An Investigation of Socio-demographic Factors Influencing the Adoption of e-commerce: Perspective of Residents within Lagos State Metropolis

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Abstract

This study investigated socio-demographic factors influencing the adoption of electronic commerce (abbreviated as e-commerce). The study used descriptive research design, using quantitative technique. A total of 421 respondents were selected through purposive and convenience sampling techniques. Self-completed questionnaire was used to elicit responses from the respondents' who are residents within Lagos state metropolis. Data collected were analyzed using descriptive statistics and Generalized Linear Model. Results of the analysis revealed that all the four socio-demographic factors, namely: gender, age, level of education, and income significantly predicted adoption of electronic commerce. Specifically, gender (β= .110, X^2=4.741, p= .029), age (β= .152, X^2=39.969, p= .000), educational qualification (β= .374, X^2=50.738, p= .000), and income (β= .110, X^2=31.098, p= .000). The study concluded that consumer socio-demographic factors can promote or hinders adoption of online shopping and symbolizes important trend concerning consumer behaviour. Findings of the study offer analytical approach for assessing how consumer socio-demographics influence adoption of electronic commerce. The study contributed to the literature and business practice by incorporating a vital aspect of consumer (socio-demographic) towards online shopping. The study recommends that online vendors should repeatedly update their knowledge and understanding of basic consumer socio-demographic characteristics so as to strengthen consumer adoption of online shopping.

Keywords: e-commerce, behavioral intention, competitiveness, age, gender, marital status, level of education, income

1.0 Introduction

The Internet is no doubt one of the most influential agents of change in contemporary history. Since its launch, its diffusion has been very fast not only in term of its geographical scope but the level of possibilities and new services that it offers. One of such notable possibilities is the electronic commerce, abbreviated as e-commerce. The growing pace of digitalization, considerable growth of Internet penetration, and lately, the restrictions occasioned by COVID-19 has fast-tracked the growth of e-commerce. According to Abu (2021), the capability to conduct business transactions through computer and mobile mediated networks has existed since 1960s, nevertheless the emergence of online retail outlets such as Amazon and eBay has massively distorted the way contemporary businesses operate and how people acquire products. Consequently, the use of Internet has extend beyond channel through which people socialize to a platform though which commercial deals are made electronically. E-commerce is a form of technological aided channel that facilitate commercial transaction and can be defined as the use of electronic channel to buy and sell goods or service (Kalakota & Whinston, 1997). The growth of the e-commerce has made the buying and

selling of goods and services online a universal practice unhindered by geographical distance (Coppola, 2020; Dwivedi, Ismagilova, Hughes, Carlson, Filieri, & Jacobson et al., 2021). According to Statista (2020), the aggregate number of digital buyers is growing considerably and upsurge to 2.14 billion people worldwide as at 2021.

Academics and industry practitioners are increasingly interested in studying consumer behaviour, particularly diffusion and adoption of e-commerce. Consumer behavioural intention may be contemplated as the level of predisposition to use technology based medium to transact business (Davies, Richard, Bagozzi, & Warshaw, 1989). According to Vakatesh, Morris, Davis, and Davis (2003), behavioural intention refers to the propensity to adopt technological tools such as telephone and mobile apps among others to do business transactions. Scholars have investigated factors that propel consumers to adopt innovative technology in the context of electronic commerce and other online devices. Wang and Zhang (2012) contend that user's cultural orientation is very vital to the adoption of e-commerce. Sulki, Jaekyoung, and Hae, (2019) state that factors such individual discernments, awareness, psychological and environmental influences are very vital. Roger (2003) advocates the influence of customer experience and satisfaction as a critical issues that influence e-commerce adoption. Ngubelanga and Duffett (2021) report that confidence level, social influence, degree of mobility, level of involvement, depth of innovation, ease of use and perceived usefulness influence adoption of electronic commerce. Scholar such as Venkatesh et al. (2003) state that social impact is the main issue in adopting mobile devices to transact businesses. According to Subawa and Mimaki (2019), facilitating circumstances such as level of familiarity is very fundamental to e-commerce adoption.

Aside from dissimilarities regarding the adoption of e-commerce on the basis of geographical area and level of infrastructural development, there are also dissimilarities based on socio-demographic factors (such as gender, age cluster, level of education, and income among others) of individual's using the platform. Because of some degree of differences in the personalities of people and demographic factors, individual react differently towards adoption of online shopping. Therefore, socio-demographic factors such as gender, age, level of educational attainment, and income have been documented to influence adoption of e-commerce (Kleijnen, Ruyter, & Wetzels, 2007; Hwang, 2010; Nasri, 2011; Hind & Emad, 2015; Mohammad, Aminul, Byushra, Nahida, & Sujan, 2018). Nonetheless, there are equally conflicting empirical evidence that refutes the linkage between socio-demographic factors and e-commerce adoption (Sathye, 1999; Goldsmith, & Flynn, 2005; Padachi, Rojid, & Seetanah, 2008).

