FIRST-BEST TAX POLICY, CONGESTION, AND IMPERFECT COMPETITION

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Abstract: In the presence of imperfect competition and externalities — increasing returns to diversity and congestion — competitive equilibria are not efficient. Thus, the inefficiency can be modified by the introduction of appropriate fiscal policies. Under the consideration of an optimal fiscal policy, the results of this paper show that the government should pay a subsidy to labor and capital income in order to correct the production inefficiency. Furthermore, the optimal subsidy to fixed costs depends on the degree of increasing returns to diversity and the degree of congestion, and it decreases with the latter effect. (JEL: E62, H41, L16)

Keywords: first-best tax policies, congestion, imperfect competition

1. Introduction

The role of public expenditure is an important instrument for stimulating output. However, as pointed out by Thompson (1974), even defense expenditures are subject to a form of congestion — that is, public goods are non-exclusive and are rivals. Recently, the role of congestion in public finance theory has seen widespread acceptance and concern. The endogenous growth literature has provided some insights into the effect on the growth rate of a productivity-enhancing government’s expenditure which is subject to congestion. Among the relevant contributions there are Barro and Sala-i-

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Some of the papers mentioned above have investigated the relationship between the forms of congestion and the optimal tax. For example, Barro and Sala-i-Martain (1992) conclude that the optimal tax policy essentially relies on the specific feature of the public service. They find that if the public goods are rivals, but non-excludable, then income taxation can be superior to lump-sum taxation. Related subsequent works are revealed in Eicher and Turnovsky (2000) and Glomm and Ravikumar (1994).

Those papers do have some points in common: (i) the goods market is perfectly competitive, (ii) the provided public service is congested by private capital, and (iii) the labor supply is inelastic. In contrast to these features, the present paper considers an imperfectly competitive intermediate goods market and relates the congestion effect to the number of firms. The main purpose is to investigate how the optimal tax policy responds to the degree of market imperfection and the congestion externality. Following Devereux et al. (1996, 2000), the number of intermediate firms is endogenously determined by a zero-profit condition, and the production of final goods shows increasing returns to an expansion of a variety of inputs. Since the endogenous number of firms is emphasized, the importance of fixed costs should not be neglected. As stressed by Spence (1976, pp. 217), “[Fixed] costs have several implications…[But] they also restrict the number and variety of products that it is feasible or desirable to supply.”

The significance of fixed costs is not only explicitly stressed in the microeconomic literature, e.g., Spence (1976), but also in neo-Schumpeterian models of growth, e.g., Romer (1994). Romer (1994) points out that fixed costs, being regarded as a barrier to entry, affect the intensity of intentional invention and innovation, limit the emergence of new goods, and thereafter deter the development of the economy. Although we do not highlight the association between fixed costs and the appearance of new goods, the level of fixed costs is also crucial for deciding the set of goods and poses serious trouble for decentralized market allocation schemes. As a consequence, the method of government intervention – subsidizing fixed costs – is taken seriously in the present model.

According to the environment specified, some interesting results are shown in this paper. This paper clarifies that the first-best income tax policy is to pay a subsidy to labor and capital in order to correct the production inefficiency. The optimal subsidy to fixed costs depends on the effect of increasing returns to diversity and the degree of congestion. Consequently, this subsidy decreases with the degree of congestion.