government decides the optimal tax rate and the optimal expenditure. Given the tax rate, the households–firms then choose optimally the tax compliance rate and consumption–savings. Taxation and tax evasion, in turn, influence public expenditure and capital accumulation, which affect output and economic growth. We analyze the tax rate, the degree of tax evasion, and the economic growth rate in equilibrium, and compare

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[1] Roubini and Sala-i-Martin (1995) are the only exceptions. Although Roubini and Sala-i-Martin also deal with tax evasion in the endogenous growth model, there are, however, several differences between our work and theirs. In our work, the degree of tax evasion is an optimal choice and the size of government is allowed to vary as will be seen later, whereas in Roubini and Sala-i-Martin, tax evasion is an ad hoc function by specification and a constant size of government is assumed. As a result of optimal tax evasion, we are able to study the effects of evasion-deterring policies upon tax evasion, economic growth and other variables.

[2] It is believed that within East Asian tigers, tax evasion is more severe in South Korea and Taiwan and much less of a problem in Hong Kong and Singapore. In a value-added tax (VAT) evasion study, for example, Fu (1995) estimates and finds that the annual VAT evasion as a fraction of potential VAT base in Taiwan during the period from 1987 to 1993 was 20.9%, on average. It is well known that VAT affects the reports of income tax revenue due to its self-enforcing element, because each buyer will demand a copy of such a receipt. The evasion of VAT therefore leads to the evasion of income tax. Indeed, in an interview survey in Taiwan conducted by Chu (1990), the CPAs reported that, on average, 66.4% of the companies they represented regularly under-reported their incomes and profits by various methods. Similar situations can be found in South Korea (Choi, 1997). On the other hand, tax evasion is much less severe in Singapore and Hong Kong. See Das Gupta and Mookherjee (1998) for Singapore. There is no data for Hong Kong about tax evasion, but tax evasion should not be a serious problem in Hong Kong, given the fact that non-tax revenues from land account for a major source of government revenue; e.g., the share of land revenue in total government revenues is bigger than 50% in 1997 and 1998 (Source: *Hong Kong Annual Digest of Statistic,* 1998).

[3] Although this paper focuses on tax evasion, we should mention that tax evasion is related to the size of underground economies. Tax evasion and underground economies are prevailing not only in developing economies, but also in developed economies. Within the USA, for example, about 17 percent of income taxes are estimated unpaid (Slemrod and Yitzaki, 2000), and the underground economy is about 26 percent of total economy (Feige, 1979). See National Center for Policy Strategies (1998) for the estimated size of underground economies in Great Britain, Italy, Germany, Russia, and East Europe. See also papers edited in Feige (1990) for the relationships between tax evasion and underground economies.