2022

The Growth of Online Retailing in India

Srinivas Samprathi
Walden University

Walden University

College of Management and Human Potential

This is to certify that the doctoral dissertation by

Srinivas Samprathi

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Danielle Wright-Babb, Committee Chairperson, Management Faculty
Dr. Raghu Korrapati, Committee Member, Management Faculty
Dr. Javier Fadul, University Reviewer, Management Faculty

Chief Academic Officer and Provost
Sue Subocz, Ph.D.

Walden University
2022

Abstract

The Growth of Online Retailing in India

by

Srinivas Samprathi

MPhil, Walden University, 2019

MBA, University of Florida, 2015

BE, Bangalore University India, 1997

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Management

Walden University

August 2022

Abstract

Industrial experts have agreed that India's small-scale industries are intensely competitive due to globalization, domestic economic liberalization, and digitization. The purpose of this quantitative correlational study was to evaluate the relationship between transaction costs, customer satisfaction, and customer trust in online shopping with the growth of online retailing in India. The theoretical foundation for this research study was the theory of planned behavior, and the unified theory of acceptance and the use of technology. The research questions examined India's online retailing growth due to transaction costs, customer satisfaction, and customer trust. The study used a quantitative correlational research design. The data collected by the survey research method were analyzed with the software package IBM SPSS. The results indicated that customer satisfaction and transaction cost are significant predictors and can explain 59% (adjusted $R^2 = .589$) of the variance in online retailing growth in India. The previous research had not empirically verified the relationship between transaction costs, customer satisfaction, and customer trust in online shopping with the growth of online retailing in India. The recommendation was to include environmental factors and to increase sample size in future research. Closing the gap may contribute to a positive social change by preparing small business owners to compete against online retail growth by understanding which factors affect the growth of online retail in India. With some online shopping support, small business owners can implement measures to retain and attract customers of specific demographic groups.

The Growth of Online Retailing in India

by

Srinivas Samprathi

MPhil, Walden University, 2019

MBA, University of Florida, 2015

BE, Bangalore University India, 1997

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Management

Walden University

August 2022

Dedication

I dedicate the dissertation to my family, who continuously encouraged and motivated me to keep me focused and energized while completing the doctoral program. I thank my wife, Parimala, and my son, Pradyumna, for their patience and support while I was studying and researching for my dissertation. I thank my parents, Shalini and Nagaraj, and my sister Lakshmi for their words of motivation. I have to appreciate my pet Avi, who stayed next to me many nights while writing.

Acknowledgments

I thank Dr. Danielle Babb as my dissertation committee chairperson. She has guided me throughout my dissertation process and provided timely advice and encouragement. I have learned considerably from Dr. Danielle Babb, motivating me to complete my dissertation writing. I thank Dr. Raghu Korrapati for his continuing feedback and recommendations. I also thank URR reviewer Dr. Javier Fadul for his timely reviews and feedback. I enjoyed collaborating with editors Meaghan Barnett and Dayna Herrington, and I am thankful for their editing assistance. I would not have completed writing my dissertation without their guidance.

I am forever grateful to my academic advisors, all those at Walden University, and everyone else I did not mention but contributed in some fashion to the successful completion of this dissertation.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction to the Study

The purpose of this quantitative correlational study was to evaluate the relationship between transaction costs, customer satisfaction, and customer trust in online shopping with the growth of online retailing in India. The research questions were designed to examine online retailing growth in India due to transaction costs, customer satisfaction, and customer trust. Transaction cost is the cost to the customer for shopping from the online version of a store. Customer satisfaction indicates the fulfillment that customers derive from shopping online. Customer trust in online shopping suggests the customer's confidence in the online store. Closing the gap may contribute to positive social change by building a stable environment for small businesses in developing countries like India.

Information systems management (ISM) refers to the use of technology-based tools and processes to manage information used in businesses and organizations. The ISM analyzes e-commerce data to influence e-commerce growth. The purpose of this study was to evaluate the relationship between transaction costs, customer satisfaction, and customer trust in online shopping with the growth of online retailing in India. The major sections in this chapter are the background of the study, problem statement, purpose, assumptions and limitations, and the significance of the study.

Background of the Study

Thirichanuru (2016) signified the importance of small-scale industries by citing that if a nation ignores its small-scale industries, it has a negative impact on the nation's economy. Along those same lines, as early as 2008, Bodla and Verma brought attention

to how India's small-scale industry sector has reduced growth due to intense competition from large- and medium-sized online retailing domestic and multinational companies. Moreover, Schaper (2015) provided observations that small companies in India need to compete in an online environment at a macro- and micro-level. In addition, Subrahmanya (2015) provided information about how small-scale industries in India find themselves in an intensely competitive environment due to globalization, domestic economic liberalization, digitization, and dilution of sector-specific protective measures. Rafiq et al. (2013) also shared how online retailing was growing fast, and many business owners realized that maintaining a robust digital presence was necessary to gain consumer loyalty and compete in the global economy.

Chaffey (2014) concluded that the success of electronic commerce (e-commerce) is a multipronged approach to systems integration and management and focuses on digital processes. Furthermore, Ghosh (2016) observed that India's mobile telephony has a statistically significant growth impact. Likewise, Roy (2012) mentioned that Kirana stores in India traditionally offered location accessibility to customers. In a similar vein, Seetharaman et al. (2017) provided relevant information about some of the factors affecting online retailing growth in the United Arab Emirates. Finally, Chintagunta et al. (2012) defined e-commerce transaction costs to include travel time, transportation cost, shopping time, quality inspection, and other convenience expenses.

Geethanjali and Kamath (2015) focused specifically on the Mysuru (Mysore) district's general perception as a comparatively developed region in Karnataka. In contrast, as a relatively underdeveloped region, Raichur residents are aware of online

retailing. Verma et al. (2016) added to the vitality of the concept of customer trust by claiming that similarity and seller expertise was found to have a substantial impact on relational mediators; word of mouth was also critical.

