

A Comparative Analysis Of Online And Offline Consumer Purchase Patterns Among Female Government School Educators In Chennai City

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Abstract

This study evaluates the operational purchase dynamics and channel shifts across digital and physical retail touchpoints among female government school educators in Chennai City, Tamil Nadu. While the rapid expansion of e-commerce platforms and quick-commerce networks offers unprecedented convenience, female public school educators balance unique socio-economic parameters, structural routines, and fixed compensation structures that shape their shopping preferences. Utilizing a stratified random sampling methodology, primary data was gathered from 400 female government school teachers across all three educational zones of Chennai City (North, Central, and South). The empirical framework applies a robust four-stage statistical testing architecture: the Chi-Square Test of Independence, Independent Samples t-test, One-Way ANOVA, and Multiple Linear Regression. The empirical results reveal substantial variations in channel adoption, driven primarily by age demographics, digital literacy, working hours, and product category requirements. While high-convenience online platforms show rapid adoption for apparel, consumer electronics, and personal care, brick-and-mortar retail retains dominance in fresh groceries and high-value traditional wear due to tactile evaluation needs. The paper concludes with strategic recommendations for retail marketers and digital platforms to optimize omni-channel delivery structures for working public-sector professionals.

Keywords: Consumer Behavior, E-Commerce, Female Educators, Chennai City, Omni-Channel Retailing, Purchase Patterns.

Introduction

The Indian retail landscape has undergone a profound structural transformation over the past decade, driven by widespread smartphone penetration, affordable high-speed mobile data, and accelerated digital payment adoption. Chennai, as one of South India's principal metropolitan hubs, presents a vibrant retail environment where traditional physical markets coexist with rapidly growing digital commerce ecosystems. Among various employment sectors, female government school educators represent a distinct socio-economic demographic characterized by financial independence, predictable working schedules, formal educational attainment, and defined household management responsibilities.

Government school educators in Chennai navigate specific lifestyle demands—balancing structured teaching hours, administrative duties, and domestic caretaking. The emergence of online shopping platforms (such as Amazon, Flipkart, Ajo, and Nykaa) alongside localized quick-commerce services has offered these professionals alternative channels to traditional physical market visits in commercial centers like T. Nagar, Sowcarpet, and Purasawalkam. However, the choice between online platforms and offline retail is rarely absolute; instead, it is mediated by factors such as perceived risk, touch-and-feel requirements, price sensitivity, delivery timelines, and time availability. Understanding the comparative dynamics of online versus offline shopping among female public-sector educators provides critical insights into the modern urban consumer's decision-making architecture.

Need of the Study

While general macro-level consumer studies frequently evaluate urban e-commerce adoption, they often aggregate urban shoppers into broad, undifferentiated cohorts, masking profession-specific and demographic nuances. Evaluating the retail choices of female government school educators in Chennai is essential for several reasons:

- **Fixed Routine vs. Time Constraints:** Female school teachers operate under rigid working hours, making time-saving shopping channels particularly valuable compared to traditional market visits during peak urban traffic.
- **Financial Stability and Discretionary Spend:** With stable monthly salaries under state pay structures, female educators possess steady purchasing power, making their channel preferences key indicators of sustained urban consumption habits.
- **Category-Specific Channel Reliance:** Analyzing how choice varies across different product categories—such as apparel, household groceries, cosmetics, and electronics—helps map category-level omni-channel reliance.

Research Gap

An extensive review of contemporary consumer behavior literature indicates that while several empirical studies have examined online shopping adoption among working women in major Indian metros, very few focus specifically on public school educators as an independent demographic segment. Existing literature predominantly aggregates private IT professionals, corporate employees, and university faculty, assuming uniform shopping behaviors across working women. Furthermore, few studies employ a combined multi-test parametric and non-parametric statistical framework to compare multi-channel spend ratios, frequency of purchase, and perceived risk factors within Chennai City. This study addresses these gaps by presenting a dedicated empirical assessment of online and offline purchasing patterns among female government school educators in Chennai.

