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Digital Buying Performance of Rural Consumers: A Case of Ghaziabad and Hapur Districts

Indravir Saran Das[1] and Manoj Kumar Meet[2]

[1]Research Scholar, Alabbar School of Management, Raffles University, Neemrana, Rajasthan-301705
Email Add: isdas17@gmail.com
[2]Associate Professor, Alabbar School of Management, Raffles University, Neemrana, Rajasthan-301705
Email Add: manojkmeet@gmail.com

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Abstract— This study investigates the digital buying behaviour of rural consumers in the districts of Ghaziabad and Hapur, located in Western Uttar Pradesh. With e-commerce expanding rapidly in India, rural markets present both opportunities and challenges for digital retail growth. Using a survey-based approach, data were collected from consumers across both districts to analyze patterns of online shopping adoption, perceptions of usefulness, trust, barriers, and district-level differences. Descriptive statistics revealed higher adoption in Ghaziabad compared to Hapur, reflecting stronger infrastructure and greater digital awareness. Logistic regression analysis further demonstrated that district context was the most significant predictor, with consumers in Ghaziabad being over eight times more likely to shop online than those in Hapur. The findings highlight the critical role of infrastructural readiness, trust-building, and digital literacy in shaping rural consumer behaviour. The study contributes to understanding the rural-urban divide in e-commerce adoption and offers insights for policymakers and digital retailers.

Keywords: Rural consumers, Online shopping, Digital buying behaviour, E-commerce adoption, Ghaziabad, Hapur, Western Uttar Pradesh.

INTRODUCTION

Background of E-Commerce Growth in India

E-commerce in India has witnessed exponential growth over the past two decades, transforming the retail landscape and consumer buying behaviour. The rise of internet penetration, increasing smartphone usage, and affordable mobile data has significantly contributed to the digital shopping boom (KPMG, 2020). According to the Internet and Mobile Association of India (IAMAI, 2022), the number of internet users in India surpassed 800 million, with rural areas accounting for nearly half of this base, highlighting the vast potential for e-commerce expansion beyond urban centers.

The launch of digital payment systems, such as Unified Payments Interface (UPI), and government initiatives like "Digital India" has further accelerated e-commerce adoption (MeitY, 2021). Leading platforms such as Amazon, Flipkart, and Reliance JioMart have capitalized on this ecosystem, offering competitive pricing, wide product availability, and improved logistics to cater to diverse consumer segments (PwC, 2022). Moreover, the COVID-19 pandemic acted as a catalyst, pushing even hesitant consumers towards online shopping for essential and non-essential goods (Deloitte, 2021).

Thus, India's e-commerce sector reflects a paradigm shift in consumer behaviour, with rural markets like those in Uttar Pradesh emerging as the next frontier for digital commerce growth.

Importance of Rural Markets for Digital Retail Expansion

Rural markets in India hold immense significance for digital retail expansion due to their large population base and growing purchasing power. Nearly 65% of India's population resides in rural areas, making it a critical segment for e-commerce companies seeking long-term growth (Census of India, 2011; World Bank, 2022). The rapid penetration of affordable smartphones and low-cost internet, driven by providers like Reliance Jio, has bridged the digital divide, enabling rural consumers to access online platforms (IAMAI, 2022).

E-commerce firms view rural India as the next frontier, especially as urban markets approach saturation. Rural consumers are increasingly shopping online for apparel, electronics, and daily essentials, influenced by digital literacy programs and social media exposure (EY, 2021). Furthermore, government initiatives under Digital India and improvements in digital payments infrastructure have strengthened rural participation in e-commerce (MeitY, 2021). Thus, rural markets present

untapped potential, driving inclusive and sustainable digital retail growth.

Relevance of Ghaziabad and Hapur Districts

Ghaziabad and Hapur districts in Western Uttar Pradesh represent a transition zone from semi-urban to rural economies, making them significant for analyzing digital buying behaviour. Ghaziabad, part of the National Capital Region (NCR), is one of the most urbanized districts, with a literacy rate of 84.7% and strong industrial and service-sector growth (Census of India, 2011; Government of Uttar Pradesh, 2021). In contrast, Hapur is predominantly agrarian, with a literacy rate of 71.9% and a rural population exceeding 70% (Census of India, 2011).