Sivakumar and Gunasekaran (2017) studied the factors affecting the online shopping behavior of Millennials. A decade earlier, Nicoletti and Pryor (2006) mentioned that government rules positively influence the macroeconomic performance of market economies. Additionally, Rajaretnam and Sheth (2018) concluded that customer trust was an essential factor in converting a user to an online buyer; online buyers are considered more affluent than offline buyers. Finally, Joshi (2017) highlighted the relationship between online transaction costs and buying behavior. Understanding the growth patterns of online retailing can help prepare small business owners to compete with online retailers (Thirichanuru, 2016). The purpose of this study was to evaluate the relationship between transaction costs, customer satisfaction, and customer trust in online shopping with the growth of online retailing in India. Closing this gap may contribute to positive social change by building a stable environment for small businesses' success.

Problem Statement

Small-scale industries in India are in an intensely competitive environment due to globalization, domestic economic liberalization, and digitization of sector-specific protective measures (Subrahmanya, 2015). Per the Micro, Small, and Medium Enterprises Development Act of 2006, the Indian small-scale industry can be categorized into manufacturing and service industries. The small-scale manufacturing industry has an investment of less than five crore Indian rupees, and the small-scale service industry has

an investment of less than two crore Indian rupees (Sankaran, 2015). The general management problem is that India's small-scale industry sector has reduced growth due to intense competition from large- and medium-sized domestic and multinational online retail companies (Sankaran, 2015). There is a need to understand the development of online retailing in India.

Due to the digitization and fast growth of online retailing, many business owners in the brick-and-mortar business have realized that maintaining a robust digital presence is necessary to compete globally across the manufacturing and service sectors (Rafiq et al., 2013). Customers in India are becoming more aware and comfortable with online shopping. The millennials in India prefer online shopping and have an online purchasing power, accounting for about 39% countrywide, including segments such as hotel and taxi booking (SivaKumar & Gunasekaran, 2017). The specific management problem is that online retailing's growth, due to lower online transaction costs and favorable online customer satisfaction scores, has hurt small businesses' success without an established online presence (Schaper, 2015). Per the India Market Research Bureau (2018), e-commerce retail was expected to grow from $39B in 2017 to $120B in 2020. At the same time, the traditional retail market has shrunk.

There is existing literature that correlates buying behavior with the growth of online retailing. Customer cluster and online purchase behavior vary by business segments (e.g., grocery shopping, textile shopping, pharmacy, and delivery costs; Vanessa & Japutra, 2017). Online retailing transaction costs vary due to country-specific pricing of payment instruments such as PayPal, credit card, and prepayment options

(Grüschow, 2018). Joshi (2017) highlighted the relationship between online transaction costs and buying behavior. Customer trust, perceived risk, and cash-on-delivery (COD) ease of use have affected customer satisfaction and online shopping growth (Tandon et al., 2018). Rajaretnam and Sheth (2018) mentioned that customer trust is an essential factor in converting a user to an online buyer. The millennials in India look beyond transaction costs and bargains while shopping for quality products online (SivaKumar & Gunasekaran, 2017). Despite India being the second largest smartphone market globally, with many internet users, the growth of online shopping is moderate compared with other developed countries (Attri et al., 2017). Studying the effect that factors have on online retailing growth may help mitigate the negative impact of online retailing on small businesses.

Purpose of the Study

The purpose of this quantitative correlational study was to evaluate the relationship between transaction costs, customer satisfaction, and customer trust in online shopping with the growth of online retailing in India. Digitization and online retailing growth are affecting small businesses in India (Schaper, 2015). In some countries, like the United Arab Emirates, the essential elements of stagnant to modest growth can be value-added costs, fear of fraud, and lack of education, culture, and customer satisfaction (Seetharaman et al., 2017). Many other factors need to be monitored to understand the growth and the social effects of the online retailing growth on small businesses.

In his study, Ghosh (2016) observed that India's mobile telephony has had a statistically significant growth effect. E-commerce systems have grown prominently

across the world, and India, with its software eminence in the 2000s, is amongst the leaders in low-cost and efficient e-commerce services (Ghosh, 2016). Online retailing has grown in recent years due to easier internet access. Monitoring additional factors that affect online retailing growth may help predict growth and mitigate the impact on small businesses.

Research Questions and Hypotheses

Three independent variables were derived from the literature review. The revenue increase from online retail defines the growth of online retailing in India. The purpose of this quantitative correlational study was to evaluate the relationship between transaction costs, customer satisfaction, and customer trust in online shopping with the growth of online retailing in India. I used a set of three independent variables to predict the growth of online retailing in India. The prediction accuracy decreases if more dependent variables are added (Hand, 2010). One assumption was that the independent variables were linear with the dependent variable, which was validated via analysis. The data types of three independent variables (transaction cost, customer satisfaction, and customer trust) are interval, and those values were used in the Multiple Linear Regression (MLR) model.

Transaction Costs

Transaction costs are incurred in online transactions similar to most economic transactions. Policing and quality enforcement costs affect customers' perception of trust and cost increase. The perception of online retailing's higher and hidden transaction costs can affect customer behavior and intention.

Customer Trust

Some strategies help build a trust relationship with online customers in countries like India. Similarity and seller expertise were found to have a substantial impact on relational mediators, and word of mouth was the most critical outcome of relationship marketing efforts. Similarity and seller expertise substantially impact relational mediators and word of mouth was critical, which expanded on the concept of customer trust is vital (Verma et al., 2016). Online retailers also need to establish trust with the local governments for ease of business. Additionally, customer trust is essential for the Business to Business (B2B) and Business to Government (B2G) relations.

