

# A Study on Factors Swaying E-Commerce Espousal by Socio-Economic Factors of the Retailers in India Concerning Major Cities of Andhra Pradesh

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## Abstract

*E-commerce has become a cogent disciplinarian of the retail industry in India, and the factors that access retailers' acceptance and achievement in this agenda exchange are crucial. This abstraction aims to investigate the factors that amplitude retailers' decisions regarding e-commerce engagement absorption in the major cities of Andhra Pradesh, India. The abstraction assesses the assorted factors swaying, such as the role of account quality, trust, aloofness and security, Intellectual Property Rights, Loyalty, Perceived Ease of Use, Perceived Usefulness, Perceived Quality, Technology and Infrastructure, National Policy Initiatives, and Intention to Use adherence to ethical and acknowledged attempt in abstraction retailers' e-commerce acceptance and success. The essay employs an amalgam method, amalgamation quantitative surveys, and qualitative interviews to aggregate abstracts from an assorted sample of retailers operating in the above cities of Andhra Pradesh. The quantitative abstracts will be analyzed using statistical techniques, such as correlation analysis, to appraise the relationships between the abovementioned factors and the retailers' e-commerce espousal. The qualitative abstracts will accommodate all-embracing insights into these factors' nuances and contextual aspects. The after-effects of this abstraction are anticipated to afford ablaze on the analytical determinants of e-commerce acceptance by retailers; alms admired insights into how the above-cited factors apples their controlling action in affiliation with the socio-demographic contour acceptance of influencing factors. Moreover, the essay will accommodate a bounded perspective, accurately absorbing Andhra Pradesh, which may bear different challenges and opportunities that retailers face in this bounded context. The implications of this abstraction extend to retailers, policymakers, and e-commerce platforms, as it can advise codifying strategies to enhance e-commerce engagement, abutment the advance of the agenda retail ecosystem, and ensure that it aligns with ethical and acknowledged standards. Furthermore, the essay abstraction contributes to the bookish address on e-commerce acceptance and factors influencing banker participation, abacus to the absolute anatomy of ability in this domain.*

**keywords:** E-commerce adoption, Retail sector, Socio-economic factors, Digital Transformation, Technology acceptance, small and medium enterprises (SMEs), Retailers in India, Andhra Pradesh, Urban commerce, Consumer behavior

## INTRODUCTION

The proliferation of e-commerce has revolutionized the way retail transactions occur, with profound

implications for both consumers and retailers. In the context of India, the e-commerce sector has witnessed exponential growth, reshaping traditional retail practices and redefining consumer behavior.

Major cities in states like Andhra Pradesh have been pivotal in driving this transformation. This study delves into the factors significantly influencing retailers' decisions regarding e-commerce engagement, specifically focusing on service quality, trust, privacy, security, and ethical and legal standards.

The retail landscape in India, particularly in the major cities of Andhra Pradesh, has experienced a paradigm shift due to the widespread adoption of e-commerce. Retailers are increasingly recognizing the potential of online platforms to reach a broader customer base, improve operational efficiency, and enhance overall business performance. However, the adoption and success of e-commerce among retailers are contingent on several critical factors.

Service quality is a fundamental factor that defines the overall customer experience in e-commerce. Retailers must ensure their online platforms offer customers reliable, efficient, and user-friendly services. Trust is another pivotal element, as customers must have confidence in the retailer's ability to fulfill promises and maintain transaction transparency. Privacy and security concerns are paramount in the digital realm, influencing customers' willingness to share personal information and engage in online transactions. Retailers must safeguard customer data and create a secure online environment to foster trust and confidence. Additionally, ethical and legal considerations are vital in shaping the e-commerce landscape. Adherence to ethical business practices and compliance with legal requirements are essential for sustainable and responsible e-commerce operations. Other factors such as Loyalty, Perceived Usefulness, Perceived Ease of Use, Perceived Quality, Technology and Infrastructure, National Policy Initiatives, and Intention to Use adhere to ethical and legal principles in shaping retailers' e-commerce adoption and success.

Understanding how these factors interplay in the context of major cities in Andhra Pradesh is critical for retailers aiming to navigate the evolving e-commerce landscape effectively. This study explores the nuances of service quality, trust, privacy, security, and ethical and legal considerations in influencing retailers' decisions to

embrace e-commerce. Doing so aims to provide insights to guide retailers, policymakers, and e-commerce platforms in fostering a conducive environment for e-commerce growth while ensuring ethical and legal adherence. The subsequent sections will delve deeper into this study's objectives, methodology, and expected contributions.

According to the survey, the food and grocery retail business alone is predicted to grow from its current \$600 billion market to a \$1.1 trillion market by 2025. These volumes will increase even further when combined with the FMCG and mobile sectors, drawing in most B2B businesses. As a result, Indian internet companies are beginning to structure this enormous market. Many B2B e-commerce startups, such as Indiamart, Udaan, ShopX, Jumbotail, and Ninjacart, have raised much money in recent years. To spur their expansion, TATAs (via Bigbasket) and Reliance have already made inroads into the unorganized B2B e-commerce market. Numerous studies that have examined large company organizations or B2B E-commerce business models from the customer's perspective attest to the underlying causes influencing these models. Thus, the investigator hopes to study the factors influencing the B2B adoption concerning the top 3 cities of Andhra Pradesh, India.

## RESEARCH METHODOLOGY

The methodology adopted for this study was both descriptive and analytical. It is logical, as the data, particulars, and information are analyzed and measured, and it is descriptive, as the study focuses on the present situation of retailers in E-commerce adoption. The techniques followed are observation, personal interview, and survey. The tool for the survey is a logically designed printed questionnaire derived from a widespread literature evaluation.

While research focuses on data collection techniques, research design provides a framework for obtaining and evaluating research data. The research study first outlines the problem it is trying to solve and its goals. A thorough analysis of pertinent literature has been conducted to determine the variables affecting retailers' adoption of e-commerce. Qualitative and quantitative procedures were used to achieve the objectives for data compilation. A questionnaire was circulated among

the selected online retailers in the top three selected cities of AP, i.e., Visakhapatnam, Guntur, and Vijayawada. Subsequently, interviews were conducted with the Owners/managers of retail stores to gather inputs and perceptions to validate the influenced factors that arose from the questionnaire. The data thus collected was then utilized to determine the driving factors' consequences and their impact on their e-business performance.

