Dynamic inconsistency and non-preferential taxation of foreign capital[☆]

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HIGHLIGHTS

- Dynamic inconsistency results from preferential taxation of new foreign investment.
- Investors tend to wait which reduces tax revenue.
- Limited commitment to non-preferential taxation resolves the problem.
- Commitment to future tax rates not necessary.
- Case for unilateral commitment to non-preferential capital taxation.

ARTICLE INFO

ABSTRACT

When capital is sunk after it is invested, a host government facing heterogeneous foreign investors has a strong incentive to reduce preferential taxes over time in order to attract less eager investors while fully expropriating past investors. This induces investors to wait rather than invest in the initial period, and leads to loss of tax revenue. This dynamic inconsistency problem is resolved if the host government commits to non-preferential taxation in each period even if it does not commit to future tax rates.

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1. Introduction

Economists have long recognized that important barriers to foreign investment arise from dynamic inconsistency in determination of policies by the host government. In particular, there are two aspects of dynamic inconsistency when foreign investment is partially or entirely irreversible and the government cannot credibly commit to future policy.[1] First, the host government has a strong incentive to expropriate all returns on capital after the investment is sunk (the holdup problem) and this deters foreign investment. Second, after the current round of foreign investment is sunk, the host government has a strong incentive to selectively offer more favorable policy terms to investors who did not invest in the past (presumably because they have better outside options); this, in turn, may motivate current investors to withhold their investment to take advantage of such favorable terms in the future. These two aspects are closely related. Preferential terms to attract new investors and a highly extortionary policy towards sunk capital are both facilitated when the host government is free to engage in policy discrimination between different vintages of capital. Further, while the existence of a hold up problem requires investors to be compensated well up-front, intertemporal discrimination with better terms being offered in later periods may imply that sufficiently lucrative terms are not made available to initial investors. While the investment hold up problem has been extensively analyzed in the literature,[2] the dynamic inconsistency arising from

[1] As there is always a "sovereign risk" of the host government easily violating any agreement with private investors, it is difficult to address these dynamic inconsistency problems through contracts between private foreign investors and the government.

the incentive to offer more lucrative policy terms to new investors over time and its interaction with the hold up problem have received scant attention and constitute the main focus of this paper.

We consider a simple two period model where a host government imposes capital income taxes. There is a continuum of foreign investors that differ in their return on capital at home (their outside option). Investors may invest in either period or never. Once invested in the host economy, capital is fully sunk. We use this stark framework to highlight the problem of dynamic inconsistency resulting from preferential taxation of new investors and show how it makes it more difficult to attract foreign investment leading to loss of tax revenues to the host government (relative to the outcome under full commitment where the government can credibly commit to future tax rates).

Next, we show that this dynamic inconsistency problem can be fully resolved[3] if the government can make a limited commitment to not engage in preferential treatment of new investors i.e., to have uniform taxation of all capital at each point of time regardless of vintage or whether capital is mobile or sunk. Note that such limited commitment does not prevent the government from intertemporal tax discrimination i.e., lowering the tax in the future to attract new investors. Further, it requires no commitment to specific tax rates. Despite that, the equilibrium outcome is one where the full commitment levels of investment and tax revenue are attained. An important mechanism for such commitment by a host government may be provided by international treaties or conventions such as the OECD that actively promote dismantling of preferential taxation of foreign and mobile capital among its members.[4]

It is important to differentiate the dissipation of tax revenue due to dynamic inconsistency highlighted in our paper from the effects of tax and policy competition between multiple governments to attract more investment. As is well known, the latter can lead to a race to the bottom in tax rates (and other policy instruments) and lead to partial or even complete dissipation of tax revenue (or other gains to the host country from investment). Under certain conditions, commitment to non-preferential taxation or non-discrimination by all competing governments can soften competition between governments and lead to revenue gains for all countries.[5] In contrast, the problem we focus on can arise in the absence of any competition between governments; indeed, in our model, there is a single host government that faces a set of heterogeneous potential foreign investors. The tax competition literature emphasizes the value of multilateral commitment by governments to non-preferential taxation and this is echoed in the rationale behind the OECD's identification of preferential taxation as harmful practice (see, OECD, 1998). In contrast, our results indicate the value of *unilateral* commitment to non-preferential taxation.

