Abstract

Considering the adverse impact of used products in the environment, government has come forward to provide incentive to encourage remanufacturing. However, the importance of government incentives in remanufacturing systems has not received adequate attention in the literature. This paper focuses on how government incentives can affect business decisions of a three echelon remanufacturing system under price competition. For the analysis, we develop mathematical models for the remanufacturing configurations of decentralized and integrated systems. These models are illustrated through a numerical case study and the results show that the return rate and channel profit increases as the government incentive increases under perfect competition. By comparing various models, it is observed that an integrated system can increase the collection of the used products compared to the other systems. Finally, this paper presents a detailed comparative analysis of these systems and provides managerial insights for the management of remanufacturing systems.