Imperfect competition, the marginal cost of public funds and public goods supply

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Abstract

This paper analyses the impact of changes in product market competition on the marginal cost of public funds (MCPF) and public goods supply when distortionary commodity taxes are used to raise revenue. First, less competition (measured by a switch from Bertrand to Cournot conduct, or a decrease in the elasticity of demand) does not necessarily raise the MPCF. Second, even if it does, optimal public good supply does not necessarily fall. The paper also presents a method for modelling Bertrand and Cournot competition in general equilibrium that may be of independent interest.
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1. Introduction

Although many product markets are clearly imperfectly competitive, the implications of imperfect competition for the design of taxation and the level of public good provision have received relatively little attention. Atkinson and Stiglitz devote only one page of their textbook to this issue (Atkinson and Stiglitz, 1980, p. 468), and remark; ''further development of the (tax structure) requires a more soundly based general equilibrium theory of imperfect competition, and . . . this is at present at a rather early stage''. Subsequently, Kay and Keen

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(1983), Delipalla and Keen (1992), and Myles (1989a,b), have derived modified Ramsey tax rules characterizing the optimal tax structure in an economy with imperfect competition in the product market. However, relatively few general results are available from such an approach, although some robust results have been established about the relative merits of specific versus ad valorem taxes,[1] and the desirability of taxes on intermediate goods.[2]

This paper attempts a somewhat different approach, by abstracting from question of tax *structure*, focusing instead on the impact of imperfect competition on the *level* of taxation, or equivalently the level of provision of a public good. Thus, this paper is similar in approach to Atkinson and Stern (1974), Wilson (1991a,b), and Gaube (2000). These papers compare the level of provision of a public good when taxation is lump-sum and when it is distortionary, assuming the economy is competitive. In this paper, we are concerned with how the level of provision of public goods financed by distortionary taxation changes as the level of product market competition changes.[3]

The initial economic intuition that many might have about the effect of decreasing product market competition on optimal public goods supply is the following. With imperfect competition, there is an initial distortion in the economy:production of all goods is too low, as firms are pricing above marginal cost. Other things equal, this distortion will raise the marginal cost of public funds (MCPF), as reallocation of labor from the production of private to public goods is more costly when production of private goods is already suboptimally low. In turn, this will imply a lower optimal public good supply.

The main message of this paper is that this economic intuition is not always correct, as the interaction between government and firms is more complex than this simple story would indicate. Our first point is that the connection between changes in the MCPF and public good supply is not straightforward with imperfect competition. This is because the profit income of the household is now endogenous. Specifically, a change in a parameter typically will affect both the MCPF and household disposable income, and thus the marginal utility of income, and these effects may go in different directions. For example, suppose that the number of

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[1]One set of results that seem quite robust concern the relative merits of specific and ad valorem taxes with imperfect competition. With a monopoly or homogeneous-products oligopoly with identical firms, it has been shown that an ad valorem product tax dominates a specific product tax in the sense that a specific product tax can always be replaced with an ad valorem tax that yields the same revenue and greater consumer plus producer surplus (Suits and Musgrave, 1953; Delipalla and Keen, 1992).

[2]Myles (1989b) has shown that non-zero taxes on intermediate goods may be desirable in the presence of imperfect competition, implying that the Diamond–Mirlees aggregate production efficiency result does not generalise to economies with imperfect product markets.

[3]Similar issues have been addressed in a series of papers by Heijdra and co-authors on the Kenyesian multiplier in general equilibrium models of imperfect competition (Heijdra and van der Ploeg, 1996; Heijdra and Ligthart, 1997; and especially Heijdra et al., 1998). The relationship of this paper to those just cited is discussed in the last section.