The advent of e-commerce is a welcome development in both developed and developing nations. Nonetheless, the prospects in terms of its development and adoption are yet to be fully accomplish in most developing nations, because of substantial dissimilarities in the perception and adoption of online shopping (Yang, Mamun, Mohiuddin, Nawi, & Zainol, 2021). No doubt, electronic commerce will remain a critical medium for transacting businesses; nevertheless, concerns regarding privacy and trust remain an impending hindrances to its adoption. According to Sohaib, Tengyue, Yu, Sayed, and Shah, (2022), bulk of empirical research on e-commerce adoption lay emphasis on firms' adoption of e-commerce and elaborate its adoption in Business to Business-B2B, Business to Consumer-B2C, and Consumer to Business-C2B and disregard the end-users that are vital part of successful e-commerce model. Besides, the complications connected to the notion of e-commerce has not been sufficiently explored in the literature (D'Adamo, Gonzalez-Sanchez, Medina-Salgado, & Settembre-Blundo, 2021). For instance, due to relatively low purchasing power and rationalized payment systems in developing nations, e-commerce is often twisted

towards information search and content provision instead of avenue for product consumption (Pratim, 2011). According to Straub, Keil, and Brenner (1997), very little is known about the circumstances and exigencies surrounding e-commerce adoption in developing nations. Sohaib et al. (2022) further allude that sustainable growth of e-commerce in developing nations is expose to huge challenges such as infrastructural deficit, literacy level and security concerns to mention a few. Huge numbers of research enquiry on e-commerce adoption largely focus on users and businesses in developed nations, and very scanty research attention on developing or least developed countries (Richard, Robert, Richard, & Alemayehu, 2008, Robert, 2009; Angel, Rafael, & Teodosio, 2019, Omega, & Akaba, 2020). No doubt, the developed nations are mostly hyper digitalized, while developing countries are lagging behind and struggling to transform data into immense digital value (World Bank, 2020). Thus, absence of satisfactory infrastructural, improve socioeconomic status, absence viable national policies on e-commerce, as well as relatively little research attention; hindrances to e-commerce adoption and usage in developing nations will persist (Kathryn, 2011).

According to Mohammad and Greg (2011), a review of e-commerce literature submits that demographic characteristics (such as age, gender, marital status, level of educational attainment, and income) are among significant issues related to online shopping. According to Omega and Akaba (2020), the use of demographics factors by academics in online shopping related research enquiry is common, nevertheless, they are usually constructed as either moderators or control variables; with very little effort to implicitly model the predictive usefulness of demographic characteristics **(**Omega, & Akaba, 2020). Consequently, the illustrative and predictive power of socio-demographic factors is still not well understood or appreciated (Mohammad, & Greg, 2011). Research conducted by Zhou, Dai, and Zhang (2007) and Martinez and Williams (2010) corroborate the above position, stating that most of the existing scholarly work are largely fragmented, focusing on e-commerce users and their location. No doubt, the aforementioned focus merit research attention and acknowledgement, but neglects efforts towards resolving puzzle surrounding the linkage between socio-demographic factors and e-commerce adoption. Given the lacuna in academic literature and dynamic changes in consumer behaviour, it is important for scholars and business practitioners to investigate the subject matter. On the basis of the aforementioned research background, this study seeks to investigate socio-demographic factors influencing the adoption of e-commerce. The overarching research question is: how do socio-demographic characteristics (such as gender, age, level of education, and income) influence the adoption of electronic commerce.

2.0 Literature and Theoretical Review

2.1 Conceptual Review

E-commerce

Depiction of e-commerce comprises the act of purchasing and selling goods or service through the Internet (Chong, 2008). According to Rainer and Cegielski (2011), e-commerce refers to the process of transferring or exchanging objects of value which may goods or services via computer and mobile networks. Eurostat (2018) defines e-commerce as the process of placing orders for goods or services through the Internet enabled platforms, but excluding orders via manually typed text messages or e-mails. Electronic commerce is the application of information technology to sell and purchase goods or service (Hariguna, Yusup, & Priyadi, 2019). E-commerce comprises multiplicities of activities carried out in connection to exchange of information and data or value-based exchanges (Zwass, 1996). According to Turban, McLean and Weatherbe (2004), e-commerce refers to the electronic procedure through which individuals or businesses

make a transaction (buying, selling, transfer, or exchange goods or services) through electronic medium. The phase of e-commerce development has been categorized into three phases' readiness, intensity, and impact (United Nations Conference on Trade and Development- UNCTAD, 2001). Readiness highlights the willingness of people, enterprises, state of infrastructure, and the general level of preparedness for e-commerce. Intensity refers to the depth with which Information and Communication Technology- ICT is adopted and utilized within a nation. Impact describes the attendant benefits or otherwise of e-commerce on national economy and business activities.

