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Effect of the manufacturer quality inspection policy on the supply chain decision-making and profits

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ABSTRACT

Due to competitive pressure and information asymmetry, manufacturers will produce quality inspection avoidance behaviour to gain short-term economic benefits, but this behaviour affects the ultimate quality and safety of the product. This paper studies the two-echelon supply chain consisting of a manufacturer and a retailer, and analyses whether the manufacturer's quality inspection avoidance behaviour model is considered or not. This paper discusses the impact of quality inspection level, quality loss cost, product repair cost, product return rate on the profit and optimal decision-making behaviour of both actors of the supply chain. It is found that when the manufacturer's quality inspection avoidance level is high, the increase of retailer' quality inspection effort level, manufacturer's internal failure cost, consumer product return rate and retailer' external quality loss cost will lead to the decrease of manufacturer's quality effort level instead of increasing. Finally, the numerical study is given to verify the above conclusion, and analysed the influence of different parameters on the optimal decision and supply chain actors profits.

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