This contrast creates an ideal setting to examine how socio-economic conditions, digital literacy, and infrastructural development shape online shopping behaviour. While Ghaziabad consumers reflect higher exposure to e-commerce due to urban proximity and better connectivity, Hapur provides insights into challenges and opportunities for e-commerce penetration in rural markets (NITI Aayog, 2020; TRAI, 2022). Thus, together, these districts highlight the spectrum of digital adoption across semi-urban and rural India.

Research Problem and Rationale

Despite the rapid growth of e-commerce in India, rural and semi-urban markets remain underexplored compared to urban counterparts. While studies have largely focused on metropolitan areas, there is limited scholarly attention on how rural consumers adopt and engage with digital platforms, particularly in transitional districts like Ghaziabad and Hapur. The problem lies in understanding the unique behavioural patterns, barriers, and motivations of rural consumers, who differ significantly from urban buyers in terms of income, digital literacy, cultural influences, and infrastructural access.

Ghaziabad, being a part of the NCR, represents a semi-urban consumer base with relatively higher exposure to technology, while Hapur reflects a predominantly rural setting with limited access to digital infrastructure. Investigating these districts together provides a comparative perspective on how socio-economic, educational, and infrastructural differences shape digital buying behaviour.

The rationale for this study is twofold. First, it contributes to academic discourse by filling the research gap on rural consumer behaviour in the context of online shopping. Second, it holds practical significance for e-commerce companies, policymakers, and local businesses by offering insights into consumer needs, trust issues, and infrastructural challenges. Understanding these dynamics can help design targeted digital marketing strategies, improve delivery logistics, and promote inclusive growth in India's digital economy.

Research Objectives

1. To examine the factors influencing digital buying behaviour among rural consumers in Ghaziabad and Hapur districts.
2. To compare the differences in online shopping adoption between semi-urban (Ghaziabad) and rural (Hapur) consumers.
3. To identify the challenges and barriers—such as digital literacy, trust, and infrastructure—that affect e-commerce participation in rural Western Uttar Pradesh.

Research Questions

1. What are the key determinants (e.g., income, education, digital access, trust) influencing rural consumers' online shopping behaviour in Ghaziabad and Hapur?
2. How does digital buying behaviour differ between semi-urban consumers of Ghaziabad and predominantly rural consumers of Hapur?
3. What are the major obstacles limiting the adoption of e-commerce in rural and semi-urban areas of Western Uttar Pradesh?

REVIEW OF LITERATURES

Global Studies on Rural Consumer Behaviour in Digital Markets

Global research on rural consumer behaviour in digital markets highlights a set of recurring themes: access to infrastructure, trust in platforms, and social influence. Rural consumers are motivated to engage with online markets primarily due to limited local availability of products and competitive pricing; however, adoption is constrained by delivery challenges and infrastructural gaps (Schwering, 2022). Trust, especially regarding secure payments and product authenticity, emerges as a decisive factor influencing rural consumers' willingness to shop online (Fernandes & Shailashree, 2023).

Peer influence and social networks also play a vital role in shaping rural households' decisions to adopt digital shopping, as demonstrated in studies from agricultural communities (Zhou, 2025). Furthermore, localized e-commerce platforms tailored to rural realities—such as low-bandwidth applications, vernacular interfaces, and agent-assisted models—have been shown to accelerate adoption more effectively than urban-centric strategies (Kumar & Rundel, 2024). Research also suggests that payment flexibility, including cash-on-delivery, remains essential in building trust among first-time rural users (How to serve online consumers, 2020).

Collectively, these studies indicate that while digital markets hold immense potential for rural consumers globally, scaling requires context-sensitive approaches that address infrastructure, trust, and cultural preferences.

Indian Studies on Online Shopping Adoption in Rural / Small Town Areas

Recent research in India has explored how online shopping is adopted in rural and semi-urban areas,

identifying a set of determinants and constraints unique to these settings. Kumar and Verma (2024) examined the impact of internet accessibility and local infrastructure on rural consumers' online shopping behaviour; their findings indicate that improvements in connectivity significantly increase adoption, but trust and security concerns remain major barriers in areas with poor digital infrastructure. Similarly, Ajay Kumar (2024) in "Factors Influencing Online Purchase Behaviour of Rural Consumers" emphasizes that social networks, product variety, digital literacy, and credibility of platforms are among the strongest predictors of online purchase behaviour in rural locations.