Customer Satisfaction

Customer satisfaction is measured from postpurchase product evaluation, usually a gap between product or service perception and product or service expectation (Xu et al., 2018). Such definitions of customer satisfaction have motivated other researchers to study customer satisfaction in developing countries, with seven well-defined hypotheses establishing relationships with the aspects of usability, usefulness, and customer satisfaction from online retailing. Some recent researchers have tried to understand how customer satisfaction affects online purchase spending.

The research questions (RQs) and hypotheses for this study were as follows:

RQ1: What is the relationship between online retail transaction costs and the growth of online retailing in India?

$H1_0$: There is no relationship between online retail transaction costs and online retailing growth in India.

$H1_A$: There is a relationship between online retail transaction costs and the growth of online retailing in India.

RQ2: What is the relationship between customer trust in online shopping and the growth of online retailing in India?

$H2_0$: There is no relationship between customer trust in online shopping and the growth of online retailing in India.

$H2_A$: There is a relationship between customer trust in online shopping and the growth of online retailing in India.

RQ3: What is the relationship between customer satisfaction from online shopping and the growth of online retailing in India?

$H3_0$: There is no relationship between customer satisfaction from online shopping and online retailing growth in India.

$H3_A$: There is a relationship between customer satisfaction from online shopping and the growth of online retailing in India.

Theoretical Foundation

Boulding's (1956) general systems theory (GST), the theory of planned behavior (TPB), and the theory of reasoned action (TRA) were applicable theories for this study. E-commerce success is a multipronged approach to systems integration and management, focusing on digital processes, and may look different when applied to various markets and situations (Chaffey, 2014). Nah et al. (2004) mentioned many theories relating to information systems and e-commerce failures, such as the TPB and the TRA. According

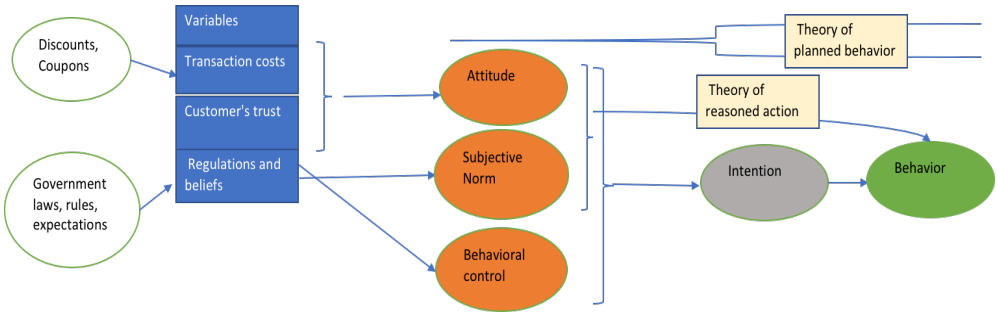
to Tandon and Kiran (2019), the developed theories and models used by researchers include the following:

- technology acceptance model (TAM) by Davis in 1989;
- TPB by Ajzen in 1991;
- extended TAM (ETAM) by Venkatesh and Davis in 2000;
- unified theory of acceptance and use of technology (UTAUT) by Venkatesh et al. in 2003;
- social cognitive theory (SCT) by Bandura in 1986; and
- Boulding's GST by various researchers.

Amongst these theories, only Boulding's (1956) GST, the TPB, the TRA, and the UTAUT were essential to address the factors affecting individuals adopting online shopping. Drawing on the diffusion of innovations theory (DOI) and the TPB, normative social influence has affected online shopping in China (Zhu & Chen, 2016). The TRA predicts peoples' behavior based on their attitudes and intentions (Tarabasz & Poddar, 2019). Figure 1 shows the theoretical model.

Figure 1

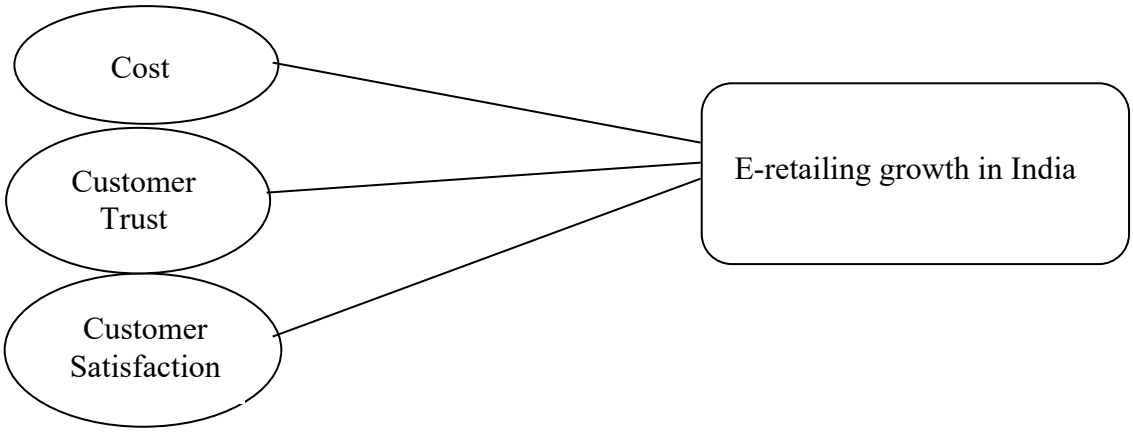
A Theoretical Model



The TPB started as the TRA with the addition of perception towards behavioral control and connects an individual's beliefs with their behavior. Many factors, such as customer satisfaction, the trust built by the website brand, technology learning, and the total online shopping transaction costs contribute to creating an online shopper's perception. Based on the literature review, the TPB's strong theoretical influence determines the critical factors affecting an individual's behavior and purchase intention towards online retail shopping. I chose the TPB and the UTAUT as the foundational theories to apply for the research hypothesis. Compared to other behavioral or technology adoption theories, with the TPB, one can explain online retailing adoption at an individual level. The TPB contains the required technological, social, and behavioral foundations to construct a predictive model and derives online retail growth relationships. The variables and constructs are shown in Figure 2.

