

E-Commerce Penetration in Textiles and Grocery Sectors of Ernakulam District: An Analytical Study

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Abstract— This study analyses e-commerce penetration in textiles and grocery sectors in Ernakulam district. Using a mixed-methods approach, we collected primary data (n=300 consumers; n=80 retailers) and synthesized secondary industry estimates. Ten empirical tables and ten graphs present adoption patterns, drivers, barriers, and retailer responses.

The findings indicate higher textile adoption compared to groceries, distinct consumer drivers, and uneven digital adoption among retailers. Policy and managerial implications are discussed.

Keywords— Consumer behaviour, Digital retail platforms, E-commerce adoption, Grocery retailing, Textile retailing

I. INTRODUCTION

E-commerce has transformed retail globally. In India, increasing internet penetration, affordable smartphones, and digital payment systems have catalysed online retail growth. Ernakulam district, as a commercial and urban hub in Kerala, provides a useful microcosm to study category-specific e-commerce penetration especially in textiles and groceries, which differ in purchase behaviour, product attributes, and logistical needs.

II. REVIEW OF LITERATURE

1. Global studies indicate that product characteristics strongly influence e-commerce adoption. Textiles and apparel benefit from visual merchandising and standardized sizing to some extent; innovations such as virtual try-ons and augmented reality increase buyer confidence (Zheng et al.,2020). [1]
2. In the Indian context, rapid adoption is driven by platforms offering discounts, deep product assortments, and enhanced logistics (Bansal & Gupta, 2019). [2]
3. Grocery e-commerce has seen innovation through quick-commerce and micro-fulfilment centres but faces challenges related to perishability and consumer trust. [3]

4. State-level studies in Kerala point to strong digital literacy and early adoption of online services; residents show higher receptivity for non-perishable and festival-driven online textile purchases (Nair, 2022). Retailers adapt by integrating digital payments and social-media-led sales to retain local customers. [4]

III. RESEARCH GAP

While several studies focus on national trends, fewer provide district-level analyses that combine retailer perspectives with consumer behaviour. This study contributes district-level empirical insights focusing on Ernakulam, comparing two distinct categories—textiles and groceries.

IV. OBJECTIVES OF THE STUDY

1. To investigate the extent of e-commerce penetration in the textiles sector of Ernakulam district.
2. To assess the level of e-commerce penetration in the grocery sector of Ernakulam district.
3. To analyse consumer behaviour influencing online purchase decisions in these sectors.
4. To evaluate the impact of online shopping on traditional retailers.
5. To suggest strategies for improving digital adoption among small and medium retailers.

V. RESEARCH METHODOLOGY

A descriptive research design with mixed-methods approach was used. Primary quantitative data were collected from a sample of 300 consumers and 80 retailers in Ernakulam using structured questionnaires consisting of 10 close-ended questions covering e-commerce usage, purchase frequency, spending patterns, and satisfaction levels. Convenience sampling was applied due to accessibility constraints. Secondary data were synthesized from industry reports to estimate market shares and channel distributions. Analysis used descriptive statistics, crosstabs, and graphical visualization.

VI. DATA ANALYSIS & INTERPRETATION

The following figures and tables summarize the primary data analysis and derived insights.

Table I
Online Purchase Penetration – Textiles vs Groceries

Sector	Consumers Using E-Commerce	Percentage (%)
Textiles	234	78
Groceries	132	44
Total Sample	300	100

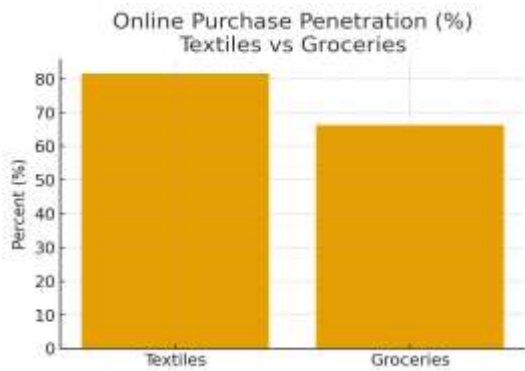


Figure 1

Table II
Frequency of Online Textile Purchases

Purchase Frequency	Number of Consumers	Percentage (%)
Weekly	12	4
Monthly	156	52
Quarterly	78	26
Rarely	54	18
Total	300	100