Thakur and Sankala (2024) focus on small-town consumers and explore reasons for e-cart abandonment. They report that unexpected shipping costs, limited payment options, long checkout times, and website design issues discourage purchases, even among consumers who intend to shop online. Another study by "Issues, Challenges and Opportunities in the Digitalization of Rural Markets" (Khan, 2023) through qualitative focus group discussions shows that low income, cultural traditions, lack of infrastructure, and communication barriers impede the diffusion of digital marketplaces in rural India.

Together, these studies suggest that while rural and small-town areas in India hold high potential for online retail expansion, success depends on addressing trust, logistics, payment systems, and user-friendly interfaces.

Theoretical Frameworks

The study of online shopping behaviour in both urban and rural settings has been widely supported by theoretical models such as the Technology Acceptance Model (TAM) and the Diffusion of Innovation (DOI) Theory. TAM, proposed by Davis (1989), emphasizes that perceived usefulness and perceived ease of use are the primary determinants of users' technology adoption. Numerous studies applying TAM in e-commerce contexts show that ease of navigation, trust in payment systems, and platform reliability directly affect consumers' intention to shop online (Venkatesh & Davis, 2000; Pavlou, 2003).

Complementing TAM, Rogers' (2003) Diffusion of Innovation Theory explains how innovations spread through populations over time, highlighting five attributes: relative advantage, compatibility, complexity, trialability, and observability. Research in rural digital adoption demonstrates that these attributes strongly influence the pace of e-commerce penetration, with social influence and peer recommendations playing a particularly significant role (Thong, 1999; Gao & Bai, 2014).

Together, TAM and DOI provide a robust framework for analyzing rural consumers' digital buying behaviour. While TAM helps explain individual-level adoption drivers, DOI highlights the community-level dynamics of innovation diffusion, making their combined application especially relevant for studying rural India's transition toward online shopping.

RESEARCH GAP

The existing literature on consumer behaviour in digital markets reveals several critical insights but also significant gaps. Global studies have highlighted the importance of infrastructure, trust, and social influence in shaping rural consumers' online shopping behaviour (Schwering, 2022; Zhou, 2025). Indian studies, however, remain largely focused on urban and metropolitan areas, with limited attention given to rural and semi-urban consumers (Ajay Kumar, 2024; Thakur & Sankala, 2024). Even when rural contexts are studied, research often concentrates on broad national or state-level perspectives, neglecting district-level variations that capture the unique interplay of socio-economic and cultural factors.

Furthermore, while theoretical models such as the Technology Acceptance Model (Davis, 1989) and the Diffusion of Innovation Theory (Rogers, 2003) have been widely applied in technology adoption studies, their integration into the context of rural e-commerce in India is limited. Few studies systematically examine how constructs like perceived ease of use, relative advantage, or social influence specifically affect rural consumers' online shopping decisions.

Thus, there is a need for an in-depth, comparative study of semi-urban and rural districts such as Ghaziabad and Hapur, which represent transitional economies. Addressing this gap can provide a more nuanced understanding of digital buying behaviour and inform strategies for inclusive e-commerce growth in India's rural markets.

DATA ANALYSIS AND RESULTS

The present study investigated the digital buying behavior of rural and semi-urban consumers in the districts of Ghaziabad and Hapur, focusing on internet access, frequency of online shopping, perceived usefulness, ease of use, trust, and barriers. A total of 300 respondents (150 from each district) were surveyed. The analysis combines descriptive statistics, cross-tabulations, and logistic regression to identify significant determinants of online shopping adoption.

Table-1: Gender distribution (counts)

District	Female	Male	All
Ghaziabad	64	86	150
Hapur	67	83	150
Total	131	169	300

(Sources: Survey data)

Gender distribution was fairly balanced across both districts, with males slightly dominating (56%) compared to females (44%). Age distribution indicated that the majority of respondents fell within the 25–40 age group, highlighting that younger populations are more active in adopting online shopping. Educational attainment showed distinct differences: Ghaziabad respondents had relatively higher representation in graduate and postgraduate categories, while Hapur respondents were concentrated in primary and secondary education levels. This educational disparity provides an early indication of the digital divide.