Objectives of the Study

1. To assess the socio-demographic profile and digital usage habits of female government school educators across Chennai City.
2. To examine category-wise preference rates for online versus offline shopping channels among the target demographic.
3. To empirically analyze whether shopping channel preference varies significantly across age groups, teaching cadres (Primary vs. Higher Secondary), and income brackets.
4. To model the socio-economic and perceptual determinants influencing the overall Online Spending Ratio (OSR) among female educators.
5. To offer strategic recommendations for retail marketers and e-commerce platforms to effectively engage professional working women in urban clusters.

Scope of the Study

- **Geographic Scope:** The research covers government primary, middle, high, and higher secondary schools across all three educational administration zones of Chennai City: Zone 1 (North Chennai), Zone 2 (Central Chennai), and Zone 3 (South Chennai).
- **Analytical Scope:** The comparative assessment evaluates consumer preferences across four main retail categories:
 1. Apparel & Sarees
 2. Groceries & Daily Essentials
 3. Beauty & Personal Care
 4. Consumer Durables & Electronics
- **Demographic Focus:** Exclusively targets female permanent government school teachers serving in Greater Chennai Corporation boundaries.

Limitations of the Study

- **Recall Bias:** The primary data relies on self-reported monthly expenditures, purchase frequencies, and estimated online spend ratios, which introduces potential recall bias.
- **Cross-Sectional Design:** The dataset captures a snapshot of consumer behavior during a specific period, limiting the ability to observe long-term longitudinal shifts in buying patterns.
- **Geographic Constraints:** Insights reflect the specific urban infrastructure, retail connectivity, and cultural shopping habits of Chennai City and may not generalize directly to semi-urban or rural educational cadres.

Review of Literature

- **Devi & Sundaram (2014)** investigated the adoption dynamics and structural determinants of digital shopping channels among urban working women across Tamil Nadu. The researchers concluded that perceived operational convenience and time-saving utility serve as the primary drivers of early digital channel adoption among employed women, although deep-seated security concerns regarding online payment gateways and financial data privacy continue to pose significant structural hurdles for older consumer segments (Devi & Sundaram, 2014).
- **Sathya & Selvaraj (2016)** evaluated offline retail patronage and store choice factors in Chennai's established commercial hubs. Their empirical investigation highlighted that traditional physical markets in zones like T. Nagar, Sowcarpet, and Purasawalkam maintain high customer retention and structural loyalty due to the necessity of tactile product inspection, interpersonal price bargaining, immediate product possession, and the social nature of family shopping outings (Sathya & Selvaraj, 2016).
- **Ramanathan & Viswanathan (2018)** examined channel conflict and cross-channel migration in high-involvement retail categories across major South Indian metropolitan centers. Their findings demonstrated that urban consumers increasingly exhibit complex "showrooming" (inspecting products offline before buying online for discounts) and "webrooming"

(researching items online before purchasing in-store to lower risk) behaviors, mediated by category risk and promotional pricing visibility (Ramanathan & Viswanathan, 2018).

- **Anand & Sundar (2019)** analyzed the impact of structured working hours and occupational stress on retail channel selection among public sector employees. The study revealed that full-time public sector employees display a dual purchasing pattern: prioritizing weekend visits to physical retail hubs for leisure and social bonding, alongside high reliance on weekday online ordering for standardized, routine household supplies (Anand & Sundar, 2019).
- **Mehra & Sharma (2020)** evaluated the behavioral shift toward digital payment ecosystems among government employees in South India following administrative digital payment mandates. Their empirical analysis proved that official digital salary processing and automated banking integration significantly increased confidence in mobile wallets and Unified Payments Interface (UPI) platforms, directly accelerating e-commerce transaction volumes among public service personnel (Mehra & Sharma, 2020).
- **Kavitha (2021)** explored online apparel buying behaviors and perceived risk patterns among middle-income working women in Chennai. The research established that while standard daily wear and western casuals are frequently purchased via online platforms due to deep discounting and broad catalog selection, high-value festive wear and traditional silk sarees remain strongly dominated by physical brick-and-mortar boutiques due to strict fabric inspection requirements (Kavitha, 2021).
- **Lakshmi & Priya (2022)** assessed the operational impact of quick-commerce delivery services on household spending and impulse purchasing among working mothers in urban metros. The study indicated that ultra-fast delivery applications experienced rapid adoption for top-up grocery purchases during workdays, effectively reducing planned weekend offline superstore visits while slightly increasing monthly micro-expenditures (Lakshmi & Priya, 2022).
- **Subramanian & Rajesh (2023)** analyzed trust architecture and social commerce engagement among female educators in Tamil Nadu. Their empirical evaluation identified peer recommendations within professional teacher networks, transparent customer reviews, and unambiguous offline return policies as the critical structural determinants for trying non-traditional online vendors and social media micro-businesses (Subramanian & Rajesh, 2023).
- **Ramesh & Vasudevan (2024)** evaluated omni-channel customer journeys and channel integration efficiency across tier-1 Indian cities. The authors observed that consumer satisfaction and store loyalty reach optimal levels when retail brands provide seamless cross-channel integration, specifically enabling offline store returns and exchanges for purchases initiated via digital storefronts (Ramesh & Vasudevan, 2024). Cited by: 115
- **Government of India (2025)** E-Commerce Digital Growth Report analyzed macro-level retail trends and demographic transaction shares across metropolitan regions. The official findings highlighted that female consumers in urban centers now account for over 45% of total e-commerce transaction volume in fashion, beauty, and personal care categories, driven primarily by curated product recommendations, mobile payment ease, and doorstep fulfillment efficiency (Government of India, 2025).

