



# Strategic nonlinear income tax competition with perfect labor mobility <sup>☆</sup>



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## ABSTRACT

Tax competition between two governments who choose nonlinear income tax schedules to maximize the average utility of their residents when skills are unobservable and labor is perfectly mobile is examined. We show that there are no equilibria in which there is a skill type that pays positive taxes to one country and whose utility is larger than the average utility in the other country or in which the lowest skilled are subsidized. We also show that it is possible for the most highly skilled to receive a net transfer funded by taxes on lower skilled individuals in equilibrium. These findings confirm the race-to-the-bottom thesis in this setting.

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## 1. Introduction

When a utilitarian government sets nonlinear income taxes optimally for a closed economy, the high skilled pay taxes in order to subsidize the low skilled. However, in the presence of interjurisdictional labor mobility, high taxes might act as a catalyst for the high skilled to exit from a region and generous subsidies might act as a catalyst for the low skilled to enter, thereby thwarting the redistributive goals of its government. In this article, we investigate income tax competition between two national governments who set nonlinear income tax schedules when individuals of all skills are perfectly mobile between the two countries. We consider a discrete-type version of the model used in the seminal paper of Mirrlees (1971) to analyze optimal nonlinear income taxation for a closed economy. In order to isolate the impact of adding interjurisdictional tax competition to the Mirrlees model without at the same time introducing other factors that might affect an individual's choice of country of residence, we employ the same assumptions as are typically adopted in the discrete version of the Mirrlees model and assume that there are no impediments to moving between countries.

Specifically, we suppose that each government designs a tax schedule to maximize an average utilitarian social welfare function defined over the utilities of its residents, given the tax schedule in the other country, but taking full account of any mobility that might result from its choice. With fixed, immobile populations, this welfare criterion provides a motivation for

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transferring income from higher to lower skilled individuals. We also suppose that there is perfect labor mobility. That is, no resources need to be expended in order to move and there are no frictions to mobility based on residential attachments. We assume that it is only possible for a government to tax the income at source of its residents. We further assume that the labor productivity of an individual does not depend on the country of residence. When combined with our assumption that labor is perfectly mobile, this assumption implies that locational decisions only depend on the tax schedules offered by the two countries.

Free labor mobility leads to aggressive competition. We show that there are no equilibria in our tax-setting game in which there is a skill type that pays positive taxes to one country and whose utility is larger than the average utility in the other country. As a corollary to this result, it follows that there are no equilibria in which individuals with the highest skill make positive tax payments to either country. We also show that it is impossible for the lowest-skilled residents in either country to receive a subsidy in equilibrium. An example is also provided that demonstrates that competition for the most highly skilled is so intense that it is even possible for them to receive a net transfer funded by taxes on lower skilled individuals in equilibrium.

Individuals make choices on two margins. The labor–leisure decision operates on the intensive margin, whereas the locational decision operates at the extensive margin.<sup>1</sup> The labor–leisure decision is largely driven by marginal tax rates, whereas the locational decision is more sensitive to average rates of taxation. Because the adjustments at the extensive margin, not the adjustments at the intensive margin, are the driving force behind our results, we focus on making statements about total tax liabilities.

There is widespread concern that tax competition among jurisdictions for mobile capital and labor places severe constraints on the ability of these jurisdictions to engage in substantial redistributive taxation, to provide welfare programs for the needy, to maintain high safety and environmental standards, and to regulate labor practices, among other desirable social objectives. In other words, tax competition results in a “race to the bottom.” The importance of this phenomenon in the context of interjurisdictional competition among communities in the same country was recognized by [Stigler \(1957\)](#), but it is also a familiar feature of competition between national governments. For example, as the European Union expanded, barriers to mobility across national boundaries within Europe were eroded.<sup>2</sup> Similarly, restrictions on the free flow of capital around the world have diminished in recent decades. These developments have been accompanied by increased worries that the welfare state will wither and die due to the inability of national governments to maintain their social policies as the impediments to capital and labor mobility are relaxed. It is therefore important to determine the extent to which these concerns are justified.

There is a substantial literature that investigates the constraints that the competition between governments for mobile capital and labor places on the ability of governments to raise tax revenue and redistribute income. What distinguishes our analysis from the existing literature is that we assume that *all* governments act strategically, that governments operate in a second-best environment in which they are restricted to using nonlinear income taxes, and that there is perfect labor mobility of all skill types. The existing literature has made one or more of the following assumptions: only one country acts strategically, first-best tax policies are possible, only linear income taxation is possible, or there is less than perfect labor mobility.

For the most part, the research on interjurisdictional tax competition assumes that there is full information about the relevant characteristics of the agents in the economy. For an overview of the main issues considered and a review of what has been learned in this literature, see [Cremer and Pestieau \(2004\)](#) and [Wildasin \(2006a\)](#). However, in the context of redistributive income taxation, it is not only the tax policies of foreign governments that constrain the design of a country’s income tax schedule by creating incentives for the wealthy to emigrate or the foreign poor to immigrate. As emphasized by [Mirrlees \(1971\)](#), the inability of a government to distinguish individuals with different skills also limits the amount of redistribution that is possible.

Surprisingly, very little attention has been directed to investigating the validity of the race-to-the-bottom thesis in the presence of such information asymmetries when labor is internationally mobile. When labor is mobile, there is a dual motive for attracting the most highly skilled when they pay positive taxes—they bring tax revenue and they also contribute directly to the objective function of the government. Similarly, there is a dual motive for encouraging the lowest skilled to emigrate if they are subsidized—doing so reduces the transfers being paid and increases the average utility of those who remain if this strategy is successful. Thus, tax competition generates pressure for a race to the bottom and, hence, concerns about a race to the bottom are well founded when there is perfect labor mobility.

In Section 2, we discuss the literature on income tax competition with asymmetric information. We present our model in Section 3. In Sections 4 and 5, respectively, we consider taxation of the high skilled and subsidization of the low skilled. Examples of equilibria are provided in Section 6. In Section 7, we offer some concluding remarks.

<sup>1</sup> We are ruling out the possibility that individuals may work in more than one jurisdiction. This possibility is modeled by [Osmundsen \(1999\)](#). The related problem of taxing multinational firms is discussed by [Gresik \(2001\)](#) and [Olsen and Osmundsen \(2001\)](#).

<sup>2</sup> The importance of international migration for OECD countries is apparent from the data presented in [Wildasin \(2006b\)](#). For example, he documents that gross migration flows for most European Union countries exceeded 0.5 percent of total population in 2000, and in some cases exceeded 1 percent.

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