Figure 2

Research Framework Derived From the Literature Review



The research framework showed the variables studied concerning the growth of online retailing in India. Studies by Labovitz (1967) and Traylor (1983) concluded that Likert-type items are scales that can be inferred as equal intervals. The literature revealed that online retailing growth negatively impacts the traditional small business retailer. The relationship between online retail growth and conventional small businesses is not explicitly shown in the research framework diagram. The variables are shown in Table 1.

Table 1

Variable Table

Name of variable	Type of variable (predictor, criterion, moderating)	Definition of the variable (construct)	How the variable will be operationalized (measured)	Level of measurement (scale, ordinal, nominal)
Transaction Cost	Predictor	Economic transactions incur expenses**.** Transaction expenses include travel time, transportation cost, shopping time, quality inspection, and other convenience costs (Chintagunta et al., 2012). These costs are transaction costs, information costs, enforcement costs, and customer satisfaction.	Survey questionnaire	Scale
Customer satisfaction	Predictor	Customer satisfaction scores are received from the customers' evaluation of the online shopping experience. The variable represents the average customer satisfaction scores over some time.	Survey questionnaire	Scale
Customers trust	Predictor	Some strategies help build a trust relationship with online customers in countries like India. Similarity and seller expertise were found to have a substantial impact on relational mediators, and word of mouth was the most critical outcome of relationship marketing efforts (Verma et al., 2016).	Survey questionnaire	Scale

Nature of the Study

The goal of this research was explanatory from the RQs, the hypotheses, and the research philosophy. If the research goal is explanatory rather than exploratory, then a quantitative methodology is suitable (Zulfadil & Machasin, 2020). Whereas the research method reflects the dominant approach to conceptualizing and carrying out the research, the research design pertains to the specific research framework applied to plan and is implemented in a given research study. The research design was correlational. Researchers analyze data statistically to answer RQs and verify testable hypotheses (Frankfort-Nachmias & Leon-Guerrero, 2018). The study population included participants of different demographic measures, such as gender, income, profession, and origin. The study's reliability was tested with Cronbach's alpha.

Definitions

This section provides the definition of some terms used in the study. Many terms defined are related to the technology adoption.

Cloud computing: A type of computing enabling computing resources, data, and services to be accessible over the internet and on any device (Skemp, 2022). Cloud computing can offer infrastructure as a service, platform as a service, and software as a service. A few new types of cloud computing are evolving, such as mobile cloud computing, federal cloud computing, and grid cloud computing.

Diffusion of technology: Diffusion of technology refers to the adoption patterns of new technology. The adoption patterns vary by technology, industrial adoption, and

community adoption. Drawing on the DOI theory and other theories, normative social influence have affected online shopping in China (Zhu & Chen, 2016).

E-commerce: E-commerce or electronic commerce is the buying and selling of products and services over the internet. E-commerce is one of the everyday activities performed over the internet. Agag (2019) mentioned that small businesses would have already established a loyal and local customer base in countries like Egypt. The types of e-commerce are business-to-business, business-to-consumer, consumer-to-consumer, consumer-to-business, and mobile commerce. E-commerce can also be called online shopping.

Zonal councils: A zonal council in India is a geographical grouping of few states in India. India's five zonal councils are Northern Zonal Council, comprising the States of Haryana, Himachal Pradesh, Punjab, Rajasthan, National Capital Territory of Delhi, Union Territory of Chandigarh, Union Territory of Jammu and Kashmir, and Union Territory of Ladakh; Central Zonal Council, comprising the States of Chhattisgarh, Uttarakhand, Uttar Pradesh, and Madhya Pradesh; Eastern Zonal Council, including the States of Bihar, Jharkhand, Odisha, and West Bengal; Western Zonal Council, comprising the States of Goa, Gujarat, Maharashtra, and the Union Territory of Dadra and Nagar Haveli and Daman and Diu; and Southern Zonal Council, including the States of Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, Telangana, and the Union Territory of Puducherry.

This study consisted of three independent variables and one dependent variable. The independent variables were transaction cost, customer satisfaction, and customer

trust. The dependent variable was the growth of online retailing in India. Each independent variable was an ordinal variable. Transaction costs occur in making financial and economic transactions, such as travel, transportation, shipping, quality inspection, and others (Chintagunta et al., 2012). Transaction costs can be categorized into three types: information and search costs, bargaining costs, and policing costs (Teo & Yu, 2005). The variable customer satisfaction represents the average customer satisfaction scores over some time. Customer satisfaction scores are received from the customers' evaluation of the online shopping experience. The customer satisfaction variable represents the average customer satisfaction scores over some time. Obeidat and Young (2017) comparatively assessed online shopping adoption by digital immigrants and digital natives. Digital natives trusted online shopping more (Obeidat & Young, 2017). Some strategies help build a trust relationship with online customers in countries like India. Similarity and seller expertise were found to have a substantial impact on relational mediators, and word of mouth was the most critical outcome of relationship marketing efforts (Verma et al., 2016). E-commerce sites develop a strong customer relationship by building trust, and postpurchase reviews help build customer trust (Fang et al., 2014).

Assumptions

The research problem may not exist without some basic assumptions (Leedy & Ormrod, 2010). The assumptions can be in the research areas related to the adopted theory, the methodology, the survey instruments, the participants, or the results. Table 2 shows the assumptions and related justifications.

