Endogenous Timing in Strategic Environmental Policymaking

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Abstract

In this paper, we endogenize the timing of policymaking in a simple two-country model of strategic environmental policy. We consider a timing game in which two policymakers non-cooperatively decide their preferred sequence of moves before setting emission tax rates. We show that whether the policymakers implement emission tax policies simultaneously or sequentially crucially depends on the magnitude of environmental damages. When the damages are insignificant, the tax rates are strategic substitutes, and the simultaneous-move policymaking emerges in equilibrium. In contrast, when the damages are significant, the tax rates are strategic complements, and sequential-move policymaking emerges. We also extend the model by allowing for differences in the vulnerability to environmental damages between countries. When the differences are large, the unique equilibrium of the game is the situation where the less vulnerable country acts as a leader. In the case where multiple equilibrium emerges, the risk-dominant equilibrium is also that where the less vulnerable country leads.

Keywords: Strategic environmental policy, Endogenous timing, Environmental tax, Duopoly.

JEL classification: Q56, Q28, L13, C72.

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