Journal of Information & Optimization Sciences
ISSN 0252-2667 (Print), ISSN 2169-0103 (Online)
Vol. 44 (2023), No. 8, pp. 1613–1625
DOI : 10.47974/JIOS-1480

Analysing consumer online purchase intention in domestic appliance sector : A technology acceptance model approach - An empirical study

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Abstract

In today's digital era, consumers are increasingly inclined towards purchasing goods online, recognizing the convenience and benefits it offers. However, when it comes to buying domestic appliances online, there still exist concerns related to risk and trust. This study aimed to assess factors influencing consumers' on-line purchase intention in the domestic appliance sector by employing an extended Technology Acceptance Model (TAM). Primary data was gathered from 212 respondents who have prior experience with online purchases. Exploratory factor analysis using SPSS 25 and regression analysis using Structural Equation Modelling (SEM) were employed to identify key determinants to establish relationships with consumers purchase intention. The factor analysis revealed four significant factors: trust (22.12%), risk (18.04%), perceived ease (16.08%), and perceived usefulness (14.23%), together

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accounting for 70.47% of the variance. Path analysis using SEM further demonstrated that trust ($\beta = 0.51$, $p = 0.00$) and risk ($\beta = 0.35$, $p = 0.00$) significantly influence consumers' online purchase intention. By understanding these determinants, practitioners and online sellers of goods can unlock the full potential of online shopping in the domestic appliance sector.

Subject Classification: *30B40.*

Keywords: *Online shopping, Trust, Risk, Technology acceptance model.*

1. Introduction

Over the past decade, consumer purchasing patterns in India have undergone a significant transformation. Indian consumers are increasingly shifting from traditional retail shopping to modern digital buying. This shift can be attributed to several key factors, including access to detailed product information, perceived ease and convenience, comfortable shopping experiences, recognition of the usefulness of online shopping, time-saving benefits, and can easily compare prices (Chaturvedi et. al., 2016; George et. al., 2015; Bilgihan, 2016; Tsiakis, 2012; Aziz and Wahid, 2018).

The exponential rise in smartphone and internet penetration in India has been a major driver of the e-commerce sector's meteoric rise in the country. The 'Digital India' program and other similar initiatives propelled India's internet connection count to an unprecedented 830 million in 2021 (IBEF, 2021). Notably, 97% of these connections were wireless, and almost 55% of them were in metropolitan areas (IBEF, 2021).

The online retail market in India is experiencing remarkable expansion, with a 23% increase in 2020 alone. In terms of cross-border growth, the Indian e-commerce sector ranks 9th globally and is projected to contribute 8% to the total retail trade of food and groceries, apparel, and consumer electronics by 2025 (IBEF, 2021). Notable achievements include the GeM portal, which facilitated 12.28 million orders worth Rs. 334,933 crores (US$ 40.97 billion) as of November 2022, with 5.44 million registered sellers catering to 62,247 buyer organizations (IBEF, 2021). Global companies like Facebook and Google have poured resources into India's booming e-commerce sector, with Facebook investing in telecom giant Reliance Jio and Google pouring $4.5 billion into Jio Platforms. The Ambani Group's online storefront has become even larger after Reliance Retail bought the Future Group.

Discounts and promotions are being offered by Indian online shops to meet demand. Amazon, Snapdeal, Flipkart, and Myntra attract many people with their discounts and special deals. MakeMyTrip, Snapdeal, and Jabong provide tempting promotions to attract customers.

Although internet buying offers many benefits, many buyers still view it as precarious and lacking in reliability. Studies have shown a significant correlation between trust and loyalty, with buyers frequently placing greater faith in brands rather than the shops that offer those items (Bilgihan, 2016; Chaturvedi et. al., 2016). Online purchasing lacks face-to-face connection, resulting in a non-socialized setting that poses difficulties for purchasers in establishing trust and confidence (George et. al., 2015). Building confidence in e-commerce vendor is essential for turning prospective clients into paying customers. Nevertheless, the extensive assortment of items and services accessible on the internet also brings up perceived hazards linked to digital purchasing, including shopping through mobile applications, catalog or e-mail order (Aziz and Wahid, 2018). Hence, it is vital to comprehend the pivotal elements that impact customers' inclination to procure items through online channels and offer guidance to e-commerce vendors on how to effectively handle these drivers.

