

# **Impact of Market Heterogeneity on Retailers' Competition for Quality of Services, Price and Location in a Duopoly**

**Saman Asvadi**

PhD Student

Dept. Of Supply Chain and Business Tech. Management  
Concordia University, Montreal, Canada  
[Saman.asvad@concordia.ca](mailto:Saman.asvad@concordia.ca)

**Satyaveer S Chauhan**

Dept. Of Supply Chain and Business Tech. Management  
Concordia University, Montreal, Canada  
[Satyaveer.chauhan@concordia.ca](mailto:Satyaveer.chauhan@concordia.ca)

## **Abstract**

In this paper, we examine the impact of customer heterogeneity on the coordinated decisions of location, pricing, and service quality strategies for two retailers within a market. Specifically, we focus on two distinct customer segments: Premium and Economy customers. Our analysis demonstrates that market heterogeneity significantly influences the optimal decisions made by the retailers. We highlight that the spatial distribution of these customer segments within the market plays a critical role in shaping the retailers' choices regarding location, pricing, service levels, and, ultimately, profitability. Additionally, our study explores scenarios where the retailers make decisions either simultaneously or sequentially, offering insights into how these decision-making approaches affect their strategies and profits. Through both mathematical and numerical analysis, we establish the relationships between optimal decisions and key parameters, including the utility derived from services by each customer segment, travel costs, market demand characteristics, and the distribution of customer segments across the market. The results of our research provide valuable insights for retailers and supply chain practitioners, guiding them in selecting the right customer segments to target under various market conditions and optimizing their profitability.

## **Keywords**

Competition, Pricing, Heterogeneous markets, Game theory, Location.