**Sample design:** The nonprobability disproportionate purposive sampling method is more appropriate since it organizes available

samples better for study when the population varies widely and needs more accuracy. Therefore, the researcher adopted this method and identified the population of three major cities in AP. For an intensive study, it is proposed that primary data be collected from retailers adopting e-commerce business practices. In the newly formed state of Andhra Pradesh, three cities, namely Visakhapatnam, Vijayawada, and Guntur, have relatively higher unorganized retailers, and sizeable retailers have adopted e-commerce. Hence, these top 3 cities of AP are considered for the sample.

**Table – 1 Sample design**

City	Total Population (2011 Census – Wikipedia)	Total retailers @1000 retailers Per Lac (from Study)	FMCG @ 400 outlets per Lac (FMCG Norm)	Mobile @ 50 outlets per Lac (Mobile Norm)	FMCG Plus Mobile with E-commerce presence (By 2019 – from Industry - Appx)	Effective sample size (Non-Probabilistic Purposive Sampling)
Visakhapatnam	1345938	13459	5384	673	1200	150
Vijayawada	1021806	10218	4087	511	1300	150
Guntur	743354	7434	2973	372	1100	150
<b>Total</b>	<b>31111098</b>	<b>31111</b>	<b>12444</b>	<b>1556</b>	<b>3600</b>	<b>450*</b>

\*A little more than 12% of the outlets from the total outlets of three cities were considered as a sample of those practicing e-commerce.

From Table 1, the unorganized retailer's total population in the above three major cities is approximately little more than 31 Laks with a universe of 31000 retailers, out of which 3600 retailers practice E-commerce. No other city in AP has a significant share of B2B in 2019. Hence, data from 450 willing retailers, approximately 12 percent of the e-commerce-adopted retailers, is proposed for collection. Since the study dealt with unorganized retailers, no proper authentic data is available, and hence, the data has been taken from existing B2B operators like Metro, Walmart, ShopxBigbasket, etc. Thus, the structured questionnaire intended to collect primary data serves those willing to give data. At least 150 retailers from each city are to be considered so that approximately 75 percent of the retailers are selected from the FMCG and grocery sector, and around 25 percent are taken from the mobile sector. A survey research design was used for data collection, where the researcher mailed or personally handed over the questionnaire to the

respondents. The quantitative survey targeted owners' proprietors or managers of the stores.

Moreover, as this research subject was online electronic retailing, it was assumed that using email mode for data collection would not give accurate responses from the samples. Though every online purchaser is an internet user and can access emails, the investigator personally interacted with the respondents, explained his research, and collected the required information through a pre-designed questionnaire.

## Objectives of the study

1. To identify and measure the impact of factors influencing the retailer's socio-demographics concerning E-commerce adoption.
2. To investigate the relevance of variables affecting merchants' sociodemographic adoption of e-commerce.

## Hypothesis

The study proposes no significant impact on adopting e-commerce between factors influencing and socio-demographic factors of the retailers.

## REVIEW OF LITERATURE AND RESEARCH GAP

In their study, Rodoper and Benbasat (2008) explored that B2B exchanges assist customers in incurring fewer search costs, sourcing low-priced products and services, reducing the sourcing cycle lifetime, encouraging dealings between distant businesses, and downsizing the paperwork. In their research outcome, Elahi and Hassanzadeh (2009) concluded that there is a trivial optimistic relationship between the stages of online development and the degree of E-commerce adoption in business organizations. Teo et al. (2009) indicated that the firm size, organizational support, trade partner control, and perceived indirect benefits are optimistically and considerably related to the implementation of e-procurement. Christiaanse et al. (2001) presented that materializing business places creates merits and demerits for small physical retailers. Their study on the abstract impact of online business platforms on physical stores illustrated the findings with the Elemica case, a proposal by various big chemical organizations to cut logistic costs by generating one-stop shopping. In their study, Esichaikul and Chavananon (2001) discover the common potential factors for implementing B2C and B2B. Subramaniam and Shaw's (2002) study indicated that despite the impact of the internet on the process of B2B, the worth of online transactions is mainly derived from "the process characteristics, organization of business units and the extended enterprise."

Dans and Allen (2002) surveyed 152 big Spanish organizations to have a few ideas about their feelings and advancements related to B2B. Both plus and minus results occur based on the company's present situation of B2B progress, seeming role in a B2B state, and the distinctiveness of the sector. Min and Galle (2003) stated that online transactions have become an integral part of the business, simplifying the purchase payment purchase order process, reducing paperwork, expanding the supplier base, and eliminating order errors. Grieger (2003) stated

that online marketplaces are becoming extremely accepted. This study also revealed that the electronic marketplaces are largely neglected and poorly managed, while the present logistic operations hamper turnover and revenues.

Subramaniam et al. (2003) explored that online sourcing has an encouraging effect on the business procedures in many companies. Maverick's buying and minimizing mistakes are the major advantages of online sourcing among the operational measures. User satisfaction is the most impacted by e-procurement in strategic measures. Kandampully (2003) explored that the Internet is a successful way of doing online B2B in many organizations across industries. Their study elucidates how businesses have been vital to the development of internet-based prototypes in international markets. The study involves e-hub and the automotive industry's e-marketplace. It illustrates the modern technological business procedures that can be supported by internet-based prototypes and e-associations that require constant support.

Rowley (2004) explored that "in the growing digital universe, marketing and communications are affected by creating a presence, creating mutual value, and creating relationships." The Internet as a promotional media is reachable, ubiquitous, and communicative, improving marketing management with service, delivery, and profitable dealings. Yan and Paradi (1999) explored that for fiscal organizations to compete online, there are five critical success factors: communication network, risk tolerance, innovation, size of company assets, and E-commerce strategy. In their study, Liu and Arnett (2000) identified four major critical factors concerning information systems and marketing literature for a website to be successful online. The critical factors are derived from factor analysis: system use, design quality, playfulness, and information and service quality. Thompson et al. (2001) have analyzed nine factors influencing online B2B deployment: managerial change, project management, policy-related, collaboration, appraisal, external IT, internal IT environmental, external business ecological, and top management factors. Mashari (2002), in his study, explored and analyzed detailed adoption methodology and approach, motivating forces for online applications,

whole result, and critical success factors. Cultural issues of employees' degree of recognition and clients' skills to adopt these technicalities also influence e-business adoption.

