THE EFFECTS OF TAX COMPETITION ON ENVIRONMENTAL PRODUCT QUALITY AND WELFARE

by

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Extended abstract

In many markets nowadays, it is common one or several environment-friendly variants to compete with the standard versions of the products. It is evident that some consumers are willing to pay more to buy products with environment-friendly characteristics such as "green" electricity (electricity produced from renewable energy sources), products with eco-friendly packing, energy-efficient appliances. In economics literature, models of vertical differentiation are considered the appropriate framework to study the provision of environmental product quality in real world markets. Consumers consider environment-friendliness as a particular quality attribute of the product they buy.

One interesting aspect in such models is the impact of commodity taxation on the choice of product quality. Taxation in vertical differentiation models affects the economy through different channels than usual ones and has different impact on welfare. While in Cournot competition a small tax reduces welfare, in a vertical differentiation model an ad valorem tax is always welfare-improving over the no-tax equilibrium, since it lowers qualities and therefore consumer prices of both variants (Cremer and Thisse (1994)). When the tax lowers the high quality, it has a positive effect on welfare since the high quality is now closer to the optimal quality level.

Commodity ad valorem taxes are widely used in the real world (much more than emission taxes). The question that naturally arises, given the significant differences in consumption tax rates even in highly integrated areas such as EU, is how commodity tax competition between countries affects the equilibrium provision of environmental product quality, the environmental damage and welfare.

To address this issue we make use of a vertical product differentiation model (appropriately applied to an international duopoly setting). The two firms, which are located one in each country and produce a good with different environmental quality, compete not only in prices but also in quality (quality in this framework represents the environment-friendliness of the product). An ad valorem tax is levied by each country. Taxes are levied by governments on a destination basis where commodities are taxed by, and revenues accrue to, the country where consumption takes place. Then, given the tax rates, firms first choose the environmental quality of their product and then maximize their profits by the appropriate choice of prices.

Consumers are environmentally conscious, meaning that they are willing to pay a higher price to buy the eco friendly version of the product, instead of the cheaper, but otherwise equivalent, one. It is assumed that pollution in each country enters into consumers' utility function directly in a negative manner.

In this framework, a tax increase in one country affects the prices, the environmental quality of the products and the welfare of the other country. The noncooperative behavior of the governments creates horizontal externalities since each government neglects the impact its tax decision has on the welfare of the other country. It is shown that, starting from any tax distorting equilibrium, harmonization of taxes is desirable. In particular, a tax increase in the low-tax country, combined with an opposite change (of the same absolute magnitude) in the tax of the other country is welfare-improving.