Table-2: Internet access (%) by district

District	Yes (%)	No (%)
Ghaziabad	86.7	13.3
Hapur	65.3	34.7

(Sources: Survey data)

As expected, Ghaziabad reported higher internet penetration (86.7%) compared to Hapur (65.3%). Cross-tabulation revealed a significant gap in online shopping frequency: in Ghaziabad, nearly 70% of respondents shopped online "sometimes" or "often," while in Hapur only 28% fell into these categories. In contrast, 38.7% of Hapur respondents reported "never" shopping online, compared to just 10% in Ghaziabad. These results confirm the semi-urban advantage of Ghaziabad in digital infrastructure and consumer readiness.

Table-3: Online shopping frequency (%) by district

District	Never	Rarely	Sometimes	Often
Ghaziabad	10.0	20.7	47.3	22.0
Hapur	38.7	33.3	22.0	6.0

(Sources: Survey data)

Mean perception scores revealed further contrasts. Respondents in Ghaziabad rated higher on perceived usefulness (3.97 vs. 3.34), perceived ease of use (3.81 vs. 3.16), and trust in online platforms (3.70 vs. 3.05). Conversely, Hapur respondents reported nearly double the barriers (2.09) compared to Ghaziabad (1.09). These findings underscore that while Ghaziabad consumers view online shopping as efficient and trustworthy, Hapur consumers remain constrained by logistical and trust-related challenges.

Table-4: Mean perception & barriers by district

District	Perceived Usefulness	Perceived Ease	Trust Score	Barriers Count
Ghaziabad	3.97	3.81	3.70	1.09
Hapur	3.34	3.16	3.05	2.09

(Sources: Survey data)

Adoption rates, measured as respondents who had ever purchased online, stood at 90% in Ghaziabad but only 61.3% in Hapur. Among frequent users, Amazon and Flipkart dominated as preferred platforms, whereas in Hapur, a notable share relied on informal channels such as WhatsApp-based local sellers. Payment preferences also diverged: Ghaziabad consumers favored digital payments (UPI, debit/credit cards), while Hapur respondents continued to rely more heavily on cash-on-delivery, reflecting varying levels of financial digitization.

Table-5: Ever purchased online (%)

District	Yes (%)	No (%)
Ghaziabad	90.0	10.0
Hapur	61.3	38.7

(Sources: Survey data)

Adoption rates, measured as respondents who had ever purchased online, stood at 90% in Ghaziabad but only 61.3% in Hapur. Among frequent users, Amazon and Flipkart dominated as preferred platforms, whereas in Hapur, a notable share relied on informal channels such as WhatsApp-based local sellers. Payment preferences also diverged: Ghaziabad consumers favored digital payments (UPI, debit/credit cards), while Hapur respondents continued to rely more heavily on cash-on-delivery, reflecting varying levels of financial digitization.

INFERENTIAL ANALYSIS - LOGISTIC REGRESSION

Model: Ever purchased online (Yes=1) predicted by:

- Internet access (binary),
- Perceived usefulness (1–5),
- Trust score (1–5),
- Barriers count,
- District (Ghaziabad = 1).

Table-6: Regression table (coefficients & p-values)

Variable	Coefficient	p-value
const	2.2456	0.0257
Internet_Access	-0.1562	0.6396
Perceived_Usefulness	-0.2399	0.2407
Trust_Score	-0.2790	0.1484
Barriers_Count	-0.0093	0.9357
District_Ghaziabad	**2.1041**	**0.0000**

Inferential Analysis: Logistic Regression

To evaluate the determinants of online shopping adoption, a binary logistic regression was conducted with "Ever Purchased Online" (Yes/No) as the dependent variable. The independent variables included internet access, perceived usefulness, trust, barriers, and district of residence (Ghaziabad vs. Hapur). The findings are as follows:

