

MANAGING INFLUENCE OF INVENTORY BULLWHIP EFFECT ON PROFIT MAXIMIZATION IN RURAL RETAILING USING MONTE CARLO SIMULATION

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ABSTRACT

Purpose

The paper aims to sensitize small retailers in the rural areas about hidden cost elements in retailing process. It also aims to highlight the importance of maintaining information regarding past transactions in purchasing, storage and trading to choose retail items for the sales portfolio towards maximising profit.

Approach

Based on empirical observation of operations of Small and Medium Enterprises (SME) in retail sector and modelled on Monte-Carlo simulation approach, this paper dwells upon identification of cost elements which usually go unnoticed during the operational process in the environment of Bullwhip Effect (BWE) or the inventory clutter. Generation of such costs has been done on random basis in MS Excel taking into account the past probabilities of incidences over five months. The profit /loss situations are item specific and inherent to the different costs, selling price and demand variables.

Findings

The research paper is recommendatory in nature. It deals with practical problem of BWE in the uncertain scenario of demand in retailing by a retailer in SME. The retailer is expected to apply the suggested simulation model in decision-making for the product portfolio he envisages for trading in the upcoming season of demand after thoroughly checking the profitability through simulated trial runs for a given item.

Practical Implications

The simulation technique presented by the researchers is user-friendly, benefiting small and medium scale enterprises (SME) in rural retail sector. The use of the techniques precludes any prior knowledge of Bullwhip Effect, Monte Carlo simulation, random numbers and probability distribution. The simulation helps the retailer in the selection of a given item for the sales portfolio. It also helps them ward off losses due to Bullwhip Effect (BWE).