Bhavna Gupta and Apeksha Hooda (2011) studied the study "Retailing to e-tailing: Evolution to Revolution" and observed that companies and consumers had experienced a sea change promoted by the internet and technological advancement in advertising and marketing existing and new services and products. The intent is to appraise and take stock of challenges resulting from changes brought by the internet that are specific to E-retail business ideas and create a business plan for the success of the retailers. Ralph F. Wilson (2012), in his article "Crucial differences between Retailing and E-Tailing," noted that most retailers have extensively understood. Still, many of them failed to notice the emerging e-tail model. The typical normal trade model consists of hiring a shop and ordering products through shopping, either assisted by the salesperson or self-pick-up mode. The e-tail model has online order sales through the web or mobile app catalogs, which are shipped to them through couriers.

Inma Rodríguez-Ardura et al. (2008) tried to evaluate the volumes of the possible marketplace by the web transaction to the growth of E-commerce and other determinant factors in the Spanish market for seven years. The study reveals that the critical influencing factors are the lawful structure for user safety, value proposition perceived as "secure," and broadband technology diffusion. They also concluded that the companies are implementing differentiation strategies based on value management.

Fethi Calisir, Cigdem Altin Gumussoy, and Ozgur U. Eris (2011) stated that the customer and competitor demands on E-commerce and the effects of technology integration on large-scale firms in Turkey. Jayendra Sinha and Jiyeon Kim (2012) identified "product risk, convenience risk, perceived behavior control, financial risk, subjective norm, return policy, technology-specific innovations, and attitude as the Indian-specific factors." Cyber laws, delivery of the ordered product or service, after-sale service, and shipping fees are identified as concerns,

out of which social and perceived behavioral control and product delivery are the vital drivers influencing online shopping. Perceived risks such as non-delivery of products, financial, convenience, and technology-related innovation were significant in males. In contrast, convenience and online shopping behavior were key drivers in females.

Subhajit Goswami (2013), in his study on "Top ten factors swaying E-commerce consumer's purchase decision," identified that the crucial factors influencing E-commerce implementation are the quality products, quality information, product description, free shopping, easy return policy, etc., are some more important drivers influencing online acceptance by the customers of India.

## Research Gap

From the extensive and in-depth review of the existing literature, it is observed that most of the previous studies are on E-commerce adoption and its usage benefits from a customer/consumer point of view. Many studies are seen in B2B E-commerce as well; however, they are majorly focused on SMEs or big business entities in various countries. The research on critical success factors (CSFs) of B2B E-commerce is also observed. However, there is very little empirical research available in the Indian retail market context on the factors influencing the online model acceptance by retailers. Also observed is a huge gap around the key drivers influencing online transactions by unorganized small retailers, where around 93 percent of the overall Indian retail business is happening. India, one of the world's largest markets, is not only culturally different from other countries but also offers huge business opportunities that attract many e-business entities worldwide. Therefore, the study focuses on business-to-business (B2B) in the Indian context by understanding the various influence factors and further examining the unorganized retailers' behavior in E-commerce adoption. The critical influenced factors that determine the retailers' attitude in adopting online transactions are taken from this detailed review. Various research tools and methodology patterns have also been identified in the above studies. Thus, the present study was designed with a systematic methodology, with the object of the study being retailers of three top cities



in Andhra Pradesh in India. It can be concluded from the above literature review that the identified gap requires detailed research as it helps understand these small, unorganized retailers where huge business opportunities are promising to the firms in the coming days.

### E-COMMERCE IN INDIA AND ITS IMPORTANCE

India, being the second most populated country with huge market opportunities, many service providers want to be big players in the E-commerce sector. These players want to nullify the earlier challenges, such as low internet access, deprived infrastructure, vague tax structure, and lack of awareness about these companies through technology evolution. The Internet users in India were just 50 million in 2000, around 0.5 percent of the total population, but expanded at an alarming rate. Rising living standards, increasing reach of internet services, reduced ten prices and busy lifestyles, and availability of wider product ranges gave way to online deals and promotions.

The online websites extended their reach to customers by providing a satisfying, secure, and convenient shopping experience, thus connecting the unexplored consumer markets. In its first wave of travel and holiday plans, India occupied the majority share and showed a spurt as it gained a 50 percent growth in 2010. However, since then, in the second wave, E-commerce seriously extended to

daily needs, home appliances, and other products. A study shows India adds around 6 million new users monthly (Online Shoppers in India, 2014). India's electronic commerce market scope was around \$3.8 billion in 2009 and rose to \$12.6 billion by 2013. Apparel and luxury segments have registered phenomenal growth, followed by jewelry, electronic goods, hardware since 2013, and daily home needs. In this decade, the foremost investment funds in India and abroad have witnessed many mergers and acquisitions. A normal customer prefers online shopping since all consumer requirements are available online. Thus, "our consumers are showing a greater hunger to manage online, fuelling the

Electronic and smartphone penetration and exponential growth of the sector have been witnessed.

According to the data, the percentage of Indians who use the Internet increased from just 4% in 2007 to 39.32 percent in Q2 2018. India's internet user base is predicted to grow significantly, from 512.26 million in June 2018 to 829 million by 2021.

The table and graph below show the top ten countries of internet users worldwide. Web users in India were 692 million in 2023, despite India having the highest number of web users after China with 35 percent. After the Chain and India, the percentage of populations varies between 11 percent (United States) and 3 percent (Japan, Mexico, and the Philippines).

