

# **Essays on Pricing and Operations Strategies for Distribution Networks in Multi-Channel Retailing**

A Dissertation Submitted in  
Partial Fulfillment of the Requirements for  
THE FELLOW PROGRAMME IN MANAGEMENT

by

Shounak Basak



INDIAN INSTITUTE OF MANAGEMENT CALCUTTA

July, 2018

## *Abstract*

The impact of internet on retailing has been eclectic. This effect has redefined the operational strategies employed in retailing. Newer kinds of business phenomena have come up because of online retail. This thesis is a study on the operational strategies that need to be embraced by various stakeholders in view of these contemporary challenges. Impacts of two different phenomenon forged primarily by the presence of online retail has been analyzed in detail. Firstly, effect of showrooming is analyzed on the various stakeholders and then, effect of order fulfillment services is investigated in detail.

“Showrooming” as a market phenomenon in multichannel retailing has grown in importance over the last few years. Consumers nowadays use the brick-and-mortar store to research about a product before purchasing it online. This leads to the offline stores being converted into showrooms for the online retailers. Therefore, popular notion suggests that showrooming should benefit the online retailer. In this paper, our objective is to analyze multichannel retailing under showrooming and determine the veracity of the popularly held belief. We develop a series of game theoretic models that involve a traditional retailer and an online retailer under showrooming. We determine optimal pricing strategies for each player and also the sales effort expended by the traditional retailer based on the interplay of “power” dynamics, market potential and the impact of showrooming. Our results indicate that profit for the traditional as well as the online retailer decreases with rising levels of showrooming. Hence, high levels of showrooming are not beneficial from the perspective of the online retailer. Thus, contrary to popular intuition, lessening of showrooming benefits not only the traditional retailer but also the online retailer. Nevertheless, from the

consumer's point of view showrooming is beneficial as it leads to overall reduction in retail prices. We also analyze the viability of a click-and-mortar model as a strategy of the traditional retailer to counter the threat of showrooming.

Impact of showrooming is not just limited to the retailers but affects the stakeholders who may not be directly involved with selling to the consumers. Showrooming not only benefits the online retailer at the cost of brick-and-mortar stores, but also affects the manufacturers. Showrooming leads to reduced sales effort on the part of the traditional retailer which leads to lower showcasing of the product to the consumers. This affects the overall demand of the product in the market. We analyze the effect of wholesale prices set by the manufacturer on the retail prices of the products in a market affected by showrooming. We further investigate the feasibility of an alliance between the manufacturer and the traditional retailer to increase its sales effort and thus, overall demand. We propose that a three parameter contract is able to coordinate the channel and provide win-win benefits to the manufacturer and the traditional retailer.

Fulfillment of orders is the key service to be provided by the online retailers to their consumers. In view of no investment on physical infrastructure by the online retailers, delivery costs form a significant part of the cost incurred by the online retailers. Additionally, better fulfillment service comes by incurring higher cost. Therefore, online retailers have to strategically decide on the trade-off between selecting better or cheaper fulfillment services to be provided to the consumers. Further, fulfillment services may be provided with the help of in-house logistics support or may involve hiring a logistics support provider. This paper analyzes different strategic choices that can be employed by the online retailer to provide fulfillment services to its consumers. The paper provides criteria for selection of

optimal logistics provider when more than one logistics support providers are available. The impact of these decisions on the logistics support provider is also analyzed. We further investigate the presence of strategic logistics providers who price their support prices individually for each retailer. We also look into the feasibility of a coordination mechanism that can lead to win-win benefits for both the online retailer and the logistics support provider. Lastly, we investigate the effect of retailer competition on the pricing strategies of the online retailer and the logistics service provider. We infer that value of the product plays an important role in selection of optimal logistics provider in all the cases.

The results obtained in the various chapters of this thesis intend to provide relevant insights to the contemporary managers in the online retail sector and also, contribute to the diverse academic literature on online retail.

### **Publication from this thesis**

Chapter 2 of this thesis has been published in the journal *Decision Support Systems*. The reference for the paper is given below:

Basak, S., Basu, P., Avittathur, B., & Sikdar, S. (2017). A game theoretic analysis of multichannel retail in the context of “showrooming”. *Decision Support Systems*, 103, 34-45.