2. Literature Review

Online shopping encompasses the direct purchase of goods from sellers without the need for intermediaries, utilizing the internet as a platform. It involves purchasing and selling of products through digital channels. The online shopping enables customers to explore range of options to compare deals offered by various intermediaries, empowering them to select the most favourable deals available (Sivanesan, 2017).

According to Davis (1989), online purchase intention is the willingness and intention of consumers to engage in online transactions. The Technology Acceptance Model (TAM) is instrumental in explaining online purchase intentions (Davis, 1989; Pavlou, 2003). The present study extended TAM model by including trust and risk as additional factors to analyse consumer purchase intention (Davis, 1989; Pavlou, 2003). PEU and PEOU continue to be important predictors in the TAM framework (Davis, 1989; Pavlou, 2003).

2.1 *Perceived Usefulness*

According to the TAM model by (Davis, 1989), perceived usefulness is a critical element influencing consumer technology uptake. Positive judgements of usefulness, such as convenience, time savings, a diverse product offering, competitive pricing, and thorough information (Davis, 1989; Pavlou, 2003), are connected with increased adoption rates and willingness to make online purchases. However, it is crucial to keep in mind that customers may have unfavourable opinions of usefulness. Concerns regarding personalised help, product quality assurance, and the inability to physically check things (Davis, 1989; Pavlou, 2003) may reduce the perceived utility of online shopping and, as a result, consumers' desire to make online purchases. Therefore, based on the existing literature, it is reasonable to test the following hypothesis:

H1: Perceived usefulness does not have significant effect on consumers online purchase intention

2.2 *Perceived Ease of Use*

According to Liao et al., (2013) and Davis (1989), perceived ease of use (PEOU) refers to how much a person or customer thinks adopting technology would reduce their effort in making purchases and boost their efficiency. The adoption of new technology is influenced significantly by simplicity of use (Hong et al,2008; Shin et al, 2009; Venkatesh, 2000). Yet another research by Kin & Song (2010) examined the need for technology to make it simple and convenient to browse a seller's website and do product searches. The chance of adoption and the desire to make online purchases are both increased when customers see technology as being simple to use and perceive fewer impediments to doing so (Davis, 1989; Pavlou, 2003). Customer satisfaction and repeat business may also be increased by a user-friendly interface and smooth transaction procedure (Pavlou, 2003).However, apparent simplicity of use may sometimes have undesirable consequences. Customers may see the platform as untrustworthy or insufficient for their needs if the online purchasing procedure is viewed as being too basic or missing in essential features and functions (Davis, 1989). Researchers disagree on the subject of technological usability. Hence, the hypothesis must thus be verified.

H2: Perceived ease of use does not have significant effect on consumers online purchase intention

2.3 *Trust*

Trust is an important component in the context of online purchasing items since it is based on trusting on the integrity of promises made by the other party in a commercial relationship (Kolsaker & Payne, 2002). Trust is an important component that influences customers' online buying intentions. When customers trust an online shop, they believe it to be dependable, secure, and dedicated to keeping its promises. Trust allows consumers to feel comfortable sharing personal information, conducting purchases, and depending on the delivery and customer service of an online company (Chen et. al., 2002; Jarvenpaa et. al., 2000). Positive trust impressions can boost customer confidence, loyalty, and willingness to make online transactions. On the other side, customers' intentions to make online purchases might be severely hampered by unfavourable impressions of trust. Customers' faith in the platform may be jeopardised if they have worries about the authority and dependability of the online shop, such as doubts about the quality of the products, privacy violations, or potential fraud (Chen et. al., 2002; Jarvenpaa et. al., 2000). Negative trust views might cause decreased trust, scepticism, and hesitation to make purchases online. Hence, there is need to test the hypothesis-