**Table 1: Top Ten Countries with the largest digital populations in the World as of January 2023 (in millions)**

Name of the Country	Digital Population	Percentage of digital populations
China	1050	35
India	692	23
United States	331.3	11
Indonesia	212.9	7
Brazil	181.8	6
Russia	127.6	4
Nigeria	122.5	4
Japan	102.5	3
Mexico	100.5	3
Philippines	85.16	3
Total Digital Population	3006.26	

Source: Countries with the highest number of Internet users 2023, Statista

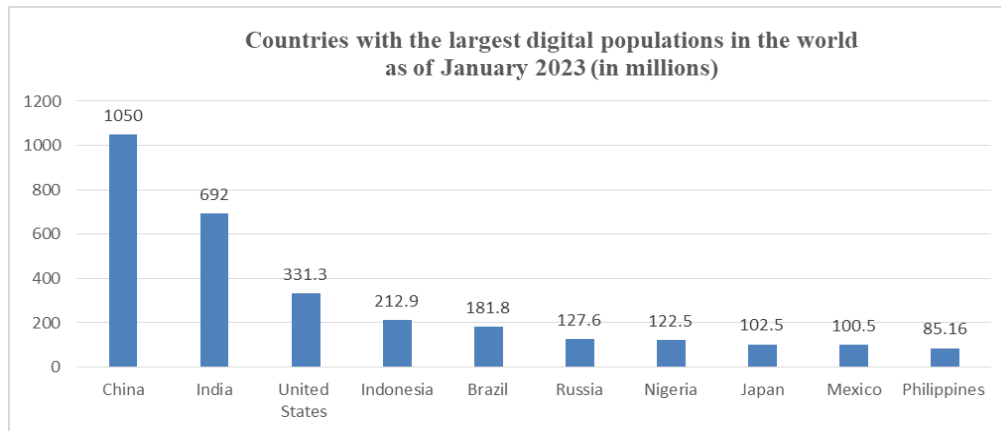


Fig 1 Global Internet Users – Top Ten Countries

Source: Countries with the highest number of Internet users 2023, Statista

With e-commerce playing a major role, it is predicted that the Indian internet economy will have doubled from US\$125 billion in April 2017 to US\$250 billion by 2020 (Privacy Shield, 2017). A Nomura analysis states that the Indian e-commerce market was worth \$40 billion in 2018 and is projected to grow to \$200 billion by 2026. Goldman Sachs estimates that India's e-commerce is worth \$99 billion and that the country's online retail market will more than double, growing at a compound annual growth rate of 27% from 4.7 percent in 2019 to 11 percent by 2024. By 2034, India is predicted to surpass the US as the world's second-largest e-commerce market. In 2025, there will be 220 million Indian internet shoppers, up from 120 million. In India, each user spent an average of US\$ 224 on online retail in 2017. India is one of the Asia-Pacific region's E-commerce markets with the quickest growth rate. An estimate states that out of 100,000 pin codes in India, one in three Indian retailers send 20,000 pin codes via smartphone and the internet. E-commerce in India is becoming increasingly significant; in the first half of 2018, there were 40 agreements totaling US\$ 1,129 million and 21 deals worth US\$ 2.1 billion in private equity and venture capital. In FY 2018, the e-commerce startups received capital of US\$ 786.87 million. Since logistics is essential to the expansion of online businesses, India's retail logistics market, valued at US\$ 1.35 billion in 2018, is predicted to develop at a compound annual growth rate (CAGR) of 36% over the next five years. By 2024, the \$2 billion online grocery sector with 3 lac daily orders is

expected to grow to \$29 billion with 5 million daily orders. By 2021, e-commerce penetration will reach 16.1%, excluding groceries. 2011 around 50% of India's population was under 24 years old. The main factors propelling the Indian e-commerce industry forward include the country's youthful demographics, rising smartphone and internet usage, and improved economic expansion. Government regulations and regulatory frameworks, such as 100% FDI in B2B e-commerce, further encourage the sector's expansion. In order to prepare for the upcoming draught of the E-commerce policy, which is anticipated to propel the sector to new heights, the Indian government is gathering input from a range of industry stakeholders.

### IMPORTANCE OF RETAILING IN INDIA

Retailers play an important role in the Indian economy. He acts as a liaison in the sales and distribution channel as he connects to the producer or distributor and finally sells to the end consumer. In India, becoming a retailer is relatively easier since there is no requirement for huge investments. Retailers can avail themselves of the store space with no or very little 'down payment' and will be given credit by the distributors. Hence, more than 6 million retail outlets in India are transacting nationwide. These large numbers of outlets are trying to offer and satisfy the daily customer needs.

The retail sector comprises over 10 percent of the Indian workforce and 96 percent of retailers operating in small areas of less than 50 m<sup>2</sup> each. Thus, only 4 percent of retailers are larger than 500

sq.ft. (46 m2) in size. The e-retailing mode is becoming significant; hence, most small store retailers have initiated e-retail operations in response to the growth of stand-alone electronic retailers (Jia Wertz, 2018). The Internet penetration was very low earlier to support e-retailing; however, technological advancement along with cheaper data pricing allows smartphone users to access the web and, therefore, growth in e-retailing in India (AvinashG. Mulky, 2013).

#### ANALYTICAL OUTCOMES OF THE STUDY

**Table–2: Perceptive score analysis between the cities and the influencing factors of E-commerce adoption by the retailers**

Factors	City	N	Mean	Std.Dev	Std.Err	f-value	p-value
Service	Visakhapatnam	150	43.94	6.657	0.544	7.609**	0.001
	Guntur	150	46.51	5.775	0.472		
	Vijayawada	150	44.15	6.576	0.537		
Trust(TR)	Visakhapatnam	150	49.70	5.840	0.477	16.014**	0.000
	Guntur	150	53.49	6.170	0.504		
	Vijayawada	150	52.11	5.605	0.458		
Privacy&Security	Visakhapatnam	150	31.15	4.803	0.392	4.916*	0.008
	Guntur	150	32.87	5.143	0.42		
	Vijayawada	150	31.82	4.33	0.354		
EthicalandLegal	Visakhapatnam	150	11.87	1.775	0.145	4.952*	0.007
	Guntur	150	12.15	1.941	0.158		
	Vijayawada	150	11.42	2.344	0.191		
Intellectual property rights	Visakhapatnam	150	18.19	3.557	0.290	11.817**	0.000
	Guntur	150	19.65	3.20	0.261		
	Vijayawada	150	19.93	3.19	0.260		
Loyalty	Visakhapatnam	150	25.49	4.382	0.358	57.626**	0.000
	Guntur	150	27.55	3.676	0.300		
	Vijayawada	150	30.3	3.565	0.291		
PerceivedEaseofUse(PEU)	Visakhapatnam	150	27.37	3.294	0.269	9.380**	0.000
	Guntur	150	28.93	3.200	0.261		
	Vijayawada	150	28.63	3.477	0.284		
PerceivedUsefulness(PU)	Visakhapatnam	150	19.66	4.198	0.343	1.624	0.198
	Guntur	150	20.01	4.344	0.355		
	Vijayawada	150	19.08	5.003	0.408		
perceived quality(PQ)	Visakhapatnam	150	16.58	2.986	0.244	0.867	0.421
	Guntur	150	16.14	3.356	0.274		
	Vijayawada	150	16.14	3.651	0.298		
Technology&Infrastructure(TI)	Visakhapatnam	150	19.02	3.377	0.276	17.507**	0.000
	Guntur	150	21.15	3.543	0.289		
	Vijayawada	150	20.83	3.15	0.257		
NationalPolicyInitiatives(NPI)	Visakhapatnam	150	11.49	2.399	0.196	5.534**	0.004
	Guntur	150	12.01	2.646	0.216		
	Vijayawada	150	12.45	2.505	0.205		
IntentiontoUse(INT)	Visakhapatnam	150	10.9	3.432	0.28	5.551**	0.004
	Guntur	150	11.24	3.341	0.273		
	Vijayawada	150	12.09	2.707	0.221		

