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Information sharing in a supply chain with horizontal competition. (English) Zbl 1232.90072

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Summary: This paper examines the incentives for firms to share information vertically in a two-level supply chain in which there are an upstream firm (a manufacturer) and many downstream firms (retailers). The retailers are engaged in a Cournot competition and are endowed with some private information. Vertical information sharing has two effects: "direct effect" due to the changes in strategy by the parties involved in sharing the information and "indirect effect" (or "leakage effect") due to the changes in strategy by other competing firms (who may infer the information from the actions of the informed parties). Both changes would affect the profitability of the firms. We show that the leakage effect discourages the retailers from sharing their demand information with the manufacturer while encouraging them to share their cost information. On the other hand, the direct effect always discourages the retailers from sharing their information. When voluntary information sharing is not possible, we identify conditions under which information can be traded and show how price should be determined to facilitate such information exchange. We also examine the impact of vertical information sharing on the total supply chain profits and social benefits.

MSC:

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91B44 Economics of information

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