Socio-demographic Factors

According to Stan (2008), demography refers to the study of a population either in its static features (consisting of gender, age, marital status, and economic status etcetera and dynamic characteristics (comprising fertility, mortality and migration growth etc.). In other words, demographics refer to cluster of a given population which embrace an extensive number of components such as: age, income, level of educational attainment and gender among others. The notion of socio-demographic characteristics is one of the most enduring themes in profiling or measuring degree of dissimilarities and the degree to which numerous demographically defined groups differ on the basis of important human attributes (Lewis, Dennis, Peter, & John 1998). Socio-demographic variables are mostly used as a control variable in research (Spector & Brannick, 2011). In other words, they are not of primary interest to the study's overarching objectives, but controlled because of the effect they could exert on the outcomes (Bernhard & Arpit, 2018).

Gender and e-commerce Adoption

Gender (in term of male of female) is one of the major factors that moderate the relationship between technology and the predisposition to use e-commerce (Venkatesh & Morris, 2000). For that reason, researchers have documented that gender can differentiate numerous aspects of computer applications comprising e-commerce adoption (Hernandez, Jimenez, & Jose 2011), degree of perceived risk (Garbarino & Strahilevitz, 2004), and types of product acquired through e-commerce (Sharma, Chen, & Luk, 2012). While women focus on making relationship, men focus on proclaiming individuality and self-respect through online interface (Hwang, 2010). Based on the aforementioned, e-commerce scholars proposed that gender can have a strong influence on online purchase and that men and women have entirely different ways of collaboration and diverse stimuli that propel their adoption of e-commerce (Hwang, 2010). On the basis of the above, hypothesis one is stated as:

Hypothesis 1: There is no significant relationship between gender and adoption of e-commerce.

Age and e-commerce Adoption

Chang, Cheung, and Vincent (2005) posit that age is among the most extensively used demographics in the online shopping related literature. Al-Jabri and Al-Khaldi (1997) also state that age dissimilarities continue to be one of the greatest issues in work related attitudes as well as people behaviour. Age dissimilarities regarding the adoption of e-commerce have been recognized, suggesting that people's desires and inclinations follow a life-cycle pattern regulated by age differences. According to Venkatesh and Morris (2000), there are significant differences with respect to age regarding the adoption of technology. On the basis of the aforementioned, hypothesis two is deduced as:

Hypothesis 2: There is no significant relationship between age and adoption of e-commerce.

Level of educational and e-commerce Adoption

The level of educational attainment is a vital issue that impact people behaviour and attitudes regarding technology adoption (Baker, Al-Gahtani, & Hubona, 2007). Common beliefs hold that the level of educational qualification is a vital issue that shapes a person's value systems, cognitive inclinations, learning competences, abilities, and level of innovativeness (Becker, 1970). Thus, people with requisite educational attainment are more predisposed to adopt e-commerce because of familiarity, exposure and tendency to take risks (Dai & Palvia, 2008). Therefore, one's level of educational qualification can predict if they will be proactive or reactive towards adoption of cutting- edge technological applications (Awa, Baridam, & Nwibere, 2015). Based on the aforementioned, hypothesis three is stated as:

Hypothesis 3: There is no significant relationship between educational qualification and adoption of e-commerce.

Income and e-commerce Adoption

Over two decades ago, Rogers (2003) proves that demographic characteristics play a major role in predicting adoption and that economic status (particularly income) is highly connected to the adoption of e-commerce. Dickson, (2000) suggests that income is remarkably valuable in explaining the use of Internet services. For example, the adoption of Internet services encompasses numerous costs, both in terms of financial resources and capabilities required for the use of new technologies. Susskind (2004) alludes two major reasons for the above situation. Firstly, well-to-do people are more convenience-oriented, relatively risk tolerant, and less brand and price mindful, all of which are connected to e-commerce adoption. Secondly, most goods sold over the Internet are consider as "normal goods", for which the level of demand upsurges as disposable income increases. On the basis on the aforementioned, hypothesis four is deduced as:

Hypothesis 4: There is no significant relationship between income and adoption of e-commerce.

