ABSTRACT

The main objective of this study was to investigate the impact of forecast error, participant’s position in a supply chain, and the choice of supply chain control mechanism on the performance of a supply chain.

A series of supply chain models were developed to answer the following three general research questions. First, what impact does the forecast error have on the supply chain performance? Second, what impact does the participant’s position have on the supply chain performance? Third, what influence does the choice of supply chain control mechanism have on the supply chain performance?

The performance of both the traditional and the TOC enhanced supply chain was measured by Order Fill Rate, Work-In-Process inventory, and Finished Goods Inventory. Throughput Dollar Days (TDD) and Inventory Dollar Days (IDD) were used as a control measure for the TOC enhanced supply chain.

Results of this study indicated that different levels of forecast errors had significant impact on the supply chain performance. A participant’s position in a supply chain had impact on the performance of the supply chain when the performance measures were Finished Goods and Work-In-Process inventory whereas a participant’s position had no significant impact when the performance measure was Order Fill Rate. Furthermore, the supply chain control mechanism had significant impact on the performance of the supply chain in terms of Order Fill Rate and Work-In-Process inventory whereas it was not significant for Finished Goods Inventory.