\* Significant@5% level; \*\*Significant@1%level

In this section of the article, the significance of the socio-demographic profile on influencing factors has been tested based on the established sub-hypothesis, and the results have been revealed.

*H<sub>01</sub>: “There is a significant impact of retailers’ socio-demographic parameters on influencing factors’ e-commerce adoption.”*

*H<sub>0101</sub>: “There is no significant impact of the city parameter on the factors influencing the adoption of E-commerce by retailers.”*



Table-2 represents the perceptive score analysis of retailers from various cities and the factors. With these beggarly differences in account factors, the advised f-value of 7.609 specifies acceptance at 1 percent, similar to the p-value of 0.001. This deduces a momentous aberration amid the retailers of assorted cities proposing access to account factors. In appraisalment of the access of assurance beggarly differences, the advised f-value 16.014 designates a 1 percent momentous akin because the p-value is 0.000. This deduces a momentous aberration amid the retailers of assorted cities proposing access to assurance factors.

While celebratory access to aloofness and aegis factors beggarly differences, the affected f-value of 4.916 indicates acceptance at 5 percent, akin to the p-value of 0.008. This infers a cogent aberration amid the retailers of assorted cities, who appear to have access to aloofness and aegis factors.

The abstracts reveal that in appraisalment of the access of belief and acknowledged beggarly differences, the f-value of 4.952 is cogent at a 5 percent akin because the p-value is 0.007. This infers a cogent aberration amid the retailers of assorted cities apropos the access of ethical and acknowledged factors. According to the data, it is evident that the appraisalment of the access of bookish acreage rights barely differences the advised f-value of 11.817, which indicates acceptance at 1 percent akin to the p-value of 0.000. This shows a cogent aberration amid the retailers of assorted cities proposing access to bookish acreage rights factors. It is empirical that the adherence factors, beggarly differences, and the affected f-value 57.626 indicate a 1 percent cogent akin to the p-value of 0.000. This deduces a momentous about-face amid the retailers of assorted cities, where the access of adherence factors appears.

Perceived Ease of Use (PEU), mean, and accepted aberration differences, the advised f-value of 9.380 designated at a 1 percent akin to the p-value of 0.000. This infers a cogent aberration amid the retailers of assorted cities' appearing Perceived Ease

of Use (PEU).

In Perceived Usefulness (PU), mean, and accepted aberration differences, the advised f-value of 1.624 is not cogent as the p-value is 0.198. This infers that there is no cogent aberration amid the retailers of assorted cities' appearance of Perceived Usefulness (PU).

The abstracts reveal that in Perceived Quality (PQ), beggarly and accepted aberration differences, the f-value of 0.867 shows no acceptance because the p-value is 0.421. This infers that there is no cogent aberration amid retailers of assorted cities that appear Perceived Quality (PQ).

According to the data, the technology and infrastructure factors, mean and standard deviation differences, and the designed f-value of 17.507 indicate significance at a 1 percent level because the p-value is 0.000. **This shows a significant difference among retailers of various cities regarding technology and infrastructure factors.**

It is observed that the National Policy Initiatives, mean and standard deviation differences, and the designed f-value of 5.534 indicate significance at a 1 percent level since the p-value is 0.004. **This significantly differs among retailers in various cities regarding National Policy Initiatives factors.**

Regarding the Intention to Use (INT), mean, and standard deviation differences, the calculated f-value of 5.551 indicates significance at a 1 percent level as the p-value is 0.004. **This infers a significant difference among retailers of various cities regarding Intention to Use (INT) factors.**

Out of twelve factors, ten are observed to be significant; hence, the null hypothesis  $H_{0101}$  is rejected. **Hence, the city factor significantly influences e-commerce adoption by retailers. This means the influence of 12 factors on E-commerce adoption is affected by the city/place of the retailer he operates.**

**$H_{0102}$ :** *“There is no significant impact of the retailer’s gender on the influencing factors of E-commerce adoption by the retailers.”*

**Table 3: Perceptive score analysis of retailer's gender and the influencing factors of E-commerce adoption**

Factors	Gender	N	Mean	Std.Dev	Std.Err	t-value	P-value
Service	Male	277	44.85	6.451	0.388	0.061	0.951
	Female	173	44.89	6.444	0.49		
Trust (TR)	Male	277	51.71	6.220	0.374	0.057	0.811
	Female	173	51.86	5.837	0.444		
Privacy&Security	Male	277	32.04	4.88	0.293	0.503	0.616
	Female	173	31.8	4.712	0.358		
EthicalandLegal	Male	277	11.77	2.036	0.122	0.624	0.533
	Female	173	11.89	2.081	0.158		
Intellectual property rights	Male	277	19.29	3.361	0.202	0.215	0.830
	Female	173	19.21	3.468	0.264		
Loyalty	Male	277	28.24	4.342	0.261	2.856*	0.005
	Female	173	27.05	4.285	0.326		
Perceived Ease of Use (PEU)	Male	277	28.20	3.267	0.196	0.057	0.811
	Female	173	28.49	3.573	0.272		
Perceived Usefulness (PU)	Male	277	19.55	4.53	0.272	0.211	0.833
	Female	173	19.64	4.554	0.346		
perceived quality (PQ)	Male	277	16.27	3.321	0.200	0.127	0.899
	Female	173	16.31	3.382	0.257		
Technology& Infrastructure (TI)	Male	277	20.57	3.342	0.201	1.765	0.078
	Female	173	19.96	3.675	0.279		
National Policy Initiatives (NPI)	Male	277	12.02	2.606	0.157	0.383	0.702
	Female	173	11.92	2.447	0.186		
Intention to Use (INT)	Male	277	11.48	3.142	0.189	0.588	0.557
	Female	173	11.29	3.318	0.252		