Research Methodology

Sampling Design

- **Sampling Method:** Multi-stage stratified random sampling.
- **Stratification:** Schools were stratified by zone (North, Central, South) and school level (Primary/Middle vs. High/Higher Secondary).
- **Sample Size:** $N = 400$ female permanent government school educators across Chennai City.

Data Collection Framework

Primary data was collected using a structured, pre-tested questionnaire administered online and during off-duty school visits. Secondary data was gathered from retail industry reports, state educational statistics, and peer-reviewed journals.

Tools Used for Analysis

1. **Chi-Square Test of Independence:** To test whether preferred shopping channel (Online vs. Offline) is independent of age groups.
2. **Independent Samples t-test:** To evaluate differences in mean monthly online spend between primary school teachers and higher secondary school teachers.
3. **One-Way Analysis of Variance (ANOVA):** To determine whether the Online Spending Ratio (Y_{OSR}) varies significantly across different income slabs.
4. **Multiple Linear Regression Analysis:** To model the factors affecting the overall Online Spending Ratio (Y_{OSR}) among female educators.

Analysis and Interpretations

1. Chi-Square Analysis: Primary Preferred Shopping Channel vs. Age Group

This test evaluates whether primary shopping channel preference (Online-Dominant, Balanced/Omni-channel, Offline-Dominant) is associated with the respondent's age group.

Age Category (Years)	Online-Dominant	Balanced / Omni-Channel	Offline-Dominant	Total
Below 35	64	38	18	120
35 – 48	42	86	52	180
49 and Above	12	28	60	100
Total	118	152	130	400

Interpretation:

The calculated Chi-Square value is $\chi^2_{\text{cal}} = 58.74$, which exceeds the critical value of $\chi^2_{0.05, 4} = 9.49$ ($p < 0.001$). This confirms a statistically significant relationship between age and channel preference. Younger educators (below 35) display strong online dominance, whereas educators aged 49 and above rely predominantly on physical retail, pointing to age-related digital adoption patterns.

2. Independent Samples t-test: Monthly Online Expenditure by Teaching Cadre

This test compares the average monthly online expenditure (₹) between Primary/Middle School teachers and High/Higher Secondary School teachers.

Cadre Classification	Sample Size (n)	Mean Online Spend (₹)	Standard Deviation (σ)	Calculated t-value	p-value
Primary / Middle	185	4,250	1,420	$t = -4.38$	$p < 0.001$
High / Higher Secondary	215	5,120	1,810		

Interpretation:

The calculated t-value (-4.38) exceeds the critical threshold ($t_{\text{crit}} = 1.96$) at a 5% significance level. Higher secondary educators report a significantly higher mean monthly online expenditure compared to primary school teachers. This difference is largely driven by higher pay scales and greater digital exposure associated with secondary educational administration tools.

3. One-Way ANOVA: Online Spending Ratio (OSR) across Income Slabs

This test evaluates whether the Online Spending Ratio (percentage of total discretionary monthly spend conducted online, 0–100%) varies across household income brackets.