2.2 Theoretical Review

Technology Adoption Theories

Scholars have proposed a number of theories to elucidate users' acceptance of new technologies and what propel their intention. As a result, how and why individuals adopt technological innovations has inspired a great deal of research interest through the lenses of a number of theories such as the Diffusion Theory of Innovation, the Technology Acceptance Theory, the Theory of Reasonable Action, and the Theory of Planned Behavior to mention a few. Most prominent among the theories of technology adoption are the Roger Diffusion of Innovation Theory and the Technology Acceptance Theory. Roger explains the procedure through which an innovation is communicated usually through certain passages among the members of a social system (Rogers, 1995). According to author, the innovation and adoption occurred after going through numerous phases comprising understanding, persuading, choice decision, execution, and confirmation, leading to the development of Rogers (1995) S-shaped adoption description of innovators, early adopters, early majority, late majority and laggards. The Technology Acceptance Theory on the other hand was promoted by Davis in 1986. The Technology Acceptance Theory is explicitly designed for the purpose of modeling users' acceptance of information systems or new technologies. Davis (1989) developed the theory to describe the general factors that underpin computer acceptance and users' behavior. The theory consist of two specific attributes, namely: Perceived Usefulness (PU) and Perceived Ease of Use (PEU). Perceived Usefulness is viewed as the potential user's idiosyncratic probability that the use of a technology will enhance his/her action and Perceived Ease of Use, on the other hand defines the level to which the

users' envisages the target information system or technology to be effortless in term of usage and compression (Davis, 1989). According to Evans (2017), an assessment of most of the technology adoption theories propose that technology adoption is a multifaceted, characteristically social, represent developmental procedure; individuals concept that is distinctive, but yet flexible perceptions that essentially influence adoption tendencies and decisions. Therefore, to effectively simplify technology adoption, there is need to address emotional, cognitive, and contextual concerns of the users (Evans, 2017).

Protection Motivation Theory - PMT

The protection motivation theory was proposed to evaluate users' level of risk management behaviour, consisting of threat and coping mechanisms (Rather, 2021). The threat evaluations measure the scale and likelihood of risk, while coping mechanism evaluate the defensive capability of the system and users' (Youn, Lee, & Ha-Brookshire, 2021; Rather, 2021). PMT is a relevant and appropriate theory developed to evaluate fear occasioned by pandemic such as COVID-19 and the associated defensive motives of sellers that impact e-commerce adoption. PMT has been adopted in online marketplaces for evaluating privacy and system susceptibilities (Vance, Siponen, & Pahnila, 2012, Chen, Beaudoin, & Hong, 2017, Mousavi, Chen, Kim, & Chen, 2020). As expressed by Teoflus, Sutrisno, Hongdiyanto, and Wananda (2020), usage of online medium for transacting businesses has multiplicity of technical and economic benefits that encourage and assist users to fulfil current demand and remain competitive. Thus, anxiety or level of tension regulate individual defensive behaviour. However, this desired behaviour will decrease fear while engaging in adaptive reactions (Boss, Galleta, Lowry, Moody, & Polak, 2015). According to Xiao, Li, Chen, Gao, Yan, and Okafor (2014), users show high protective tendencies when confronted with uncertainties and complications that influence their behavioural disposition. Yoo, Lee, Yoo, and Xiao, (2021) highlight users' protective motives towards malicious technologies by generating emotion-focused motives and avoiding malicious contents. Similarly, various studies revealed the positive influence of PMT variables on online platform adoption (Boss et al., 2015; Zhang, Liu, Wang, Zhang, & Wang, 2019, Rahi, Khan, & Alghizzawi, 2021). These engagements display the protective drives of sellers or companies during the crisis that impact their adoption of e-commerce (Johnston & Warkentin, 2010).

2.3 Empirical Review

While abundant empirical literature exists on the consumers' adoption of e-commerce. Research enquiry on the relationship between consumer socio-demographic characteristics and adoption of e-commerce is scanty. Study carried out by Bae and Lee (2011) report that women more than men demonstrate concern revealing their personal information, and therefore, are more cautious adopting online transaction. Stafford, Turan, and Raisinghani (2004) allude that men and women across ethnic's cultures and nationalities have diverse predisposition regarding the adoption of e-commerce. According to Venkatesh and Morris (2000), the decisions to use technology to consummate business transactions by men are mostly determined by the level of perceived utility, in contrast, women are more predisposed by their views about a system's ease of use and social impacts. Chen and Wellman (2004) report that men are more eager than women to use the Internet and the level of adoption was higher for younger people (Gen-Z) who understand English and live in urban areas. Study carried out by MacGregor and Vrazalic (2006) state that women were more concerned about e-commerce being inapt for their businesses, while males voiced more concern about the trouble of using e-commerce. Male individuals were considered to be less risk-averse compare to females and therefore, adopt and use technology more frequently (Faja & Trimi, 2008). Research conducted by Li and

Lai (2011) maintain that gender exert significant impact on the intention to use Internet and women were considered to have more favourable positive attitude (in term of usefulness and ease of use) than males.

