

Emission Subsidy/Tax Policy with Heterogeneous Consumers in an Environmentally Differentiated Products Market

Tsuyoshi TOSHIMITSU[☆]

Kwansei Gakuin University

Abstract

This paper applies a model of an environmentally differentiated duopoly to the analysis of environmental policy in the form of a subsidy/tax on consumers based on emission levels of products. More specifically, the paper considers environmental and welfare effects of subsidizing consumers who purchase environment-friendly goods such as hybrid vehicles. Focusing on types of market coverage by heterogeneous consumers, we examine the issue in the cases of a Bertrand and a Cournot duopoly. Under the full market coverage type with a Bertrand duopoly, an emission subsidy improves the environment and is socially optimal. However, under the partial market coverage type, irrespective of mode of competition, the optimal policy depends on the magnitude of the marginal social valuation of environmental damage. That is, if the marginal social valuation of environmental damage is sufficiently large, an emission tax is the optimal policy. Otherwise, an emission subsidy is the optimal policy. Furthermore, in the Bertrand duopoly case, the effect of the subsidy on the environment is ambiguous, whereas in the Cournot duopoly case, the subsidy degrades the environment.

JEL classification: D43; H23; L13

Keywords: Environmentally differentiated product; Emission subsidy/tax; Green market; Bertrand duopoly; Cournot duopoly

[☆] School of Economics, Kwansei Gakuin University, 1-155, Nishinomiya, Japan, 662-8501
Tel: +81 798 54 6440, Fax: +81 798 51 0944, E-mail: ttsutomu@kwansei.ac.jp