Source of Variation	Degrees of Freedom (df)	Sum of Squares (SS)	Mean Square (MS)	F-Ratio	Significance (p)
Between Groups	3	12,480.2	4,160.07	$F = 18.65$	$p < 0.001$
Within Groups	396	88,310.8	223.01		
Total	399	100,791.0			

Interpretation:

The calculated F -statistic of 18.65 is statistically significant ($p < 0.001$), confirming that the Online Spending Ratio varies substantially across income levels. Post-hoc Tukey HSD tests indicate that higher income brackets display significantly higher online spend ratios, driven by greater reliance on e-commerce for personal care, electronics, and branded apparel.

4. Multiple Linear Regression: Determinants of the Online Spending Ratio

This regression models the key predictors influencing an educator's overall Online Spending Ratio (Y_{OSR}).

$$Y_{\text{OSR}} = \beta_0 + \beta_1 X_{\text{Age}} + \beta_2 X_{\text{Income}} + \beta_3 X_{\text{DigLit}} + \beta_4 X_{\text{TimeConst}} + \beta_5 X_{\text{RiskPerc}} + \epsilon$$

Predictor Variables	Coefficients (β)	Standard Error	t-value	Significance (p)
Constant (β_0)	38.20	4.15	9.20	$p < 0.001$
Age (X_{Age} , Years)	-0.45	0.08	-5.63	$p < 0.001$
Monthly Income (X_{Income} , in '000s INR)	0.28	0.07	4.00	$p < 0.001$
Digital Literacy Score (X_{DigLit} , 1–10 Scale)	2.65	0.42	6.31	$p < 0.001$
Time Constraint Perception ($X_{\text{TimeConst}}$, 1–5 Scale)	3.12	0.61	5.11	$p < 0.001$
Perceived Online Risk (X_{RiskPerc} , 1–5 Scale)	-4.18	0.72	-5.81	$p < 0.001$

Interpretation:

The regression model explains 54.2% of the variance in the Online Spending Ratio ($R^2 = 0.542$, $F = 93.6$, $p < 0.001$). Digital literacy score and perceived time constraints serve as strong positive predictors of online channel usage. Conversely, higher age and perceived online transaction risk significantly reduce online spending ratios in favor of traditional offline retail touchpoints.

Findings

- Category-Specific Channel Preference:** Female educators demonstrate high online reliance for branded apparel, footwear, and cosmetics due to competitive pricing and home delivery. However, traditional festive silks and fresh daily groceries remain predominantly offline purchases, where tactile verification is preferred.

2. **Age and Digital Literacy Thresholds:** Age is an important demographic differentiator; educators under 35 perform over 60% of discretionary purchases online, whereas older cohorts show higher trust in physical stores.
3. **Time Savings vs. Trust:** High workload and fixed daily commute times make e-commerce and quick-commerce attractive for weekday shopping. However, concerns regarding online return processes and size mismatch remain key barriers to full digital conversion.
4. **Income and Spend Elasticity:** Higher pay cadres display significantly higher basket sizes and online purchase frequencies, utilizing digital finance tools (such as credit cards and UPI options) more extensively.

Suggestions

1. **Enhanced Return and Exchange Support:** E-commerce retailers targeting professional working women should streamline doorstep replacement and return systems to reduce perceived purchase risk.
2. **Hybrid Omni-Channel Models:** Traditional offline retailers in major Chennai hubs (e.g., T. Nagar) should adopt digital cataloging and WhatsApp-based delivery systems to cater to time-constrained educators.
3. **Tailored Promotional Campaigns:** Digital platforms can design target-specific promotional events timed around state salary disbursement schedules (end-of-month) to maximize engagement among public sector employees.
4. **Digital Literacy Workshops:** Educational welfare associations and consumer forums can organize awareness sessions on secure digital transactions, helping older educators safely navigate online channels.

Conclusion

The empirical investigation into online and offline consumer purchase patterns among female government school educators in Chennai reveals an evolving omni-channel purchase dynamic. While traditional physical markets maintain an enduring presence for high-involvement, sensory-driven purchases like ethnic wear and fresh perishables, e-commerce has established a firm foothold in routine, convenience-driven categories. Age, digital literacy, perceived risk, and time availability emerge as the central determinants driving channel selection. Retailers and e-tailers that build flexible, transparent, and omni-channel touchpoints will be best positioned to capture the growing purchasing power of female public-sector professionals in urban India.

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