Outcome of research carried out by Calvo-Porral and Pesqueira-Sanchez (2019) report that age is one of the major issues impacting the degree of technology adoption. Though, research propose that Gen X moves toward digital usage in a parallel pace to Gen Z and Millennials (Ahmad, Csaba, & Judit, 2021). However, Mander and Valentine (2018) state that demanding routine and the restriction of accessible time of Gen X make the use of digital platforms a valuable and speedy framework for consummating business deals. Lemaitre, 1997 (cited in Mutengezanwa, & Mauchi, 2013) maintain that younger people of age range between 18 and 35 years are likely to be the future customers of direct distribution mediums, because they are more open to innovative technologies. On the contrary, people who are adult are less likely to develop interest in online and direct channels, as they manifest stronger needs for social interfaces, and less receptive to use technological innovations. Most empirical studies report that increasing user age has a negative influence on the adoption of online shopping, because of lower degree of innovativeness, thus the older cluster enjoy the social involvement and the experience related with in-store shopping, as such, are less likely to adopt e-commerce (Steenkamp, Hofstede, & Wedel, 1999). Older generation also are less predisposed to adopt electronic devices to transact business, while younger cluster may embrace e-commerce with relative ease (Riskinanto, Kelana, & Hilmawan, 2017). Yousafzai and Yani-de-Soriano (2012) corroborate the above view and state that resistance to innovation among older people is higher compared to younger ones, hence, dissimilarity in their level of adoption and usage. Czaja, Charness, Fisk, Hertzog, Nair, Rogers, and Sharit (2006) maintain that older people demonstrated slower tendencies to adopt new technologies. According to Falkenreic and Wagner (2017), the major reason older people display little or no interest in technology adoption is their relatively lower level of computer literacy. In similar vein, Hill, Betts, and Gardner (2015) report that older persons' demonstrate less experience and predisposition towards electronic commerce. Liebana-Cabanillas, Ramos de Luna, and Montoro-Ríos (2015) state that age moderate the adoption of technologically based payment systems. Other strand of research documented negative association between users' age and adoption of IT related platforms (Joines, Scherer, & Scheufele, 2003).

Research conducted by Ahmad et al. (2021) report that the degree of financial mastery is a vital factor for Gen X in terms of e-commerce adoption. According to Dholakia and Uusitalo (2002), older people perceive a greater hedonic advantage for in-store shopping compare to younger people, and are mostly less familiar with computer application, which perhaps leads to more computer nervousness and lesser self-efficacy, therefore reduced possibility of shopping online. Although large chunk of research reported that younger people are the foremost users of e-commerce in some nations (Wu, 2003; Lissitsa & Kol, 2016). A dissimilar occurrence transpires in some climes. For instance, Stafford et al. (2004) state that older people today are using the Internet more often than before. Heaney (2007) maintains that the younger people are becoming an active users but prefer a conventional approach of gathering information prior to purchase.

Regarding the linkage between level of educational qualification and adoption of e-commerce. Study carried out by Bhatnagar, Misra, and Rao (2000) and Goldfarb and Prince (2008) report that individuals with a higher level of education demonstrate more knowledge, involvement, and risk tolerance level, making them enthusiastic to adopt online shopping. Burroughs and Sabherwal (2002) state two ways in which people's level of education contributes to adoption of online purchase. They contend that, by increasing the level of perceived capability to deal with uncertainty, as well as improving computer self-

efficacy, education would upsurge the possibility of online shopping. According to Burke (2002), people level of education is positively connected to level of Internet literacy. In the opinion of Ford, Ledbetter, and Roberts (1996), level of education validates a positive attitude towards technology adoption. This implies that people that possess requisite educational qualification or training are more likely to comprehend how and when to use technology. On the contrary, Baker et al. (2007) report a negative significant influence of level of educational attainment and perceived level of behavioral control on intention to use technology. Chiliya, Chikandiwa and Afolabi (2011) corroborate the above position and claim that the level of educational attainment is insignificant in propelling individual to adopt and use technology. Study carried out by Trocchia and Janda (2000) state that income is positively connected to the adoption of innovation. Kim and Kim (2004) posit that people who purchase goods or services over the Internet have reasonable level of income and better ICT knowledge and use compare to those who do not. This implies that income, has a positive association with online shopping. Swinyard and Smith (2003) maintain that those who purchase through online medium possess more wealth than shoppers who patronize traditional stores. Kinsey (1981) rationalizes the association between income and consumers' shopping predisposition online and alludes that as time upsurges, people tend to use the least time-possible medium of exchange (through the use of credit card for example) to do shopping.

2.4 Conceptual Framework

Figure 2.1 below depicts the linkage between the independent variable socio-demographic characteristics (consisting of gender, age, level of education, and income) and the dependent variable (e-commerce adoption).

