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Supply Chain Challenges in the FMCG Sector: A Study with Reference to Retailers in Palakkad District

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ABSTRACT

The Fast-Moving Consumer Goods (FMCG) sector is a major contributor to the Indian economy due to its continuous demand and wide distribution network. Efficient supply chain management is essential to ensure timely product availability and customer satisfaction, particularly in semi-urban regions such as Palakkad district. This study is based on primary data collected from 150 retailers and analyzed using statistical tools like percentage analysis, chi-square test, correlation, and standard deviation. The findings highlight key issues such as delays in transportation, inconsistent supply, inventory shortages, weak communication, and fluctuations in demand. These problems lead to late deliveries, stock shortages, excess inventory, and reduced customer satisfaction. The study suggests that improving logistics systems, strengthening communication, adopting better inventory practices, and using demand forecasting techniques can significantly enhance supply chain efficiency and retailer performance.

KEYWORDS

FMCG Sector, Supply Chain Management, Retailers, Logistics, Inventory Issues, Transportation, Demand Variation, Distribution Efficiency, Palakkad district.

INTRODUCTION

The FMCG sector plays a significant role in India by supplying everyday products that are used frequently by consumers. Due to the nature of these products, an efficient supply chain is necessary to ensure continuous availability in the market. The supply chain includes various stages such as sourcing of raw materials, production, storage, transportation, and final delivery to retailers. Any disruption in these stages can increase operational costs and reduce customer satisfaction. Retailers, especially in semi-urban areas like Palakkad, often face multiple challenges such as poor infrastructure, fluctuating demand, and heavy dependence on distributors. Common problems include delays in delivery, lack of stock, and poor coordination among supply chain participants.

This study focuses on identifying these challenges using primary data collected from retailers and analyzing them with statistical tools. The aim is to understand how these issues affect retailer performance and to suggest improvements for better supply chain functioning.

REVIEW OF LITERATURE

Khan (2024) studied supply chain issues in the Indian FMCG sector and found that the involvement of multiple intermediaries—such as suppliers, manufacturers, and distributors—creates coordination problems. The study pointed out that lack of real-time data and poor information sharing are major reasons for inefficiency. It suggested that better communication systems and data integration can improve performance.

Jadhav, Ubale, and Ubale (2024) examined sustainable supply chain practices and identified challenges such as poor infrastructure, inefficient logistics, and fragmented distribution networks. These issues are more serious in rural and semi-urban areas. The study emphasized the importance of eco-friendly practices and efficient resource usage to improve long-term performance.

Rose and Krishnanunni (2019–2020) analyzed supply chain operations in Kerala and observed that retailers often experience delayed deliveries, pricing issues, and inconsistent product supply. Additional problems like counterfeit goods and weak infrastructure were also highlighted. These factors negatively affect both business performance and customer satisfaction.

RESEARCH GAP

Most previous studies focus on general supply chain issues or large organizations. There is limited research on the actual problems faced by small retailers, especially in semi-urban regions like Palakkad. This study attempts to fill this gap by focusing on ground-level challenges such as transportation issues, infrastructure limitations, and technology adoption, along with their impact on retailer performance.

OBJECTIVES OF THE STUDY

- To examine the supply chain challenges faced by FMCG retailers in Palakkad district
- To identify operational issues affecting the supply chain of FMCG products
- To analyze factors influencing supply chain efficiency and retailer performance
- To evaluate the role of technology and coordination among supply chain participants
- To suggest measures for improving supply chain performance in the study area

RESEARCH METHODOLOGY

This study follows a quantitative approach using both Primary and Secondary data. Primary data was collected through structured questionnaires distributed to retailers, while Secondary data was obtained from journals, books, and reports.

Research Design

A descriptive research design is used to understand and analyze supply chain challenges faced by retailers.

Population of the Study

The study includes FMCG retailers operating in Palakkad district, covering small, medium, and large outlets across different areas.

Sample Size and Sampling Technique

A sample of 150 retailers was selected using convenience sampling based on accessibility and willingness to respond.

Statistical Tools Used

- Percentage Analysis – to understand response distribution
- Chi-square Test – to examine relationships between variables
- Standard Deviation – to measure variation in responses
- Correlation Analysis – to determine relationships between factors

ANALYSIS AND INTERPRETATION

Table 1 :Percentage Analysis

type of retail

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	supermarket	1	.7	.7	.7
	hypermarket	4	2.7	2.7	3.3
	wholesale	6	4.0	4.0	7.3
	retail	119	79.3	79.3	86.7
	both wholesale and retail	20	13.3	13.3	100.0
	Total	150	100.0	100.0	

Interpretations:

The data shows that a large majority of respondents (79.3%) are involved exclusively in retail activities. This indicates that the FMCG sector in Palakkad is primarily dominated by small and medium-sized retailers. Only a limited number of respondents operate in wholesale or mixed (wholesale and retail) formats, while supermarkets and hypermarkets account for a very small share. This suggests that organized retail formats are still at an early stage of development in the region.