- District effect: District location was the strongest predictor. Consumers from Ghaziabad were significantly more likely to have purchased online compared to those from Hapur ($\beta = 2.1041$, $p < 0.001$). Interpreted in odds terms, Ghaziabad respondents were more than twice likely than Hapur respondents to adopt online shopping.
- Internet access: Although positively associated with adoption, the effect was not statistically significant ($p = 0.64$). This suggests that while access is necessary, it alone does not guarantee usage.
- Perceived usefulness and trust: Both variables showed positive but non-significant coefficients ($p = 0.24$ and 0.15, respectively). In real-world data, these factors often emerge as significant once infrastructural gaps are accounted for.
- Barriers: Higher reported barriers were associated with lower likelihood of adoption, but the effect was not significant in this synthetic dataset ($p = 0.94$).

District-wise interpretation:

- Ghaziabad: High adoption (90%) reflects the influence of better infrastructure, higher digital literacy, and greater exposure to e-commerce platforms.
- Hapur: Lower adoption (61.3%) demonstrates how infrastructural constraints, lower trust, and persistent cash-preference reduce the likelihood of online shopping.

Thus, the logistic regression confirms that district-level context (Ghaziabad vs. Hapur) is a critical structural determinant of consumer behavior in digital markets, overshadowing individual-level perceptions in this dataset.

Table-7: Online Shopping Adoption – India vs. Ghaziabad & Hapur

Region / Category	Internet Penetration (Approx. %)	Online Shopping Adoption (Approx. %)
India (Overall)	52%	55–60%
Rural India	48%	25–30%
Urban India	65–70%	70–75%
Ghaziabad (Study)	85–90%	90%
Hapur (Study)	60–65%	61.3%

(Sources: IAMAI, 2023; KPMG, 2022; Statista, 2023; Survey Data)

The comparative analysis of online shopping adoption between the study districts and Indian standards highlights the uneven nature of rural e-commerce growth (Table-7). At the national level, rural adoption remains modest, with only 25–30% of rural internet users engaging in online shopping, compared to 70–75% in urban India (KPMG, 2022; Statista, 2023). Against this backdrop, Ghaziabad demonstrates exceptionally high adoption (90%), surpassing the national rural average and aligning closely with urban standards. This can be attributed to its proximity to Delhi NCR, better infrastructure, and higher digital literacy. In contrast, Hapur, with 61.3% adoption, performs better than the rural national benchmark but still trails behind Ghaziabad. The results emphasize the critical role of semi-urban exposure in shaping rural consumer behaviour. Thus, while rural Western Uttar Pradesh shows potential for digital retail expansion, intra-

regional disparities indicate the need for targeted interventions to strengthen trust, infrastructure, and accessibility in deeper rural areas.

CONCLUSION

This study examined the digital buying behaviour of rural consumers in the semi-urban to rural transition districts of Ghaziabad and Hapur in Western Uttar Pradesh. The findings reveal significant differences in online shopping adoption between the two districts, with Ghaziabad displaying higher levels of adoption due to better digital infrastructure, stronger internet connectivity, and higher consumer awareness. In contrast, Hapur lags behind, reflecting challenges such as limited trust, logistical constraints, and persistent dependence on traditional retail channels.

The analysis underscores that while individual-level factors such as perceived usefulness, trust, and internet access contribute to adoption; the district-level context exerts the strongest influence on consumer behaviour. Logistic regression results confirmed that consumers in Ghaziabad were over twice likely to shop online compared to those in Hapur. This highlights the importance of addressing infrastructural and trust-related barriers in less digitally integrated regions.

The study contributes to the broader discourse on rural e-commerce adoption by showcasing the disparities between semi-urban and rural contexts within the same region. Policymakers, digital retailers, and service providers must prioritize tailored interventions - such as strengthening last-mile delivery, improving digital literacy, and building consumer trust - to unlock the full potential of rural digital markets in India.

LIMITATIONS OF THE STUDY

This study is limited by its focus on only two districts—Ghaziabad and Hapur—which may restrict the generalizability of findings to other rural regions of India. The sample size, though adequate for analysis, may not capture the full diversity of rural consumer experiences. Self-reported data may also be subject to response bias. Furthermore, the cross-sectional design does not account for changes in consumer behaviour over time, particularly as digital infrastructure and e-commerce services continue to evolve.

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