Table 2

Assumptions With Justifications, Risks, and Mitigations

Research Section	Assumption	Justification	Risk	Mitigation
Theory	The TPB, UTAUT, and the TRA are the relevant theoretical frameworks.	The adoption behavior theories are similar and may also apply to online retail adoption.	The TPB and the TRA may not be the best behavioral adoption theories.UTAUT is a good behavioral theory.	Compared to various systems, technological, and adoption theories and adopted those constructs referred to in recent similar literature.
Methodology	The quantitative research method is the appropriate research method.	Hypothetical examination of critical factors rather than trying to answer the why or how of research.	The three critical factors may not be the best predictors of the growth of online retailing in India.	Literature review of online retailing adoption to identify the three crucial factors.
Instrument	An existing survey from a peer-reviewed article is a reliable and valid instrument. The survey can be administered online.	A quick, cost-effective way to reach a large and diverse population.	The response rate can be low.	I am using an existing validated survey instrument. I plan to send reminders to participants to complete the survey.
Participants	Participants will provide honest and timely survey answers.	Participants can come from a controlled group familiar with online technology and the retail market.	Participants may not provide logical and thoughtful answers.	The participation sample may be restricted to participants willing to provide thoughtful answers. Evaluation of the need for 285 participants for a reasonable statistical analysis reduces the risk.

Scope and Delimitations

The purpose of this quantitative correlational study was to evaluate the relationship between transaction costs, customer satisfaction, and customer trust in online

shopping with the growth of online retailing in India. The evaluation was under the theoretical frameworks of the TPB, UTAUT and the TRA. The scope was a cohesive view of influential factors for online retailing growth in India, focused on only India and retail industries.

I did not plan to conduct a pilot survey. The research results may lack generalization as the study was scoped to India. The prediction factors were derived from the literature review and did not cover all the factors affecting India's online retailing growth.

Limitations

Researchers connect study assumptions with theories, observations, instruments, and analysis (Simon, 2011). The research hypotheses indicated an outcome variable and three predictor variables. One limitation is that the transaction cost, customer satisfaction, and customer trust may not be the best predictor variables. Variable bias may exist due to missing other critical factors. Though an online survey questionnaire is a valid data collection instrument, the response rate can be low.

A literature review strengthened the choice of the chosen predictor variables. An existing survey instrument was used to increase the validity and reliability. The survey sample size was larger than the minimum required participation for accurate statistical analysis and detection. Using an online survey helped reach a larger population of participants in a limited time.

The survey response rate was as expected. The response rate was low in the first week of the survey window. Using an existing survey instrument increased the validity

and reliability of the survey instrument selected. The survey sample size can be larger than the minimum required participation for accurate statistical analysis and detection. As the survey focused on a weighted number of participants across all the zonal councils of India, the study results can be generalized across India. I do not attempt to generalize the findings to other developing countries.

As the technology, consumer needs, and acceptance of online retail are changing rapidly, researchers referring to my study in the future may obtain different results. However, statistical studies, theoretical frameworks, and literature reviews will be valid information concerning online retail adoption.

Significance of the Study

Small businesses form the economic support structure for most of the low- and middle-class self-employed Indians. Understanding the growth patterns of online retailing may help prepare small business owners to compete with online retailers (Thirichanuru, 2016). The purpose of this study was to evaluate the relationship between transaction costs, customer trust, and customer satisfaction in online shopping with the growth of online retailing in India. Closing this gap may contribute to positive social change by building a stable environment for small businesses' success.

Sun et al. (2015) stated that identifying critical success variables in the consulting community is highly subjective due to the empirical evidence of implementation in various environments. In comparing identified essential factors of the literature with those of the existing literature, the study approach was correlational. In surveying and

quantitative analysis, I may contribute to a positive social change by preparing small business owners to compete and survive.

Significance to Theory

Understanding the growth patterns of online retailing will help prepare small business owners to compete (Thirichanuru, 2016). The study included an underresearched area of how the factors transaction cost, customer satisfaction, and customer trust may relate to India's online retailing growth. The study result can help fill the knowledge gap of creating a predictive approach to analyzing the online retailing growth and using the system to help small business owners prepare for the competition from online retail.

Significance to Practice

Sun et al. (2015) stated that identifying critical success variables in the consulting community is highly subjective due to the empirical evidence of implementation in various environments. In comparing identified critical factors in the literature with those of the existing literature, the study approach was correlational. In surveying and quantitative analysis, this research may enhance the decision framework for small business owners, government regulators, and the online retail providers to compete, grow, and survive.

Significance to Social Change

The purpose of this study was to evaluate the relationship between transaction costs, customer trust, and customer satisfaction in online shopping with the growth of online retailing in India. Closing this gap may contribute to positive social change by building a stable environment for small businesses' success.

Summary and Transition

The general management problem is that India's small-scale industry sector has reduced growth due to intense competition from large- and medium-sized domestic and multinational companies (see Sankaran, 2015). There is a need to understand the development of small businesses in India. The specific management problem is that online retailing's growth due to lower online transaction costs and favorable online customer satisfaction scores has negatively impacted the success of small businesses without an established online presence (Schaper, 2015).

From the literature review, the previous research has not empirically verified the relationship between transaction costs, customer satisfaction, and customer trust in online shopping with the growth of online retailing in India. Some existing research in other developing countries analyzed the factors affecting the growth of online retailing in those countries. The focus of some recent studies was on individual factors affecting online purchase intention in specific cities and regions in India. I did not find an existing recent study that applied MLR analysis and behavior-based analysis to understand how online retail may be growing in India, and the relationship between transaction costs, customer satisfaction, and customer trust in online shopping with the growth of online retailing in India.

Presently, quantitative research related to the research study is limited. The study can add to recent research interest to understand India's e-commerce growth in some specific demographics, states, and across all industries. In this study, I aimed to close the knowledge and practicing gap within the lens of the theories on reasoned action and

planned behavior. The predictor variables were the transaction cost, customer satisfaction, and customer trust. The outcome variable was the growth of online retail in India.