Table 2: Chi-Square

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
type of retail * 7. Do You Face Delivery Delays?	150	100.0%	0	0.0%	150	100.0%

type of retail * 7. Do You Face Delivery Delays? Crosstabulation

			7. Do You Face Delivery Delays?				
			never	rarely	sometimes	frequently	Total
type of retail	supermarket	Count	1	0	0	0	1
		% within type of retail	100.0%	0.0%	0.0%	0.0%	100.0%
		% within 7. Do You Face Delivery Delays?	10.0%	0.0%	0.0%	0.0%	0.7%
	hypermarket	Count	3	0	1	0	4
		% within type of retail	75.0%	0.0%	25.0%	0.0%	100.0%
		% within 7. Do You Face Delivery Delays?	30.0%	0.0%	1.0%	0.0%	2.7%
	wholesale	Count	0	1	4	1	6
		% within type of retail	0.0%	16.7%	66.7%	16.7%	100.0%
		% within 7. Do You Face Delivery Delays?	0.0%	3.7%	4.1%	6.7%	4.0%
	retail	Count	5	22	85	7	119
		% within type of retail	4.2%	18.5%	71.4%	5.9%	100.0%
		% within 7. Do You Face Delivery Delays?	50.0%	81.5%	86.7%	46.7%	79.3%
	both wholesale and retail	Count	1	4	8	7	20
		% within type of retail	5.0%	20.0%	40.0%	35.0%	100.0%
		% within 7. Do You Face Delivery Delays?	10.0%	14.8%	8.2%	46.7%	13.3%
Total		Count	10	27	98	15	150
		% within type of retail	6.7%	18.0%	65.3%	10.0%	100.0%
		% within 7. Do You Face Delivery Delays?	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	63.194[a]	12	.000
Likelihood Ratio	33.296	12	.001
Linear-by-Linear Association	15.009	1	.000
N of Valid Cases	150		

a. 15 cells (75.0%) have expected count less than 5. The minimum expected count is .07.

Interpretation

A chi-square test was conducted to examine the association between the type of retail outlet and the occurrence of delivery delays. The result shows a p-value of 0.000, which is below the 0.05 significance level. This indicates a statistically significant relationship, leading to the rejection of the null hypothesis. Therefore, it can be concluded that delivery delays differ across various retail formats. This finding implies that supply chain performance is not uniform and varies depending on the nature of the retail business, highlighting the need for targeted improvements.

Table 3: Standard Deviation

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
11. Transportation Issues Affect Supply Efficiency	150	1	5	3.52	.865
12. Poor Communication with 1 Causes Problems	150	1	5	3.56	.831
13. Pricing Fluctuations Are a Major Issue	150	1	5	3.49	.903
14. High Transportation Cost Reduces Profitability	150	1	5	3.59	.778
15. Weather Conditions affect Supply Consistency	150	1	5	3.49	.841
16. Competition from Online Platforms Affects Sales	150	1	5	3.88	.732
20. Technology helps to reduce Stock-Out Issues	150	1	5	3.36	.813
21. Technology Improves Coordination with Supplier	150	1	5	3.61	.693
22. Major Supply Chain Challenges Faced	150	1	5	2.53	1.246

23. Better Warehouse facilities are needed in Palakkad	150	1	5	3.98	.773
24 Overall Satisfaction with Supply Chain Performance in Palakkad	150	1	5	3.05	1.119
Valid N (listwise)	150				

Interpretations:

The descriptive statistics reveal that competition from online platforms and the need for improved warehouse facilities have the highest mean scores, indicating that these are the most critical concerns for retailers. Other factors such as transportation issues, communication gaps, pricing fluctuations, and weather conditions show moderate mean values, suggesting a noticeable but less intense impact. The relatively low standard deviation for most variables indicates consistency in responses, meaning that these challenges are commonly experienced across respondents. Overall satisfaction with the supply chain system is moderate, pointing to the need for further improvements.

Table 4: Correlation Analysis

Correlations

		11. Transportation Issues Affect Supply Efficiency	7. Do You Face Delivery Delays?
11. Transportation Issues Affect Supply Efficiency	Pearson Correlation	1	.182*
	Sig. (2-tailed)		.026
	N	150	150
7. Do You Face Delivery Delays?	Pearson Correlation	.182*	1
	Sig. (2-tailed)	.026	
	N	150	150

*. Correlation is significant at the 0.05 level (2-tailed).

Interpretations:

The correlation analysis between transportation issues and delivery delays indicates a weak positive relationship (r = 0.182). The p-value (0.026) is less than the significance level of 0.05, confirming that the relationship is statistically significant. As a result, the null hypothesis is rejected. This suggests that transportation-related problems do contribute to delivery delays, although their influence is relatively limited.

FINDINGS

The study reveals that the FMCG sector in Palakkad is largely supported by small-scale retailers. It identifies several major challenges, including delays in transportation, ineffective communication, lack of proper storage facilities, and inconsistent product availability. Additionally, the growing presence of online retail is creating pressure on traditional retailers. Statistical analysis indicates that transportation problems and the type of retail outlet play a significant role in causing delivery delays. Overall, retailers report a moderate level of satisfaction with the existing supply chain system.

SUGGESTIONS

This research examines the key supply chain issues faced by FMCG retailers in Palakkad, such as transportation delays, inconsistent supply, communication gaps, and storage limitations. Based on responses from 150 retailers, the study finds that these challenges lead to frequent stock shortages and reduced customer satisfaction. It also highlights that

transportation factors and retail format significantly impact supply chain efficiency. To address these issues, the study recommends improving logistics infrastructure, adopting digital technologies, and enhancing coordination among supply chain participants to improve overall efficiency and competitiveness.

CONCLUSION

The study concludes that supply chain challenges have a considerable impact on the performance of FMCG retailers in Palakkad district. Problems related to logistics, infrastructure, and coordination result in inefficiencies in product distribution and business operations. Addressing these issues through improved infrastructure, technological integration, and better coordination can strengthen supply chain performance and support retailers in maintaining competitiveness in the market.

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