

PERSPECTIVES IN SUPPLY CHAIN COORDINATION AND SUPPLY CHAIN EFFICIENCY

ABSTRACT

A supply chain is composed of independent business units that are interconnected through material, information and financial flows. Isolated decision making by these units often result in supply chain inefficiencies and infeasibilities. Literature has addressed these issues in a supply chain arising due to the conflicting objectives of the various partners involved and recommends supply chain coordination as a possible remedy. With growing global competition between firms and with further increase in complexity in supply network structures, supply chain coordination has started receiving more importance.

Supply Chain Management literature addressing coordination issues is a well researched area. However, not much has been covered on the existence of information asymmetry that affects the decision making in supply chains. The predominant approach in supply chain coordination has been the appointment of a central decision maker who will have the required information and power to impose his decisions on the partners to aim for globally optimal solutions. However, owing to certain issues in relation to information sharing, the need was felt to develop decentralized mechanisms of coordinating the supply chain. The present work also deals with some of the decentralized coordinating mechanisms.

Further, the power of decision making and the type of retail competition in the context of a supply chain can also affect channel efficiency. Channel Efficiency is defined as the ratio of total

supply chain profits to the profits that could have been obtained had the chain been vertically integrated.

The current work addresses the following specific issues.

1. It provides a new mechanism in the form of reverse discounting for achieving supply chain coordination
2. It establishes the existing practices like Vendor Managed Inventory and Trade Credit as coordinating mechanisms in supply chains
3. It provides a new solution procedure for handling supply chain problems arising due to the presence of information asymmetry
4. It also analyzes the role of power structure and the type of retail competition in affecting the efficiency in supply chains

For each of the issues mentioned above, we have developed mathematical programming models whose solutions can be useful in their analysis.