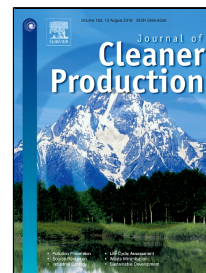


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Assessment of Consumers' Motivations to Purchase a Remanufactured Product by Applying Fuzzy Delphi Method and Single Valued Neutrosophic Sets

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Abstract

Environmental issues have been worldwide matters of concern especially in the recent decade and have made many firms implement end-of-life strategies such as remanufacturing. In prior studies, the supply side of remanufacturing supply chain has been vastly brought into focus compared to the demand side. Motivational factors that encourage consumers to purchase remanufactured products are getting firms attentions in developing effective marketing strategies to assist them being more productive in the current competitive market. However, consumer acceptance of remanufactured products has been regarded as one of the main reasons why remanufacturing has remained a majorly untapped opportunity for improving supply chain productivity. This study aims at exploring the major motivational factors for buying a remanufactured bike based on the consumers' and experts' opinions. Firstly, twelve motivations identified by scrutinising the literature. Secondly, single valued trapezoidal neutrosophic numbers (SVTNN) and trapezoidal neutrosophic weighted arithmetic averaging (TNWAA) operator were employed to obtain seven significant motivations using the survey data collected from potential customers. This method is applied owing to its capability in capturing the uncertainty of consumers' subjective judgements. Thirdly, the resulted seven motivations are prioritised in accordance with the experts' judgements utilising a proposed modified fuzzy Delphi (FD) method. Ultimately, the most significant motivation to purchase a remanufactured bike identified as *quality* that suggests *quality* is the major factor affecting purchase decision of a remanufactured bike. It indicates remanufacturers should focus on *quality* and attempt to improve the quality of products to gain more competitive advantage. The other six factors that should be stressed by remanufacturer's marketing strategies are prioritised as *warranty*, *price*, *information provision*, *remanufacturer's reputation*, *value-added services* and *retailer's reputation* respectively.

Keywords: remanufacturing, consumer behaviour, purchase motivation, fuzzy set theory, fuzzy Delphi, neutrosophic set

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