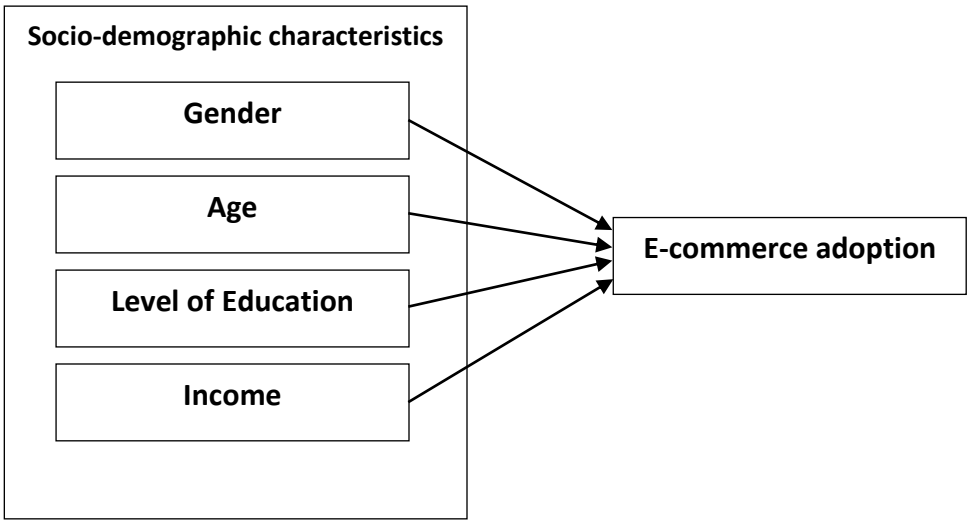

Figure 2.1: Conceptual Framework guiding the study

Source: Developed by the authors

3.0 Method and Materials

This study adopted descriptive survey research design, using quantitative approach. The nature of the study is deductive in nature, which offer basis for hypothesis testing to investigate the relationship between the variables (socio-demographic factors and adoption of e-commerce). The population of this study comprised users of electronic commerce within Lagos state metropolis. Since it is difficult to use an accurate sampling frame, Godden (2004) sample size formula was used to arrive at 385 sample size for the study. Based on the concerns expressed by researchers, the sample size is modified upward to exceed the minimum sample size so as to accommodate cases of non-response common in most survey research (Salome, Patrick, & Bolajoko, 2018). Using Sauders, Lewis, and Thornhill (2009) adjusted sample size formula, the sample size used in this study was put at 550 respondents. The adopted sampling approach is multistage in nature consisting of purposive and convenience sampling techniques. Measures for the variables were adapted from previous validated studies. Self-completed questionnaire was used to gather opinion of participants who are users of e-commerce within Lagos state metropolis. The questions were closed ended for ease of response and anchored on 5 point Likert scale (ranging from 5 - strongly agreed to 1 - strongly disagreed). Both validity and reliability of the instrument was evaluated prior to the main survey. The outcome of both (reliability and validity) indicated that the survey instrument is satisfactory. Socio-demographic characteristics of the participants were presented using descriptive statistics such as simple frequency, and percentage. Hypotheses were tested using Generalized Linear Model.

4.0 Results and Discussion

4.1 Socio-Demographic of Respondents

Demographic characteristics of the respondents were conducted using frequency analysis as shown in Table 4.1 below.

Table 4.1 Respondents Socio-Demographic Characteristics

Demographic Characteristics	Frequency	Percentage (%)
Gender		
Male	153	36.3
Female	268	63.7
Age Group		
Less than 25 years	126	29.9
26 – 35 years	105	24.9
36 – 45 years	111	26.4
46 – 55 years	57	13.5
56 years and above	22	5.2
Educational Qualification		
Diploma or equivalent	176	41.8
Bachelor Degree or equivalent	211	50.1
Msc/MBA or equivalent	34	8.1
Monthly Income		
Less than N 100,000	111	26.4
N 101, 000 – N 200,000	80	19.0
N 201, 000 – N 300,000	92	21.9
N 301, 000 – N 400,000	78	18.5
N 401,000 and above	60	14.3

As shown in Table 4.1, a large percentage of the respondents were female (63.7%) and (36.3%) were male. Respondents less than 25 years constitute 29.9%, those between the ages of 26-35 years' account for 24.9%, 26.4% were between 36 to 45 years, 13.5% were between 46- 55 years, and 5.2% were between 56 years and above. As regard respondents' level of educational qualification, Table 4.1 above shows that 41.8% have diploma education or equivalent, 50.1% hold bachelor degree or equivalent, and 8.1% are MSc/MBA holder or equivalent. The distribution of average monthly income of the respondents are: 26.4% earn less than N100,000, 19.0% earn between N101,000 to N200,000, 21.9% earn between N201,000 to N300,000, 18.5% earn between N301,000 to N400,000, and 14.3% earn N401,000 and above.

