We study the relationship between commodity taxation and the effect of entry with imperfect competition. We develop a simple general equilibrium model with imperfect competition in which consumers have variety preferences. As a result, we see that introducing specific taxes increases social welfare. Furthermore, we show that the optimal tax rule is contrary to the inverse elasticity rule.

Keywords: commodity taxation, entry, Ramsey rule.

JEL classification: H21, L13, L16.

1 Introduction

For a long time, public regulation has been put into effect. One of its grounds is prevention of excessive competition. Therefore, studies in the theoretical industrial organization literature investigate how a government can increase social welfare by preventing excessive competition. Mankiw and Whinston (1986), and Suzumura and Kiyono (1987) examine this issue by using a quasi-Cournot model. As an extension of these studies, Besley (1989) considers the effect of entry in a model of Cournot oligopoly by allowing the number of firms to change. He introduces a specific tax on output into the model, and shows that output per firm is increased (reduced) by an increase in a specific tax on output if the inverse demand function is convex (concave). As a result, he demonstrates that introducing a small specific tax raises the number of firms and thus improves social welfare if the inverse demand function is convex. In the present paper, we reconsider the relationship between the number of
firms and welfare by making use of a simple general equilibrium model of imperfect competition with variety preferences, when the government imposes a specific tax.

We assume that there are \( N \) kinds of industries of consumer goods. We distinguish each industry by an elasticity of substitution among goods of the industry. Preferences of consumers over each group are represented by the CES function (see Dixit-Stiglitz, 1977). This means that an increase in the number of consumer goods raises the utility level of the consumers. Let us consider a government that imposes a specific commodity tax. Then, the consumers reduce their demand. But, imposing such a tax leads to increased profits because the demand reduction releases the labour input from existing goods. This gives potential firms incentives to enter the market. Hence, the number of firms in the market increases. Since the consumers can get more goods, the welfare level of the consumers rises because of their love of variety. On the contrary, in Besley’s model, the possibility of welfare improvement due to the introduction of a small specific tax comes from an increase in output per firm.

Furthermore, we discuss optimal tax theory by using our framework. As well known, answers to the optimal tax problem are summarized by the Ramsey Rule. This rule tells us that the government should tax goods with low price elasticities less and ones with high elasticities more. With imperfect competition, goods with lower price elasticities are sold at higher prices by the firms. Therefore, if the government adopted the ordinary Ramsey rule, the distortion due to monopoly pricing would be enlarged. Accordingly, when the government chooses the tax rates on different goods to raise a certain amount of revenue with the minimum total excess burden, the optimal tax rate should be inversely related to the price elasticity of demand. That is, goods with higher elasticity should be taxed heavier to maximize welfare. Our model gives a good account of that.

There exist studies that are closely related to the present analysis. Stern (1987), Delipalla and Keen (1992), Anderson, de Palma, and Kreider (2001a, b), and Schröder (2004) investigate the relative efficiency of ad valorem and specific tax under imperfect competition.\(^1\) These papers compare the performance of each tax under various modes of competition, for example, Cournot competition and Bertrand competition. In particular, Schröder (2004) uses a model similar to ours, that is, a monopolistic competition model based on the CES utility function of the

\(^1\) See also Atkinson and Stiglitz (1987).