



*“Gheorghe Asachi” Technical University of Iasi, Romania*



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## PRICING, QUALITY LEVEL AND GREENING DECISIONS FOR GREEN AND NON-GREEN PRODUCTS WITH GOVERNMENT INTERVENTIONS

Yitong Ma<sup>1</sup>, Xianliang Shi<sup>1</sup>, Ying Qiu<sup>1,2\*</sup>

<sup>1</sup>*School of Economics and Management, Beijing Jiaotong University, Beijing 100044, China*

<sup>2</sup>*School of Economics and Management, Beijing Institute of Petrochemical Technology, Beijing 102617, China*

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### Abstract

Due to the environmental deterioration because of pollution and excessive consumption of natural resources, governments are driving efforts to limit pollution emissions and to encourage cleaner manufacturing. The most common interventions governments adopted are providing subsidy to green products and taxing non-green products. With the green consciousness improving gradually, consumers prefer to buy products based on greenness of products with price and quality level together. In order to investigate decision-making of retailer, green manufacturers and non-green manufactures in a two-echelon supply chain setting, in this paper, we formulate a Stackelberg game and derive the equilibrium solutions. Some managerial insights are given through numerical analysis as well. The findings show that both governments subsidy and taxation have an impact on strategy for the two-echelon supply chain, however, subsidy mechanism is more efficient. Moreover, retailer and manufacturers tend to make decisions to meet consumers' preferences, and the retailer is the most beneficial supply chain member in our scenario.

*Keywords:* green products, green supply chain management, government interventions, game theory

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\* Author to whom all correspondence should be addressed: e-mail: [qiuying@bjpt.edu.cn](mailto:qiuying@bjpt.edu.cn)