Impact of Advertising on Closed Loop Supply Chain Profit under Stochastic Demand and Return of Items

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Abstract
Creation of awareness among the customers to return their used items to minimize environmental hazards is an important issue. In this paper, we have incorporated the advertising mechanism for collection of returned items in a closed loop supply chain (CLSC). The paper studies the impact of advertising on total profit and acquired quantity considering sharing of advertisement cost under uncertain demand of remanufactured/new products and return of the used items. To analyze the situation, mathematical models are developed for two different CLSC configurations under cost sharing (i) Advertising with cost sharing, and (ii) Advertising without cost sharing. Models are illustrated through a numerical study, and the results reveal that advertising with cost sharing case performs better than the other, whereas retailer advertising performs better compared to others as cost sharing increases.

Keywords
Price, closed-loop supply chain, remanufacturing, advertising

Biography
Sarat Kumar Jena is working as a Research Scholar in the Department of Industrial & Systems Engineering, IIT Kharagpur. His current area of research includes closed-loop supply chain, reverse supply chain, remanufacturing, green supply chain, and sustainability. His research interests include manufacturing, simulation, optimization, reliability, scheduling, manufacturing, and lean. His papers have been published in International Journal of Production Economics, International journal of Sustainable Engineering, International journal of computer Application and International Journal of Data Analysis Techniques and Strategies, etc.

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