A literature review on the theoretical foundation, concepts, and characteristics of e-commerce, the state of small business in India, and the perceived benefits of online retail are documented in chapter 2. Further, a detailed description of predictor factors is also provided. The research methodology and design are covered in chapter 3.

Chapter 2: Literature Review

Small-scale industries in India are in an intensely competitive environment due to globalization, domestic economic liberalization, and digitization of sector-specific protective measures (Subrahmanya, 2015). The general management problem is that India's small-scale industry sector has reduced growth due to intense competition from large- and medium-sized domestic and multinational companies (Sankaran, 2015). A strong small-scale industry has a positive impact on the nation's economy, and India is investing in the growth of small-scale industries (Thirichanuru, 2016). There is a need to understand the development of small businesses in India. The specific management problem is that online retailing's growth due to lower online transaction costs and favorable online customer satisfaction scores has hurt small businesses' success without an established online presence (Schaper, 2015).

There is existing literature that correlates business segments and buying behaviors with the growth of online retailing. Customer cluster and online purchase behaviors vary by business segment (e.g., groceries, textiles, pharmacy) and delivery cost (Vanessa & Japutra, 2017). Online retailing transaction costs vary due to country-specific pricing of payment instruments (e.g., PayPal, credit card, prepayment options; Grüschow, 2018). Customer trust, perceived risk, COD, and ease of use have affected customer satisfaction and online shopping growth (Tandon et al., 2018). Rajaretnam and Sheth (2018) mentioned that trust was an essential factor in converting a user to an online buyer. Thus, studying the effect of factors affecting online retailing growth may help mitigate the negative impact of online retailing on small businesses.

The purpose of this quantitative correlational study was to evaluate the relationship between transaction costs, customer satisfaction, and customer trust in online shopping with the growth of online retailing in India, where digitization and online retailing growth are affecting small businesses (see Schaper, 2015). In some countries, like the United Arab Emirates, the essential elements of stagnant to modest growth can be value-added costs, fear of fraud, lack of education, culture, and customer satisfaction (Seetharaman et al., 2017). Many other factors need to be monitored to understand the growth and the social effects of online retailing on small businesses. Monitoring additional factors affecting the growth of online retailing may help predict growth and mitigate the impact on small businesses.

Literature Search Strategy

Online retailing is an emerging trend in most countries, including in developing countries like India. Online blogs, wikis, and journal articles contain the most recent information required for the research. The most related peer-reviewed journals related to the research topic came from *Small Enterprise Research, CLEAR International Journal of Research in Commerce & Management, International Journal of Electronic Commerce, Information Resources Management Journal, Journal of Economic Behavior & Organization, Management Science, Marketing Science, IUP Journal of Brand Management, Journal of Marketing Management, Journal of Developing Areas, Journal of Internet Commerce, International Journal of Management and Enterprise Development,* and *Asian Marketing Journal.* The ProQuest dissertation database was the source of recent dissertations. The leading search keywords used were *online retail*, *e-*

commerce, *adoption theories*, *statistical regression*, *buying behavior*, *transaction costs*, *small business*, and *developing countries*. Most of the research papers and journal articles were published in the last 5 to 6 years to ensure the referred content included the new aspects of the research topic. The search engines used were the Walden University Library Database and Google Scholar.

Theoretical Foundation

The challenge for any new technology and process adoption is the lack of general guidance that applies to all markets and industries. The e-commerce related research studies have used theoretical frameworks from various disciplines such as management, social sciences, and information systems. This study's theoretical foundation indicated a necessity to understand the behavior and purchase intention of online shoppers. Such an inference from the theory is essential to determine the factors affecting online retailing growth. According to Tandon and Kiran (2019), the developed theories and models used by researchers include the following:

- the TAM by Davis in 1989,
- the TPB by Ajzen in 1991,
- the ETAM by Venkatesh and Davis in 2000,
- the UTAUT by Venkatesh et al. in 2003,
- the SCT by Bandura in 1986, and
- Boulding's GST by various researchers.

Scholars and researchers have conducted studies based on interconnected systems, social behavior, and individual behavior perspectives to identify new technology and

delivery adoption. For example, drawing on the DOI theory and the TPB, normative social influence affects online shopping in China (Zhu & Chen, 2016). The TRA predicts peoples' behavior based on their attitudes and intentions (Tarabasz & Poddar, 2019). Nah et al. (2004) mentioned many theories relating to information systems and e-commerce failures (e.g., the TPB and the TRA). In the following sections, I describe each of the theories and their applicability to online retailing growth research in developing countries such as India.

Amongst these theories, only Boulding's (1956) GST and the TPB and TRA are essential to address the factors affecting individuals adopting online shopping, while the rest focus on technology adoption in general. The parameters of these theories are outlined in Table 3.

Table 3

Variables Classified by Theory

Theory	Parameters
Boulding's general Systems Theory	• Static structure • Simple systems • Control mechanisms • Genetic-societal level interactions • Human being interactions • Transcendental
TRA	• Behavior • Attitude • Subjective norm • Behavior intention
TPB	• Normative beliefs and subjective norms • Perceived behavioral controls • Behavioral intention • Attitude
UTAUT	• Performance expectancy • Price value • Satisfaction • Trust • Effort expectancy • Social influences • Facilitating expectancy