4.2 Test of Hypotheses and Results

Table 4.2: Omnibus Test

Likelihood Ratio Chi-Square	df	Sig.
193.909	4	.000

Source: Field survey, 2022

Table 4.3: Parameter Estimates

			95% Wald Confidenc Interval		Hypothesis Test		
Parameter	B	Std. Erro	Lower	Upper	Wald Chi-Square	df	Sig.
Intercept	1.88	.1094	1.675	2.104	298.299	1	.000
Gender	.110	.0504	.209	.011	4.741	1	.029
Age	.152	.0240	.105	.199	39.969	1	.000
Educational Qualification	.374	.0525	.271	.478	50.738	1	.000
Income	.110	.0197	.071	.148	31.098	1	.000
(Scale)	.241	.0166	.211	.276			

Note **p< 0.01, *p< 0.05

Source: Field Survey, 2022

As shown in Table 4.2, the results of Omnibus Tests shows that the model is significant X^2(193.909, 4, p= .000), this indicates a significant improvement in fit compared to the null model, hence, the model is showing a good fit. Results in Table 4.3, shows that the four socio demographic factors, namely gender, age, educational qualification, and income significantly predicted adoption of e-commerce. Specifically, gender (β= .110, X^2=4.741, p= .029), age (β= .152, X^2=39.969, p= .000), educational qualification (β= .374, X^2=50.738, p= .000), and income (β= .110, X^2=31.098, p= .000). The Wald Chi-Square shows that all four socio-demographic factors are statistically significant. All the socio-demographic factors are less than the 5% significance level benchmark. Furthermore, the parameter estimates in Table 4.3 shows that educational qualification contributed more to the model (β= .374), while both gender and income account for the same and least contribution to the model (β= .110). Based on the results, the four hypotheses were rejected.

4.3 Interpretation of Findings

The above result indicates that socio-demographic factors significantly influence adoption of electronic commerce. On this note, hypothesis one which states that no significant relationship exist between gender and adoption of e-commerce is rejected. This finding is similar to the study conducted by Orji (2010) who states that majority of studies on online purchasing found significant dissimilarities between the male and

female regarding electronic commerce adoption. In the same vein, finding of this study contradicts the opinion voiced by Bigne, Ruiz, and Sanz (2005) and Hind and Emad (2015) who claim that gender does not exhibit significant dissimilarity when it comes to electronic shopping. Results of the analysis in Table 4.3 does not support hypothesis two which states that no significant relationship exist between age and adoption of e-commerce. This finding corroborates the outcome of the study conducted by Kleijnen et al. (2007) and Hind and Emad (2015) who report that consumer age is significantly related to e-commerce adoption. As shown in Table 4.3, level of educational qualification is significantly related to the adoption of e-commerce. On this note, hypothesis three which states that no significant relationship exist between educational qualification and adoption of e-commerce is rejected. This finding corroborates the outcome of study carried out by Laukkanen and Pasanen (2008) and Claudia, Guilherme, Andre, and Paulo (2018) who report that level of educational attainment is the most consistent factors found to influence consumer adoption of e-commerce. On the other hand, the finding contradicts that of Nasr (2011). As shown in Table 4.3, level of income is significantly related to the adoption of e-commerce. Based on the above results, hypothesis four which states that no significant relationship exist between income and adoption of e-commerce is rejected. Finding of this study lend credence to the opinion expressed by Junaedi (2012) who states that income exert positive impact on online purchase intention. On the other hand, the study refutes the view expressed by Anderson and Hansen (2004).

5.0 Summary, Conclusion and Recommendations

5.1 Summary

This study examined the relationship between socio-demographic characteristics and adoption of electronic commerce among users within Lagos state metropolis. The demographic variables investigated consist of gender, age, level of educational attainment and income. All the socio-demographic factors predicted the adoption of e-commerce. Over the years, the pace of e-commerce adoption has experienced growing recognition and steady growth. Therefore, whether perceived as risky or not, policy framework to promote e-commerce is gaining popularity and recognition. In particular, the incidence of the COVID-19 pandemic and subsequent lockdowns and restriction of movement have expressively changed the way consumers acquire desired goods and services. Consequently, to be able to prosper and survive in this new competitive era, businesses particularly those in retailing, need to develop strategies towards promoting e-commerce adoption. Furthermore, the thrilling popularity of e-commerce is instigating progressive change on how people conduct businesses, particularly for the younger generations, hence, the need to focus on important socio-demographic characteristics that propel adoption of e-commerce. In particular, tech-savvy Generation Z will control the global populace because of their interest in technology (Magdalena, Blazenka, & Dragan, 2018). The upsurge in the adoption of the Internet has also open up wider prospects for marketers to enlarge their marketing influence. From the buyer perspective, the presence of the e-commerce presents numerous choices and conveniences (Adhi & Ahsan, 2021). Therefore, to improve users' experience, vendors have to be proactive in demonstrating the prominence of e-commerce sustainability (Olah, Kitukutha, Haddad, Pakurar, Mate, & Popp, 2019). An improve understanding of their socio-demographic will continue to be of immense value to both marketers and consumers. Consequently, to remain competitive, it is vital for a firm to continuously research the dynamics of consumer socio-demographic and on the basis of data gathered comprehend on they are relevant and influence e-commerce adoption (Eli, Sher, & Rafi, 2021).

