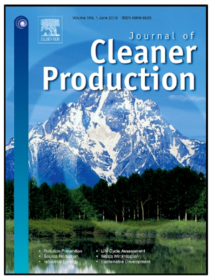

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Qinqin Li, Tiaojun Xiao, Yuzhuo Qiu

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Price and carbon emission reduction decisions and revenue-sharing contract considering fairness concerns

Qinqin Li [a], Tiaojun Xiao[b,c,*] ,Yuzhuo Qiu [a]

[a] Jiangsu Key Laboratory of Modern Logistics, School of Marketing and Logistics Management, Nanjing University of Finance and Economics, Nanjing 210023, China;

[b] Institute of Game Behavior and Operations Management, Nanjing University of Finance and Economics, Nanjing 210023, China;

[c] School of Management and Engineering, Nanjing University, Nanjing 210093, China

ABSTRACT

The members of a supply chain all want to be treated fairly by their counterparts and they dislike unfair shares in a total pie. A retailer exhibits fairness concerns when his share of total profit is low. Existing research on green supply chain does not care about fairness outcome. This paper studies the price and carbon emission reduction decisions in a two-echelon supply chain with a fairness-neutral manufacturer and a fairness-concerned retailer. The impacts of fairness concerns are examined. We obtain several findings: (i) the retailer is better off exhibiting fairness concerns when the emission reduction cost is high; otherwise, it will suffer a loss; and (ii) when the emission reduction cost is lower, the impact of fairness concerns on the manufacturer's profit is greater; however, the impact of fairness concerns on the retailer's profit is smaller; and (iii) the emission tax charged by the government should be lower so as to induce the manufacturer to reduce carbon emissions when the retailer is more fairness concerned. Moreover, we extend the model to involve variable costs and some managerial insights are generated.

Keywords: Green supply chain management; Fairness concerns; Carbon emission reduction; Game theory

* Corresponding author. Tel: +86 25 83686733
E-mail addresses: baoyan209@163.com (Q. Li), xiaotj@nju.edu.cn (T. Xiao), jadeqyz@gmail.com (Y. Qiu).