Finally, the problem of dynamic inconsistency highlighted in this paper bears a close resemblance to the Coase conjecture regarding intertemporal price discrimination by a monopolist that faces heterogeneous consumers in a durable good market.[6] The seller has an incentive to reduce future prices in order to sell to lower valuation buyers (that did not buy in the past) and this creates an incentive for buyers to wait leading to downward pressure on prices and profit. However, there are significant differences with our framework. In the durable good market, the utility of a buyer who purchases in the current period is not directly affected by future prices (while the return to a current investor depends directly on future taxes). Indeed, as buyers have no interaction with the seller after they buy, there is no natural analogue of non-preferential taxation in the durable good market framework.

Our paper is organized as follows. Section 2 describes the model. Section 3 discusses the solution under full commitment. Section 4 discusses the no commitment case and highlights the dynamic inconsistency problem caused by preferential taxation. Section 5 discusses the outcome with limited commitment to non-preferential taxation. Section 6 discusses extensions, limitations and robustness of our results.

2. Model

Consider a two period economy ($t = 1, 2$) where the host government wishes to attract foreign investment. In order to focus on taxation of capital income and to compare the tax revenue implications of alternative structures, we assume that the government's objective is to maximize the total tax revenue over both periods. Further, we assume for simplicity that the economy has no domestic capital. There is a continuum of foreign investors whose total mass is equal to 1; each investor is endowed with a unit of capital. Each unit of capital invested in the economy yields return equal to $\rho > 0$ in each period. An investor that does not invest in the economy is guaranteed a certain net return (for instance, by investing in the source country); we assume that this external (per period) *net* return on capital varies across investors and is distributed according to a distribution function $F(r)$ whose support is the interval $[0, \rho]$; there is no loss of generality in ignoring investors with external return higher than ρ. We assume that $F(r)$ is twice continuously differentiable on $[0, \rho]$, $F'(r) > 0$ and

$$(\rho - r)\frac{F''(r)}{F'(r)} < 2. \tag{1}$$

(1) is always satisfied if F is concave. Each investor's payoff is the sum of net returns over both periods. There is no discounting.

We study the rational expectations equilibrium of this model under various assumptions on the commitment ability of the government.

Let $\phi(r)$ be the function defined on $[0, \rho]$ by

$$\phi(r) = (\rho - r)F(r) \tag{2}$$

$\phi(r)$ is the tax revenue in the one period version of the model when the tax rate t is such that r is the external return of the marginal investor (all investors with external return below r invest in the host economy) i.e., $r = \rho - t$. Assumption (1) ensures that there is a unique $r^* \in (0, \rho)$ that maximizes $\phi(r)$ on $[0, \rho]$ and the optimal one period tax is $\rho - r^*$. The first order condition $\phi'(r^*) = 0$ implies:

$$(\rho - r^*)F'(r^*) - F(r^*) = 0. \tag{3}$$

This one period solution is useful for characterizing the dynamic outcome.

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[2] Solutions to this problem include self-enforcing agreements between individual investors and the host government through long term interaction (see, among many others Eaton and Gersovitz (1983), Thomas and Worrall (1994), Doyle and van Wijnbergen (1994) and Schnitzer (1999)) as well as multilateral treaties between sovereign nations.

[3] Note that as individual investors are small (atomless), long term interaction with the host government does not lead to better outcomes.

[4] OECD (2004) reports that among 47 preferential regimes identified among the OECD member countries in 2000, 18 countries chose to adopt non-preferential regimes and 14 countries accepted amendments in their treatment of foreign capital. The number of non-member countries agreeing to cooperate on the principle of non-preferential taxation had increased to 33.

[5] A very large literature on tax competition (and other forms of policy competition) has examined various aspects of this issue. See, among many others, Janeba and Peters (1999), Keen (2001), Janeba and Smart (2003), Haupt and Peters (2005), Wilson (2005), Konrad and Kovenock (2009) and Wilson et al. (2010).

[6] See, for instance, Coase (1972) and Stokey (1982).