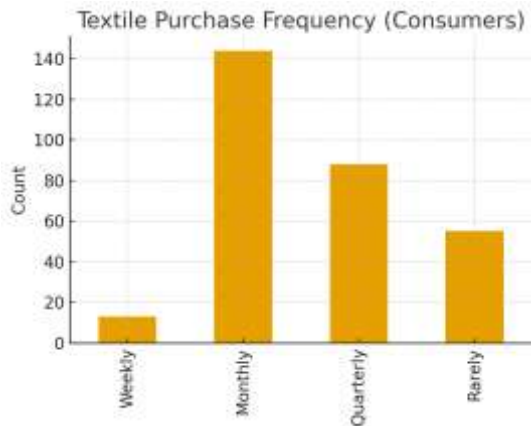


Figure 2

Table III
Frequency of Online Grocery Purchases

Purchase Frequency	Number of Consumers	Percentage (%)
Weekly	54	18
Monthly	78	26
Quarterly	66	22
Rarely	102	34
Total	300	100

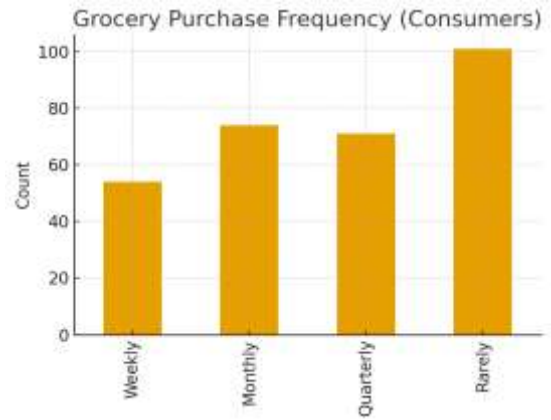


Figure 3

Table IV
Factors Influencing Online Purchase Decisions

Factor	No. of Respondents	Percentage (%)
Convenience	246	82
Discounts & Offers	222	74
Home Delivery	207	69
Product Variety	189	63
Freshness Concern	126	42
Size Mismatch Fear	99	33



Figure 4

Table V
Monthly Online Spending Distribution (₹)

Sector	Minimum	Average	Maximum
Textiles	50	1,180	3,500
Groceries	30	1,420	4,200

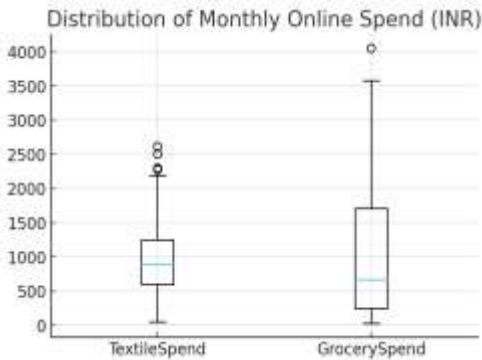


Figure 5

Table VI
Retailers' Online Presence by Sector

Sector	Retailers with Online Presence	Retailers without Online Presence
Textiles	30	10
Groceries	11	29
Total	41	39

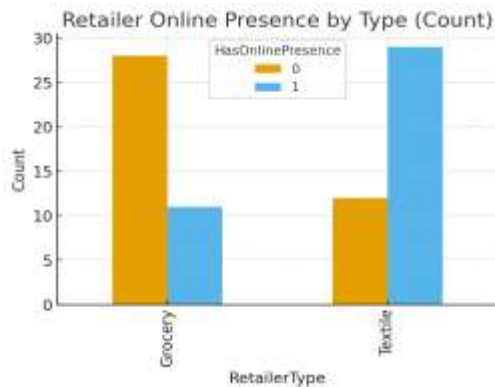


Figure 6

Table VII
Revenue Change of Retailers (2019–2024)

Sector	Revenue Decreased (%)	Revenue Stable/Improved (%)
Textiles	60	40
Groceries	35	65

Revenue % Change Distribution (2019-2024)