H3: Trust do not have significant effect on consumers online purchase intention

2.4 *Risk*

Risk is defined as a consumer's subjective impression of the likelihood of experiencing unanticipated outcomes (Dowling and Staelin,1994). Perceived risk, as used in this study, relates to the uncertainty connected to possible unfavourable results while utilising e-commerce to purchase household equipment. Given the unpredictability in the technology-driven economy, trust and risk are key explanations for the adoption of e-commerce (Lee & Turban, 2001; Pavlou, 2003). Previous research (Featherman, 2001; Pavlou, 2001) has demonstrated that perceived risk has a detrimental effect on confidence in a particular website. Consumers' perceptions of risk influence their decision to make an online purchase as well. According to Jarvenpaa et al., (2000), attitude and risk perception have a big impact on how customers feel about an online business. However, Brown et al., (2007) highlighted that although perceived danger is regarded as a significant barrier to the use of e-commerce, it does not always prevent people from making domestic product purchases online. On the other hand, Wu and Wang (2005) found that possible hazards related to online transactions had an impact on customers' propensity to purchase. Accordingly, it is hypothesised that risk perceived has a negative effect on customers' desire to purchase online.

H4: Risk do not have significant effect on consumers online purchase intention.

The above discussion has led to develop a shown in Figure 1 for testing hypothesis-

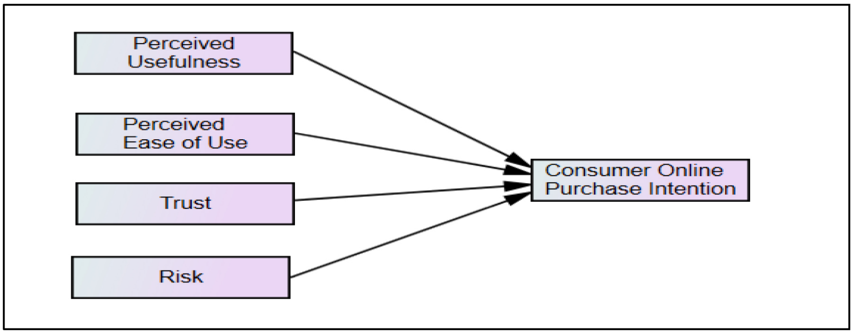


Figure 1

Conceptual Framework of the study

Hypothesis:

3. Research Methodology

This study investigated the usual problems customers face while buying online and the main reasons they prefer it. The research was descriptive. Descriptive research studies describe a person or group. This study analyses the internet shoppers. Most respondents were graduates or postgrads. The sample size was 212 and the population size was undetermined. Of 250 questionnaires sent to varied internet users, 38 received partial responses and were excluded from the study. Convenient sampling method was adopted to choose respondents. The primary data came from questionnaires. The questionnaire contains two sections: introduction questions regarding users' socioeconomic background, internet usage habits, time spent online, and recent purchases. The major questions are in the second part. The study utilized Likert scale to collect data and to examine the factors that limit client purchase intention. The questionnaire consists of a total of 20 items. The data was meticulously documented on the Excel spreadsheet at the time of collection. Descriptive analysis was done to analyse the socio-demographic characteristics of respondents and later SPSS was used to analyse factors. Further, regression analysis with SEM was utilised to discover the significant factor to validate it.

4. Data Analysis

4.1 *Demographic profile*

The present research utilized a questionnaire method to collect primary data from respondents residing in the Delhi-NCR region. Out of the total 250 respondents approached, 212 actively participated in the survey, providing valuable insights. The collected data was then subjected to analysis using SPSS-25 Version, which enabled accurate interpretation and inference. A descriptive analysis was conducted to gain insights into the demographics and general characteristics of the respondents, as well as their internet usage patterns, frequency of online purchases, and experience with purchasing domestic goods online. The findings revealed that 69% were male, while the remaining 31% were female. For age, the majority of respondents (41%) fell into the 35-45 years age group, followed by 37% in the 25-35 years age group.