\* Significant@5%level

*The perceptive score analysis of retailers between their gender and influencing factors is presented in above Table 3.*

In implementing service, factors mean, and standard deviations, the tested t-value 0.061 is not momentous because the p-value is 0.951. **This concludes that there is no significant variance between male and female e-commerce retailers regarding service factors.**

Regarding the trust factor, it is observed that the mean and standard deviation differences in the calculated value are 0.057, which is not significant as the p-value is 0.811. **This infers no significant difference between male and female e-commerce retailers regarding trust factors.**

The average score of male respondents towards the influence of privacy and security, the mean and standard deviation values, and the tested t-value of 0.503 is significant since the p-value is 0.616. **This concludes that there is no momentous variance**

**between male and female e-commerce retailers regarding privacy and security factors.**

The average score of males and females towards ethical and legal factors, the mean and standard deviation values, and the tested t-value of 0.624 are significant because the p-value is 0.533. **This infers no significant difference between male and female retailers regarding ethical and legal factors.**

In the influence of intellectual property rights, the mean and standard deviation differences, the designed t-value 0.215, are not significant as the p-value is 0.830. **This infers that there is no significant difference between male and female e-commerce retailers regarding intellectual property rights factors.**

The average score of male respondents towards the influence of loyalty factor the mean and standard deviation differences, the calculated t-t-value 2.856 is significant at 5 percent level because the p-value is 0.005. **This infers significant differences**

### between male and female e-commerce retailers regarding loyalty factors.

In the perceived Ease of Use (PEU) factor, mean, and standard deviations, the tested t-value of 0.057 is insignificant because the p-value is 0.811. **Hence, there is no significant difference between male and female retailers towards the Perceived Ease of Use(PEU)factor.**

Regarding perceived usefulness (PU) from a customer's point of view, mean and standard deviation differences and the calculated t-value of 0.211 are insignificant as the p-value is 0.833. **This infers no significant difference between male and female retailers regarding the Perceived Usefulness (PU)factor.**

In Perceived Quality (PQ), mean, and standard deviation values, the tested t-value of 0.127 is insignificant because the p-value is 0.899. **This infers no significant difference between male and female retailers in Perceived Quality (PQ).**

Regarding technology and infrastructure, mean and standard deviation differences, the designed t-value of 1.765 is insignificant, while the p-value is 0.078. **This concludes that there is no significant difference between male and female retailers regarding technology and infrastructure factors.**

In connection with the factor of the policy initiatives, the mean and standard deviation differences, the calculated value of 0.383, is not significant since the p-value is 0.702. **This infers a significant difference between male and female retailers towards national policy initiatives.**

Using the (INT) factor, mean, and standard deviation values, the tested t-value of 0.588 is insignificant, as the p-value is 0.557. **This concludes that there is no significant variance between male and female retailers regarding the Intention to Use (INT)factor.**

Overall, in all the twelve factors, no significant

differences were observed between male and female retailers except in loyalty factors. **Hence, the null hypothesis  $H_{0102}$  is accepted.** So, there is a significant impact of the retailer's gender on the factors influencing e-commerce adoption by the retailers. This meanstheinfluenceof12factorsonE-commerce adoption is not affected by the retailer's gender.

***$H_{0103}$ : "There is no significant impact of retailer's age on the influencing factors of e-commerce adoption by retailers."***

***A perceive score analysis of their age and the factors influencing e-commerce by retailers is shown in below Table 4.***

It is observed that from the service factors and mean differences, the calculated f-value of 3.847 is significant at a 5 percent level, as the p-value is 0.010. This infers a significant difference between the different age group retailers regarding service factors.

In the influencing factors of trust, their respectivestandarddeviationsare5.387and5.726.

With these mean differences, the calculated f- f-value of 5.705 is significant at a 1 percent level as the p-value is 0. 001. This infers significant differences among different age-group retailers regarding the influence of trust factors.

Regarding the influence of privacy and security factors, mean and standard deviations, the calculated 2.995 is significant at a 5 percent level since the p-value is 0. 031. **Hence, there is a significant difference among age-group retailers regarding privacy and security factors.**

It is observed that from the service factors and mean differences, the calculated f-value of 3.847 is significant at a 5 percent level, as the p-value is 0.010. This infers a significant difference between the different age group retailers regarding service factors.

**Table 4: Perceptive score analysis of retailer's age and the influencing factors of-commerce adoption**

Factors	Age in years	N	Mean	Std.Dev	Std.Err	f-value	p-value
Service	21-30	173	43.65	6.867	0.522	3.847*	0.010
	31-40	114	45.11	5.915	0.554		
	41-50	90	45.92	6.313	0.665		
	>50	73	46.07	5.947	0.696		
Trust (TR)	21-30	173	51.39	6.342	0.482	5.705**	0.001
	31-40	114	53.72	5.726	0.536		
	41-50	90	50.70	5.387	0.568		
	>50	73	50.95	6.148	0.720		
Privacy&Security	21-30	173	31.10	5.105	0.388	2.995*	0.031
	31-40	114	32.46	5.130	0.481		
	41-50	90	32.61	3.508	0.370		
	>50	73	32.34	4.77	0.558		
EthicalandLegal	21-30	173	11.64	2.254	0.211	0.647	0.585
	31-40	114	11.72	2.136	0.225		
	41-50	90	11.97	1.901	0.145		
	>50	73	11.84	1.972	0.231		
Intellectual property rights	21-30	173	18.96	3.335	0.390	0.549	0.649
	31-40	114	19.57	3.288	0.308		
	41-50	90	19.13	3.70	0.390		
	>50	73	19.24	3.348	0.255		
Loyalty	21-30	173	27.49	4.473	0.523	0.206	0.892
	31-40	114	27.96	3.792	0.355		
	41-50	90	27.91	4.215	0.444		
	>50	73	27.72	4.734	0.360		
Perceived Ease of Use (PEU)	21-30	173	28.03	3.433	0.261	1.996	0.114
	31-40	114	28.96	3.100	0.290		
	41-50	90	28.24	3.552	0.374		
	>50	73	28.04	3.430	0.401		
Perceived Usefulness (PU)	21-30	173	19.47	4.676	0.356	0.136	0.939
	31-40	114	19.81	4.376	0.410		
	41-50	90	19.59	4.673	0.493		
	>50	73	19.51	4.34	0.508		
perceived quality(PQ)	21-30	173	16.71	2.721	0.318	0.567	0.637
	31-40	114	16.31	3.502	0.369		
	41-50	90	16.24	3.361	0.256		
	>50	73	16.07	3.552	0.333		
Technology & Infrastructure (TI)	21-30	173	20.43	3.28	0.249	2.422	0.065
	31-40	114	20.91	3.406	0.319		
	41-50	90	20	3.471	0.366		
	>50	73	19.62	3.95	0.462		
National Policy Initiatives (NPI)	21-30	173	12.21	2.408	0.183	0.963	0.410
	31-40	114	11.96	2.524	0.236		
	41-50	90	11.70	2.737	0.289		
	>50	73	11.81	2.644	0.309		
Intention to Use (INT)	21-30	173	11.57	3.064	0.233	1.783	0.150
	31-40	114	11.57	3.445	0.363		
	41-50	90	11.54	3.177	0.298		
	>50	73	10.62	3.243	0.38		
	Total	450	36.99	5.598	0.264		