Boulding's GST

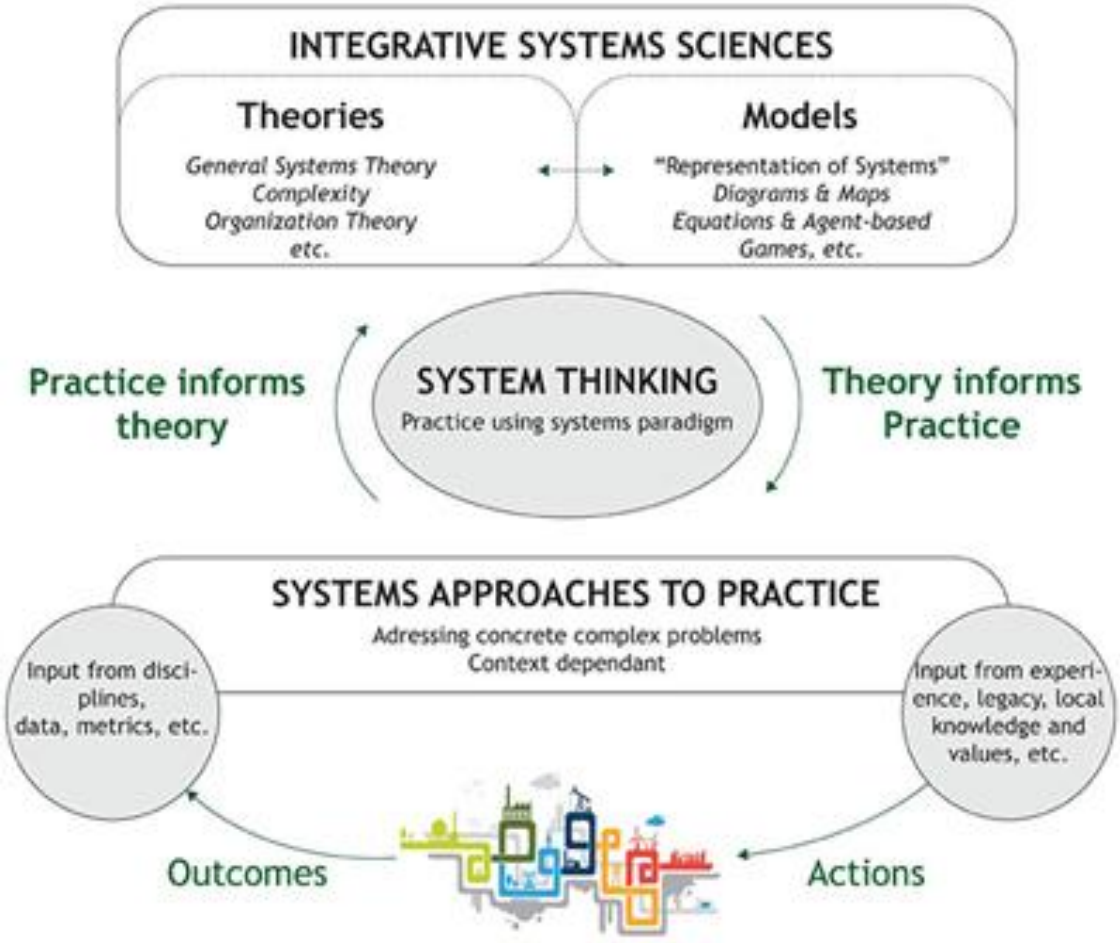
Online retailing in developing countries is a comprehensive system covering retailing for multiple industries via the internet. The challenge for any new technology and process adoption is the lack of standard guidance that applies to all markets and industries. GST is a framework to understand the interconnectedness amongst the components of a system. Per Boulding's (1956) GST, understanding the system involves

understanding the subsystems and their interrelationships, and the interaction with the system's external environment. Circular economy and resource utilization dynamics is a complex system understood within Boulding's GST framework (Whalen & Whalen, 2018).

As shown in Figure 3, Boulding's GST (1956) provided a 9-level academic framework for identifying theoretical gaps that relate to static structure, simple systems, control mechanisms, genetic-societal level, animal level, human being, society, and transcendental. Boulding (1956) stated that "in addition to all, or nearly all, the characteristics of animal systems, man possesses self-consciousness, which is something different from mere awareness" (p. 70; i.e., the humans know that they know), which relates to the TPB. Though the GST applied to this study's research hypothesis, the theory was broad to apply. Figure 3 shows Boulding's general systems theory.

Figure 3

Boulding's General Systems Theory and its Application



TRA

The TRA applies to situations when a customer's intention is under complete and voluntary control. Mobile learning in schools is evolving in developing countries, similar to e-commerce adoption. The TAM and the TRA were used to predict the behavioral intention (BI) of students in adopting mobile-learning in Ghana schools (Buabeng-Andoh, 2018). The TPB is an extension of the TRA, with the addition of behavioral control perception, and can be a possible theory to apply to the research hypothesis.