Interestingly, all 212 respondents had previous experience using the internet for shopping purposes, indicating their familiarity with online purchasing. Moreover, a significant proportion (78%) of the respondents had been using the internet for more than five years. However, it was observed that respondents above the age of 45 had relatively more recent experience with online shopping, specifically within the last 2-3 years, which could be attributed to Covid-19 pandemic. When considering the respondents' income levels, the analysis revealed that 61.25% of the participants reported an annual income of less than 10 lakhs, while the remaining 38.75% reported an income exceeding 10 lakhs per annum. This distribution provides insight into the economic background of the respondents, which may influence their purchasing behavior and decision-making processes. Furthermore, the analysis showed that a majority of the respondents identified Amazon and Flipkart as their primary platforms for purchasing domestic goods. This indicates the popularity and preference for these e-commerce platforms among the surveyed individuals. Overall, the descriptive analysis of the collected data provided valuable insights into the demographics, internet usage patterns, and preferences of the respondents. These findings lay the foundation for further analysis and interpretation of the research data, allowing for a comprehensive understanding.

4.2 *Exploratory & Confirmatory Factor analysis- Hypothesis Testing*

As can be seen in Table 1, a factor analysis was carried out in order to investigate the variables that prevent customers from utilizing websites that offer e-commerce services. To determining the characteristics that influence consumers purchase of home appliances online, a total of fourteen articles were utilized. It was determined that KMO measure was 0.863 (which is more than 0.60), which indicates that the values are sufficient for factor analysis. There is a correlation between the significance of the study and the Bartlett's test of sphericity, and the significant value is seen to be 0.000 (<0.05). Two of the items were eliminated from the research because they had a lower factor loading (<0.6). In addition, the Cronbach's reliability was performed and Table 1 displays the result.

Table 1

Factor Analysis

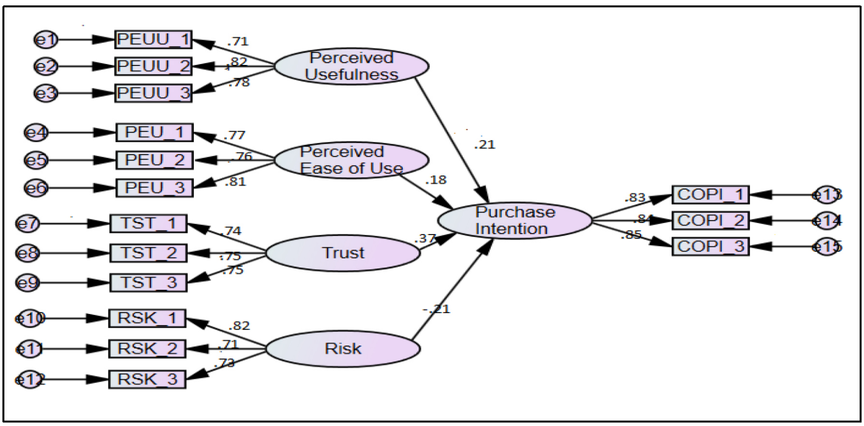
Factors	Statement	Source	% of Variance	Factor Loading	CR	AVE
Trust	Consumer is confident to purchase online	Chen et al (2002) Jarvenpaa et al (2000)	22.12	0.74	0.787	0.55
	Consumers feel secure to make online purchase			0.74		
	No privacy violations			0.75		
Risk	Unanticipated outcomes	Featherman (2001); Pavlou, (2001); Brown et al., (2007	18.04	0.81	0.798	0.56
	unfavourable results			0.72		
	Uncertain Perceptions			0.73		
Perceived Ease of Use	Reduced Effort in Making Purchase	Shin et al (2009); Venkatesh (2000); Hong et al (2008)	16.08	0.76	0.82	0.6
	Easy to Navigate, Search			0.76		
	Simple to Use			0.81		

Contd...

Perceived Usefulness	Convenience and easy to buy	Davis (1989); Pavlou (2003)	14.23	0.71	0.847	0.65
	Time saving			0.81		
	Thorough Information			0.89		

Source: Author's Analysis

To test the hypothesis and to derive the direct effect of factors on online purchase intention of consumers, CFA was performed. The result of CFA confirmed 4 factors which affect consumer online purchase intention with Cmin/df = 2.63, CFI= 0.942, RMSEA < 0.05, TLI = 0.933. Overall, the result fit the scale and was reliable and valid. Further, the direct effect of factors on online purchase intention was assessed. Figure 2 and Table 2 shows the effect and the result of hypothesis.



