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Radio-frequency Identification (RFID) Adoption with Inventory Misplacement under Retail Competition

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Highlights

- The adoption of radio-frequency identification in a supply chain is investigated.
- The supply chain with two competitive retailers both face misplacement errors.
- The manufacturer offers a wholesale price contract or a cost-sharing contract.
- Equilibrium strategies for adopting radio-frequency identification are provided.
- Competition highly impacts radio-frequency identification adoption strategies.

ABSTRACT

We investigate RFID adoption strategies in a decentralized supply chain with one manufacturer and two competing retailers both of whom face inventory misplacement problems. If a retailer adopts RFID, his misplacement problem is resolved. Retailer 1 is a Stackelberg leader in the retail market and Retailer 2 is a follower. The two retailers sequentially make decisions on whether or not to adopt RFID. After that, the manufacturer offers a wholesale price contract to a non-RFID adoption retailer or a cost-sharing contract to an RFID adoption retailer, and delivers products with(without) RFID tags to the RFID (non-RFID) adoption retailer. The two retailers

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