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Distribution of factor endowments and tax competition

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Abstract

This paper analyzes a Nash tax competition between two heterogeneous regions that differ in their endowments of production factors: mobile capital and immobile labor. Each region uses a unit tax on capital to finance local public service. The effects of the differences in the factor endowments on the equilibrium tax rates, relative utility levels, and the efficiency of the public service provision are analyzed. When the income effect on the public service is zero, the poor large region chooses a higher tax rate and has a lower utility than its rival, but the poor small region may choose a lower tax rate and attain a higher utility. When the public service is a normal good, the poor large region may choose a lower tax rate and has a higher utility than the rival if its share of labor endowment is not very high. The rich region with a higher tax rate under-provides the public service, but the poor region may provide an efficient level of the public service.

Keywords: Tax competition; Heterogeneous regions

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1. Introduction

A number of recent studies analyzed interregional Nash competition for tax bases. Each region sets a tax rate on mobile tax base (capital), and the tax revenue is used to finance a local public service, which is a publicly provided private good. A major result of these studies for *homogeneous* regions is that the symmetric Nash equilibrium provision of the public

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service is inefficient when a source-based tax is used. The inefficiency arises because each region ignores the externality effects of a change in its tax rate. A unilateral increase in a region's tax rate causes an outflow of the tax base to other regions and thereby increases the public service or decrease tax rates in other regions.[1]

Analyses of the strategic competition among *homogeneous* regions offer important insights into the consequences of interregional competition. However, as Bucovetsky (1991) argues, the homogeneous case cannot justify the existence of separate jurisdictions without invoking exogenous factors, because the merged equilibrium is Pareto superior for homogeneous regions. Bucovetsky (1991) and Wilson (1990, 1991) consider a tax competition model between two *heterogeneous* regions, and analyze the relative tax rates, utility levels, efficiency of the public service level, and incentives to merge, at asymmetric Nash equilibria.

In the Bucovetsky–Wilson model, two regions are endowed with an identical production technology of constant returns to scale, and produce a homogeneous good by using mobile capital and immobile labor. The two regions differ in their endowments of labor, but they are assumed to have identical per capita endowments of capital. The smaller region thus has a smaller share of labor as well as a smaller share of capital than its rival, and the two regions are equally well off in terms of the per capita endowments. They show that the smaller region chooses a lower tax rate and has a higher utility level than the larger region at a Nash equilibrium. If the smaller region is sufficiently small, it has no incentive to merge.

This paper extends the Bucovetsky–Wilson model to the entire spectrum of the shares of capital and labor endowments, focusing on the analysis of the interregional tax competition between the poor and the rich regions in per capita terms. A poor region is the region whose labor share is greater than its capital share. A poor large region is the poor region that has a greater labor share than the rival region. We analyze how the differences in shares of capital and labor endowments affect the relative tax rates, utility levels, and the efficiency of the public service provision.

Relative equilibrium tax rates depend in general on the differences in the two regions' opportunity costs of the public service as well as in their marginal rate of substitution (MRS) between the private good and the public service. A unilateral increase in tax rate causes an outflow of capital to the other region. One unit outflow of capital has a greater effect in per capita terms in the region with a smaller labor share. Hence, the smaller region has a greater opportunity cost of the public service, and has less incentive to

[1] The degree of inefficiency depends on a number of factors: choice of the strategy variable (Wildasin, 1988, 1991), the number of regions involved (Hoyt, 1991), and the availability of multiple strategy variables (Bucovetsky and Wilson, 1991), among others.