5.2 Conclusion

This study investigated socio-demographic characteristics and adoption of e-commerce. More specifically, the study investigated how age, gender, level of educational attainment, and income influence adoption of e-commerce. Based on the results of hypotheses testing, the study concludes that age, gender, level of education, and income significantly influence adoption of e-commerce. E-commerce is becoming popular day by day and this development has made it important for marketers to develop a better understanding on how socio-demographic characteristics influence e-commerce adoption. As a result, online vendors need to commit resources continuously and promote ICT transformation so as to reinforce their relationships with consumers, foster trust and provide value continuously in order to enhance consumer shopping behaviors online. No doubt, the wave of Internet revolution will continue to create huge technological advances that businesses in both developed and developing nation cannot ignore. In particular, e-commerce has propel a radical shift in how companies and customers engage in business dealings, which further stretch the frontiers of Internet-mediated platforms (Omonedo & Bocij, 2014). It is worth mentioning that during the early days of e-commerce, numerous customers sought for information and compared products (goods or services) on the Internet, but they eventually opt to make purchases from the physical outlets (Srikant, Pooja, Usha, Prasenjit, Ernesto, & Santibanez, 2023). Currently, the situation is the opposite, as a number of consumers use the physical store as a form of catalog to assess and review products but will eventually purchase through online medium.

Continuous technological advancement and change concurrently generates threats to established business models and practices, nevertheless, it offer enormous opportunities for novel service offerings to both businesses and the target market (Lai, 2016). As a result, proactive companies must develop strategies to shape the progress of technological applications to their advantage (Lovelock, 2001; Lai, 2007). Thus, the progressive advancement, vibrant growth of technologies, and how speedy the users are accepting these technologies are contingent on a number of factors such as accessibility and convenience of technology, suitability, expediency, users' need, and security concerns among others. More important, consumer socio-demographic characteristics such as gender, age, level of education, and income are becoming a relevant factors to promote technology adoption such as e-commerce. Accordingly, the emergence of e-commerce is generating a very remarkable economic and social implications. For example, consumers have been compelled to change their consumption habits and businesses have recognized the need to speedily adopt innovative approaches to strategically manage their businesses through online platforms. This circumstances is evolving so speedily that it could be contemplated as a form of social revolution, propelling many people to question and wonder whether traditional or brick and mortar markets will survive or are prone to disappear. On this note, online vendors need to develop strategies that will encourage consumer's usage of electronic shopping platforms. This study contributes to knowledge and business practice by modelling the relationship between four socio-demographic characteristics (gender, age, educational qualification, and income) and adoption of e-commerce in a single model. Findings of this study represent a significant progress on the research enquiry on e-commerce adoption in developing nation. This approach would hopefully permits for a cross-country comparison, thereby responding to calls to fill an important lacuna in contemporary literature on e-commerce. From a broader perspective, findings of this study would be very relevant in upholding the shared aspirations of the Nigeria government to fully leverage the benefits of the digital economy.

5.3 Recommendations

Results of the hypotheses bring to the fore the need to offer some recommendations. On this note, this study offer the following recommendations.

i. There is need for online vendors to regularly update their knowledge and understanding of the dynamic nature of consumer socio-demographic characteristics. A deeper knowledge about consumer socio-characteristics will facilitate strategy development and implementation towards increasing users' familiarity, interest and trust building towards e-commerce adoption.

ii. Despite the phenomenal growth of e-commerce activities, particularly by the teeming youth, Nigeria's disrepute for online fraud requires policy intervention to curb the menace in other to grow the potential of the sector. Thus, there is need for government intervention in term of infrastructural development and policy measures explicitly targeted at cybercrime to promote adoption of e-commerce.

iii. Similar to the above, electronic commerce market is yet to have distinct legal framework that govern online transaction. Such legal arrangement is needed to guide the rights and obligations of the participants in online transactions. The legal structure would also assist in defining the scope of e-commerce with a view of enhancing the degree of trust in online transaction.

iv. There is need to develop information technology-IT literacy level so as to grow the adoption of e-commerce. Similarly, effort should be developed to improve speed of connectivity, adaptation of Websites to users' convenience (i.e. reconfiguration platform to local languages and improvement of Web design) to promote adoption and usage of e-commerce.

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