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ESSAYS ON BEHAVIORAL ASPECTS IN SUPPLY CHAIN CONTRACTS

ABSTRACT

Conventional Operations Management (OM) research has progressed in the normative paradigm of optimization, on the premise that decision makers are completely rational. However, with the advancements in the study of human behavior, such as bounded rationality, heuristics and biases, scholars in OM research have revisited their assumptions to incorporate these findings to build models that are more realistic in practical decision-making contexts. This dissertation endeavors to study the modeling of human behavior in three specific supply chain contexts.

The first essay examines the supply chain coordination in a three-echelon supply chain (viz. manufacturer, distributor and retailer) with buyback contract mechanism, in the presence of a loss-averse retailer. A buyback contract is one in which the supplier agrees to compensate the retailer for the unsold items at the end of the selling period. Buyback contracts are widely used in publishing, toys, electronics and personal computer industries. This involves solving the problem in two stages and arriving at the retailer's optimal ordering policy, distributor's optimal ordering policy and the manufacturer's optimal manufacturing policy that achieves supply chain coordination. This study highlights the impact of loss aversion in the order quantity decision on the three-stage supply chain.

The second essay examines the impact of fairness concerns of a third-party logistics (3PL) provider with respect to the IT investment decision, while in a contractual relationship with a manufacturer. In 3PL outsourcing contracts, empirical evidence indicates that there exists opportunism and trust issues between the players. In order to address this concern, we consider different outsourcing contract structures, in the presence of a fairness-concerned 3PL provider and a fairness-neutral, rational manufacturer. This study provides insights into the impact of fairness concerns for varying contract structures and the implications on supply chain profits in this dyadic relationship.

The third essay aims to empirically examine the role of gender specific characteristics and behavioral differences amongst individuals on ordering decisions. We design and conduct an experimental study, wherein subjects take the role of a retailer, who has a contract with a supplier, and faces an uncertain demand for a perishable product, which has to be estimated before the selling season. The experimental protocol consists of a behavioral assessment, followed by ordering decisions for three different types of contracts. The baseline experiment is followed by an intervention to improve the decision, viz. motivate subjects to move towards the optimal quantity by providing visual pattern of the demand. This study investigates the impact of gender, risk taking and overconfidence of the individual on the average order quantity decisions.

From a theoretical perspective, the findings primarily contribute to the emergent behavioral supply chain management literature, by analyzing the impact of loss aversion and fairness concerns in contractual relationships between the players in a supply chain. From a managerial perspective, it holds relevance for contract designers in determining the right contract parameters for a channel with "predictably rational" players.