A Game-Theoretical Pricing Model for Green/Non-Green Products

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Abstract[1]

Environmental pollution represents a significant negative externality for society by imposing substantial costs on it. By incentivizing eco-friendly production, one can mitigate these costs and promote sustainable development. Given this framework, in this ongoing work, we formulate and solve a multi-stage game-theoretical pricing model involving two firms: one commercializes a non-green product; the other one is involved in the production of a green product. The model also involves the State, which can influence the two firms through a dual mechanism based on imposing an excise duty and promoting an advertising campaign. Firms' profits and social welfare at the subgame perfect equilibrium are obtained in closed form, and their dependence on exogenous parameters is analyzed both theoretically and numerically. Finally, we discuss possible future developments of the proposed model.

Keywords
Non-cooperative game theory; Pricing; Green/non-green products; State intervention; Profits/social welfare optimization.

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