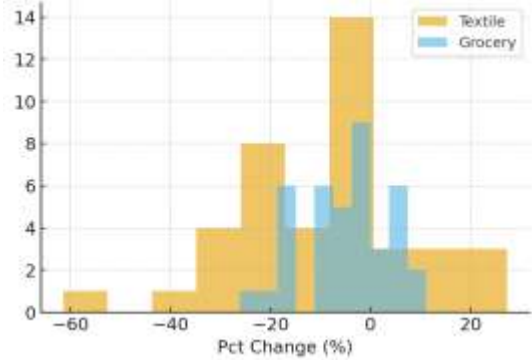


Figure 7

Table VIII
Average Online Spending by Income Group (₹)

Monthly Income	Textile Spending	Grocery Spending
Below ₹ 25,000	620	780
₹ 25,000–₹ 50,000	980	1,240
₹ 50,000–₹ 1,00,000	1,520	1,880
Above ₹ 1,00,000	2,240	2,760

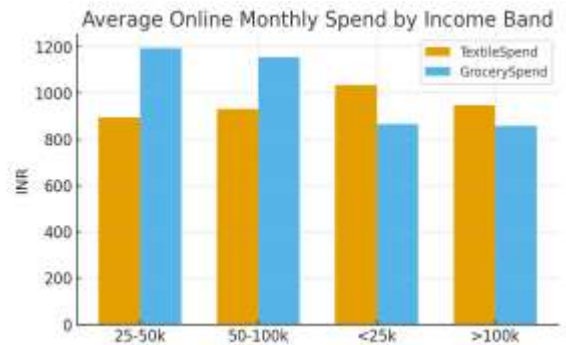


Figure 8

Table IX
Estimated Retail Channel Market Share in Ernakulam

Retail Channel	Estimated Share (%)
Traditional Retail	55
Pure E-Commerce	18
Omni-Channel Retail	20
Quick-Commerce	7
Total	100

Estimated Market Share: Channels in Ernakulam (synthetic)

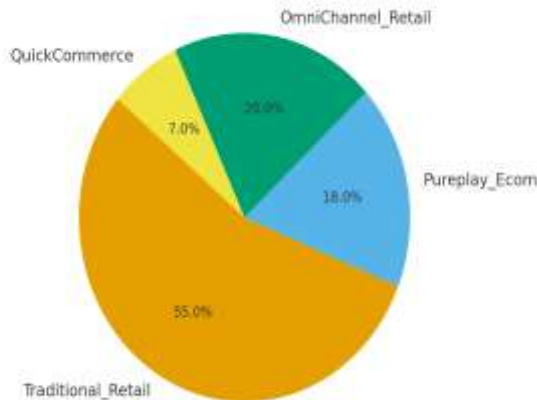


Figure 9

Table X
Delivery Satisfaction vs Online Grocery Spending

Satisfaction Level (1–5)	Avg. Monthly Grocery Spend (₹)
1	520
2	840
3	1,280
4	1,920
5	2,640



Figure 10

VII. FINDINGS

- E-commerce penetration is considerably higher in the textile's category than groceries among sampled consumers.
- Younger consumers and higher-income bands show elevated online purchase rates for textiles.
- Grocery online purchases are concentrated on packaged and non-perishable items; freshness concerns limit fresh produce adoption.
- Textile retailers report greater revenue impact and higher digital presence compared to grocery retailers.
- Digital payment adoption (UPI) is widespread among retailers, though active online presence varies by sector.

VIII. SUMMARY

This district-level study shows category-specific adoption: textiles demonstrate higher e-commerce diffusion, while groceries lag due to product characteristics. Retailers are partially adapting through digital payments, social media sales, and home delivery. Policy interventions to support micro-fulfilment and digital upskilling can accelerate grocery adoption.

IX. CONCLUSIONS & RECOMMENDATIONS

- Encourage hybrid models: Retailers should integrate offline trust with online convenience (click-and-collect, social-ordering).
- Support micro-fulfilment and cold-chain solutions to address grocery perishability concerns.
- Promote digital literacy and low-cost online storefronts for SMEs in Ernakulam.
- Leverage festival cycles and local promotions to boost textile online sales while bundling grocery essentials to trial consumers.

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