\* Significant@5%level, \*\*Significant@1%level

It is observed that from the service factors and mean differences, the calculated f-value of 3.847 is significant at a 5 percent level, as the p-value is 0.010. This infers a significant difference between the different age group retailers regarding service factors.

In the influencing factors of trust, their respective standard deviations are 5.387 and 5.726.

With these mean differences, the calculated f-value of 5.705 is significant at a 1 percent level as the p-value is 0.001. This infers significant differences among different age-group retailers regarding the influence of trust factors.

Regarding the influence of privacy and security factors, mean and standard deviations, the calculated 2.995 is significant at a 5 percent level since the p-value is 0.031. **Hence, there is a significant difference among age-group retailers regarding privacy and security factors.**

In the ethical and legal factor, mean differences, the f-value of 0.6470 is insignificant at any level as the p-value is 0.585. This shows no significant variance among age-group retailers towards ethical and legal factors.

According to the data, in the intellectual property rights, mean, and standard deviations, the f-value 0.549 is insignificant as the p-value is 0.649. This shows no significant difference among age-group retailers towards intellectual property rights factors.

In the loyalty factor, the mean differences, the designed f-value 0.206, indicate no significance because the p-value is 0.892. This infers that there is no significant variance among the different age groups of retailers in terms of influencing loyalty factors.

In Perceived Ease of Use (PEU), the mean difference of the designed f-value of 1.196 indicates insignificant as the p-value is 0.114. This infers that retailers of different age groups are similar regarding perceived ease of use (PEU) factors.

In the Perceived Usefulness (PU) of E-commerce, mean differences, the tested f-value 0.136 is insignificant since the p-value is 0.939. This infers no significant difference among age group retailers towards the Perceived Usefulness (PU) factor.

In the Perceived Quality (PQ) mean differences, the value of 0.567 is not significant at any level because **the p-value is 0.637**. So, the different age groups of retailers are similar regarding perceived quality (PQ) factors.

According to the technology and infrastructure factor data, mean, and standard deviation values, the f-value of 2.422 is insignificant since the p-value is 0.065. This shows no significant difference among age-group retailers towards technology and infrastructure factors.

Concerning the national policy initiatives' main differences, the tested f-value 0.963 indicates significance, as the p-value is 0.410. This infers that there is no significant difference among different age-group retailers toward national policy initiative factors.

Regarding Intention to Use (INT) influencing factors and mean differences, the tested f-value of 1.783 indicates no significance as the p-value is 0.150. **Hence, there is no significant difference among different age-group retailers towards intention to use (INT) factors.**

Only service, trust, privacy, and security are significant out of the twelve factors. **Hence, the null hypothesis  $H_{0103}$  is accepted. So, there is no significant impact of the retailer's age on factors influencing e-commerce adoption by retailers.** This means the influence of 12 factors on E-commerce adoption is affected by the age of the retailers.

***H<sub>0104</sub>: "There is a significant impact of retailers' education on the influencing factor of e-commerce adoption by the retailers."***



**Table 5: Perceptive score analysis of retailer education and influencing factors of E-commerce adoption**

Particulars	Education	N	Mean	Std.Dev	Std.Err	f-value	p-value
Service	U.G	86	43.60	7.572	0.897	3.290*	0.027
	Graduation	100	45.45	5.430	0.454		
	Technical	143	45.24	6.630	0.663		
	Others	121	43.85	7.472	0.806		
Trust (TR)	U.G	86	50.64	5.261	0.675	3.747*	0.013
	Graduation	100	51.05	6.502	0.652		
	Technical	143	53.19	4.653	0.473		
	Others	121	51.96	6.057	0.551		
Privacy&Security	U.G	86	31.31	5.584	0.558	7.952**	0.000
	Graduation	100	32.67	4.261	0.387		
	Technical	143	32.90	3.650	0.305		
	Others	121	30.09	5.648	0.609		
EthicalandLegal	U.G	86	11.91	2.004	0.216	0.462	0.709
	Graduation	100	11.98	1.633	0.163		
	Technical	143	11.73	2.172	0.197		
	Others	121	11.71	2.241	0.187		
Intellectual property rights	U.G	86	19.22	3.359	0.362	0.670	0.571
	Graduation	100	19.38	3.839	0.349		
	Technical	143	19.45	3.210	0.268		
	Others	121	18.86	3.137	0.314		
Loyalty	U.G	86	27.17	4.592	0.495	1.896	0.129
	Graduation	100	28.34	4.658	0.423		
	Technical	143	28.04	3.939	0.329		
	Others	121	27.25	4.272	0.427		
Perceived Ease of Use (PEU)	U.G	86	27.01	4.355	0.362	3.071*	0.036
	Graduation	100	28.12	3.282	0.328		
	Technical	143	29.72	3.121	0.285		
	Others	121	28.20	3.458	0.314		
PerceivedUsefulness(PU)	U.G	86	19.58	4.362	0.47	0.072	0.975
	Graduation	100	19.69	4.644	0.422		
	Technical	143	19.62	4.429	0.37		
	Others	121	19.41	4.755	0.475		
perceived quality (PQ)	U.G	86	15.78	4.657	0.311	2.975*	0.044
	Graduation	100	17.21	2.303	0.330		
	Technical	143	16.17	3.225	0.270		
	Others	121	16.14	3.787	0.344		
Technology&Infrastructure (TI)	U.G	86	20.33	3.515	0.320	3.199*	0.023
	Graduation	100	20.78	3.064	0.306		
	Technical	143	20.62	3.47	0.290		
	Others	121	19.35	3.769	0.406		
National Policy Initiatives (NPI)	U.G	86	11.87	2.284	0.246	0.420	0.739
	Graduation	100	12.18	2.668	0.243		
	Technical	143	11.99	2.614	0.219		
	Others	121	11.83	2.523	0.252		
Intention to Use (INT)	U.G	86	11.24	3.308	0.357	0.511	0.675
	Graduation	100	11.5	3.139	0.285		
	Technical	143	11.61	3.102	0.259		
	Others	121	11.15	3.377	0.338		
	Total	450	36.99	5.598	0.264		

