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# The supermodularity of tax competition

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## Abstract

We determine sufficient conditions on the concavity of the marginal production function to establish the supermodularity of a n asymmetric country tax competition, when countries maximize their tax revenue. We use the notion of generalized concavity, more specifically this of  $\rho$ -concavity. The tax competition game is supermodular when the marginal production function (or equivalently the inverse demand for capital) of each country is log-concave and  $1/2$ -convex. These conditions allow us to bound the degree of curvature of the inverse demand for capital. Applying some results from supermodular games, we deduce the existence and uniqueness of the Nash equilibrium. We show also that any increase in the number of tax-competing jurisdictions decreases tax rates and tax revenues and improves the net return of capital. Establishing similar sufficient conditions for the supermodularity of the tax competition game with welfare maximizers raises multiple issues. Besides the question of the nature of public spending (complement or substitute of private consumption), we discuss the role of capital by considering successively an elastic worldwide stock of capital and capital ownership.

**Keywords:** theory

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