Source: Author's Analysis

Figure 2

Direct effect of factors and consumers online purchase intentions

4.3 *Hypothesis Testing*

The SEM analysis was conducted to examine the direct effects of the identified factors, and the beta results for the hypotheses are as follows:

The analysis revealed that perceived ease of use (both PEU and PEOU) had shown non-significant effect on consumer online purchase intention, as the ($p > 0.05$), showing acceptance of H1 and H2. However, trust (H3) and risk (H4) had shown significant impact on purchase intention, ($p< 0.05$), leading to the rejection of both hypotheses.

Table 2

Results and Explanation of Hypothesis

Hypotheses	Path Analysis	S.R.W	p-value	Results
H1	PEU----->COPI	0.21	p>0.05	Accepted
H2	PEOU----->COPI	0.18	p>0.05	Accepted
H3	TRUST----->COPI	0.37	***	Rejected
H4	RISK----->COPI	-0.21	***	Rejected

Source: Authors Analysis

With this increased familiarity, consumers may have developed a higher level of technological competence and self-efficacy, making the perceived ease of use of online platforms less influential in their decision-making process. Consumers may feel more confident in their ability to navigate and use online platforms, regardless of the perceived ease of use and hence hypothsis1 is accepted and states that perceived usefulness don't have any impact on consumer online purchase intention.

Similarly, the beta coefficient for perceived ease of use is +0.18. However, the p-value is larger than 0.05, indicating that there is no statistically significant impact of technology's perceived ease of use on consumers' online purchase intention, based on the available data. Our hypothesis H2, which states that the perceived ease of use does not significantly impact customers' online purchase intention, has been accepted in this situation.

For Hypothesis H3, the beta value of trust is 0.37 and the associated p-value is significant, it suggests that trust is positively related to consumer online purchase intention. This means that as trust increases, consumer online purchase intention is also likely to increase. The β value represents the strength and direction of the relation between trust and consumer online purchase intention. In this case, the positive beta value of 0.37 indicates that there is positive association between trust intention. As customers' trust in an online platform or vendor grows, they become more likely to make purchases online.

For Hypothesis H4 , The study revealed that risk has a detrimental effect on consumer online purchase intention. This conclusion is supported by the beta value of -0.21 and the significant p-value (<0.05), indicating a negative relationship between risk and consumer online purchase intention. As the level of perceived risk rises, the likelihood of consumers intending to make online purchases decreases. The beta value of -0.21

suggests a negative correlation between risk and consumer online purchasing intention. Consequently, when customers perceive greater degrees of danger in the online purchasing setting, their willingness to make online transactions decreases.

5. Conclusion

Overall, the research findings highlight the significance of risk & trust in shaping consumer purchase intention within the domestic appliance sector. The results proved that perceived ease of use may not hold a substantial influence on consumers' decision-making process. Instead, businesses operating in this sector should prioritize trust. Transparent practices, providing reliable product information, and ensuring secure transaction processes is within reach to gain trust. By instilling confidence in consumers, businesses can effectively enhance their online purchase intention and drive sales.

Additionally, efforts should be directed towards minimizing perceived risks associated with online shopping. Privacy concerns, security issues, and doubts about product quality can hinder consumers' willingness to make online purchases. To address these concerns, implementing trust symbols, secure payment gateways, and clear return policies can help alleviate apprehensions and bolster consumers' online purchase intention.

Furthermore, managers should consider the influence of consumers' familiarity with technology. Due to increased technological competence among consumers, the perceived technology do not have significance but managers should focus on other factors, particularly trust and risk, to effectively enhance consumers' online purchase intention.

This research must be acknowledged for its limitations. The study was confined to Delhi-NCR, which may limit its applicability to other regions or demographics. Self-reported data may be biased and inaccurate. The research focused on home appliances, thus the results may not apply to other product categories. Lastly, the cross-sectional nature of the study precludes establishing causality between the variables. Future research should consider these limitations and explore additional factors that may impact consumer online purchase intention in diverse contexts and industries.

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