\* Significant@5%level; \*\*Significant@1%level

*Table 5 shows the perceptible score analysis of*

In the service factors, their respective standard deviations are 5.430 and 7.572. The designed f-value of 3.290 is significant at a 5 percent level from these mean and standard deviations since the p-value is 0.027. Hence, there is a significant difference among different educational group retailers regarding service factors.

In trust factors, the irrespective standard deviations are 4.653 and 5.261. From the above mean differences, the tested f-value, 3.747, shows significance at a 5 percent level, while the p-value is 0.013. **This indicates a significant difference among different educated retailers toward trust factors.**

In privacy and security factors, their respective standard deviations are 3.65 and 5.648, and with their mean differences, the f-value of 7.952 is significant at 1 percent as the p-value is 0.000. This shows a significant difference among educated security factors.

Regarding the ethical and legal factors, their respective standard deviations are 1.633 and 2.241. According to their mean and standard deviation values, the value of 0.462 is not as significant as the value of 0.709. This infers that there is no significant difference among different education-qualified group retailers regarding the ethical and legal factors.

According to the intellectual property rights, their standard deviation values are 3.210 and 3.137, and the mean, the f-value 0.670, is insignificant since the p-value is 0.571. This shows no significant difference among different education-group retailers towards intellectual property rights factors.

In the rating of loyalty factors, the respective standard deviations are 4.658 and 4.592; with these mean differences, the calculated value of 1.896 is a significant p-value of 0.129. So, retailers in different educational groups are the same regarding the influence of loyalty factors.

In the perceived ease of E-commerce use factors, their respective standard deviations are 3.121 and 4.335. With these mean differences, the calculated f-

*different education-qualified retailers and the factors influencing E-commerce acceptance.*

value of 3.071 indicates significance at 5 percent since the p-value is 0.036. This infers a significant difference among educated retailers towards perceived ease of E-commerce use.

It was observed that the perceived usefulness factors were 4.644 and 4.755, respectively, as their respective standard deviations. According to these mean and standard deviation differences, the tested value of 0.072 is insignificant, and the p-value is 0.975. **Hence, there is no significant difference between retailers in different educational groups regarding perceived usefulness.**

In the perceived quality, it is observed that 2.303 and 4.657 are their respective standard deviations. According to these mean differences, the f-value of 2.975 is significant at a 5 percent level since the p-value is 0.044. **This indicates a significant difference among different education group retailers regarding perceived quality factors.**

According to the technology and infrastructure factors, the designed f-value of 3.199 shows significance at a 5 percent level as the p-value is 0.023. Hence, there is a significant difference among education-qualified retailers regarding technology and infrastructure factors.

In the national policy factors, respective standard deviations are 2.668 and 2.523, and these mean differences, the tested f-value 0.420, and indicate no significance because the p-value is 0.739. This infers that education-qualified retailers toward national policy initiative factors are the same.

In intention-to-use factors, their standard deviations are 3.102 and 3.377. With these mean differences, the tested f-value of 0.511 indicates no significance, as the p-value is 0.675. Hence, education-qualified retailers are the same regarding intention to use **factors**. Therefore, educated retailers significantly influence online transaction implementation factors such as service, trust, privacy and security, perceived ease of use, perceived quality and technology, and infra factors. Hence, the null hypothesis  $H_{0104}$  is rejected. Thus, retailer education significantly impacts the factors that influence e-commerce adoption by retailers. This means the

influence of 12 factors on E-commerce adoption is affected by the education qualification of the retailers.

## FINDINGS AND CONCLUSION

The perceptive score analysis of the sampled retailers in the selected three cities indicates that there is a significant difference found among the retailers towards service, trust, privacy, ethical and legal, intellectual property rights, loyalty factors, perceived ease of use, technology and infrastructure, national policy initiatives and intention to use factors. Perceptive score analysis in male and female retailers' describes no important disparity found towards all factors except loyalty, where male respondents found more positive than their counterparts. Thus, null hypothesis H01 02 is accepted.

Perceptive score analysis among various age group retailers indicates a significant difference in only service, trust, and privacy & security factors. For the age group above 50 years, retailers found more positive service factors as the older age group is very particular in price, product range, and delivery time. 31–40-year age group is found to be more positive in the trust factor, while 41-50-year age group retailers are more positive towards privacy & security factors than younger age groups. Though the 21-30 age group retailer percentages are high, they have given relatively less importance to influencing factors of e-commerce adoption since their understanding and acceptance level is high as they are aware of the present technology and business trends.

The perceptive score analysis among various education qualification group retailers indicates a significant difference in service, trust, privacy & security, perceived ease of use, perceived quality, and technology & infrastructure factors. Graduate group retailers found more positive towards service, 219 perceived quality, and technology & infrastructure factors as they are educated and interested in online business. However, technical education group retailers are more positive towards trust, privacy & security, and perceived ease of use since they are aware of technology usage in the last few years.

It is concluded that the study's outcome states that there is a significant impact on adopting e-commerce between factors influence and social demographic factors of the retailers.

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