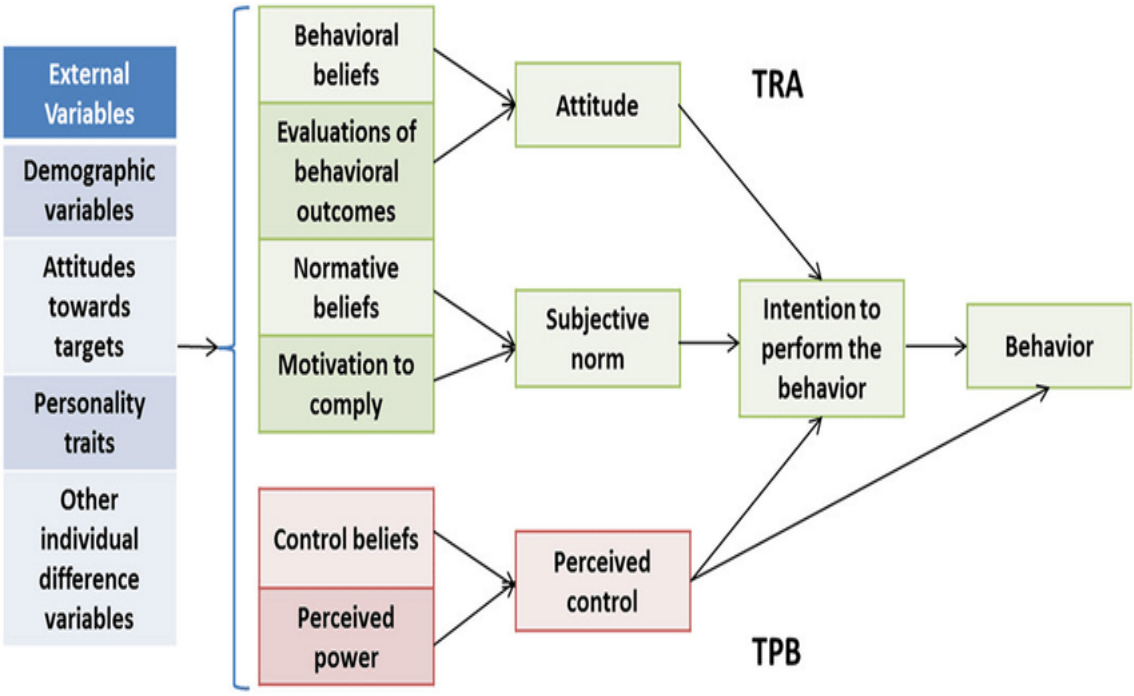
TPB

The TPB started as the TRA, with the addition of perception towards behavioral control, and connects an individual's beliefs with their behavior. Drawing on the DOI and the TPB, normative social influence affects online shopping in China (Zhu & Chen, 2016). Mishra (2018) applied the TPB to explore how online shoppers' transaction experiences impact the customer value perception of the merchandise. Similarly, using the TPB, a model is developed to understand the communication practitioner's behavior towards evaluating communication initiatives (Buhmann & Bronn, 2018). Many factors, such as customer satisfaction, the trust built by the website brand, technology learning, and the total online shopping transaction costs, contribute to creating an online shopper's perception.

Due to the TPB's strong theoretical influence to determine the critical factors affecting an individual's behavior and purchase intention towards online retail shopping, I had chosen the TPB as one of the foundational theory to apply for the research hypothesis. Compared to other behavioral or technology adoption theories, with TPB, one can explain online retailing adoption at an individual level. The TPB, as shown in Figure 4, contains the required technological, social, and behavioral foundations to construct a predictive model and derives online retail growth relationships.

Figure 4

The TPB and the TRA



Note. A figure showing the attributes of the theory of planned behavior and the theory of reasoned action.

UTAUT

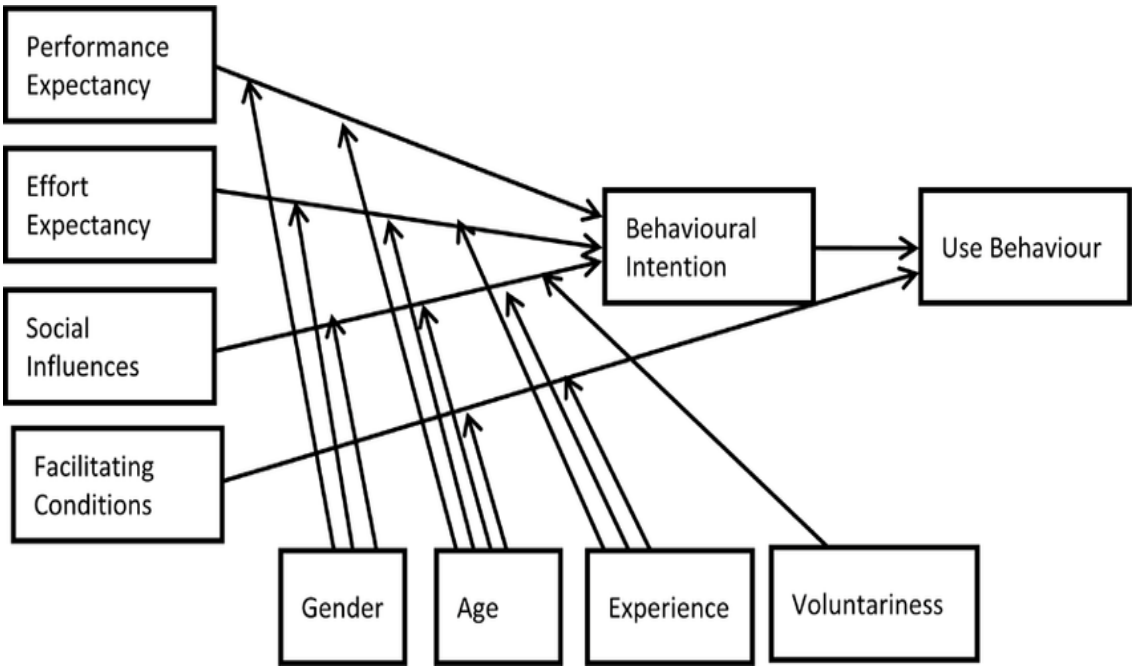
The UTAUT is another known theoretical framework that combines technological acceptance with technology and also combines eight theories, such as the TPB, the TRA, the TAM, the DOI, the motivational model, combined TAM and TPB, the SCT, and the model of PC utilization. The focus of the UTAUT, which was developed by Venkatesh et al. (2003), is on the BI to accept and use new technology.

The constructs in the UTAUT, as shown in Figure 5, are performance expectancy, effort expectancy, social influence, and perceived trust (see Venkatesh et al., 2003).

Asastani et al. (2018) adopted the UTAUT to determine the factors influencing users to use mobile commerce for online purchases in Indonesia. Tandon and Kiran (2019) implied using the UTAUT for validating the Pay On Delivery (POD) mode of payment as a construct empirically affecting the growth of online retailing in India. As shown in Figure 5, the UTAUT is a combination of many theories; it has significant theoretical familiarity with the TPB, and the UTAUT is also very complex to apply with many independent variables. The TPB's strong theoretical influence helps determine the critical factors affecting an individual's behavior and purchase intention towards online retail shopping.

Figure 5

Unified Theory of Acceptance and Use of Technology

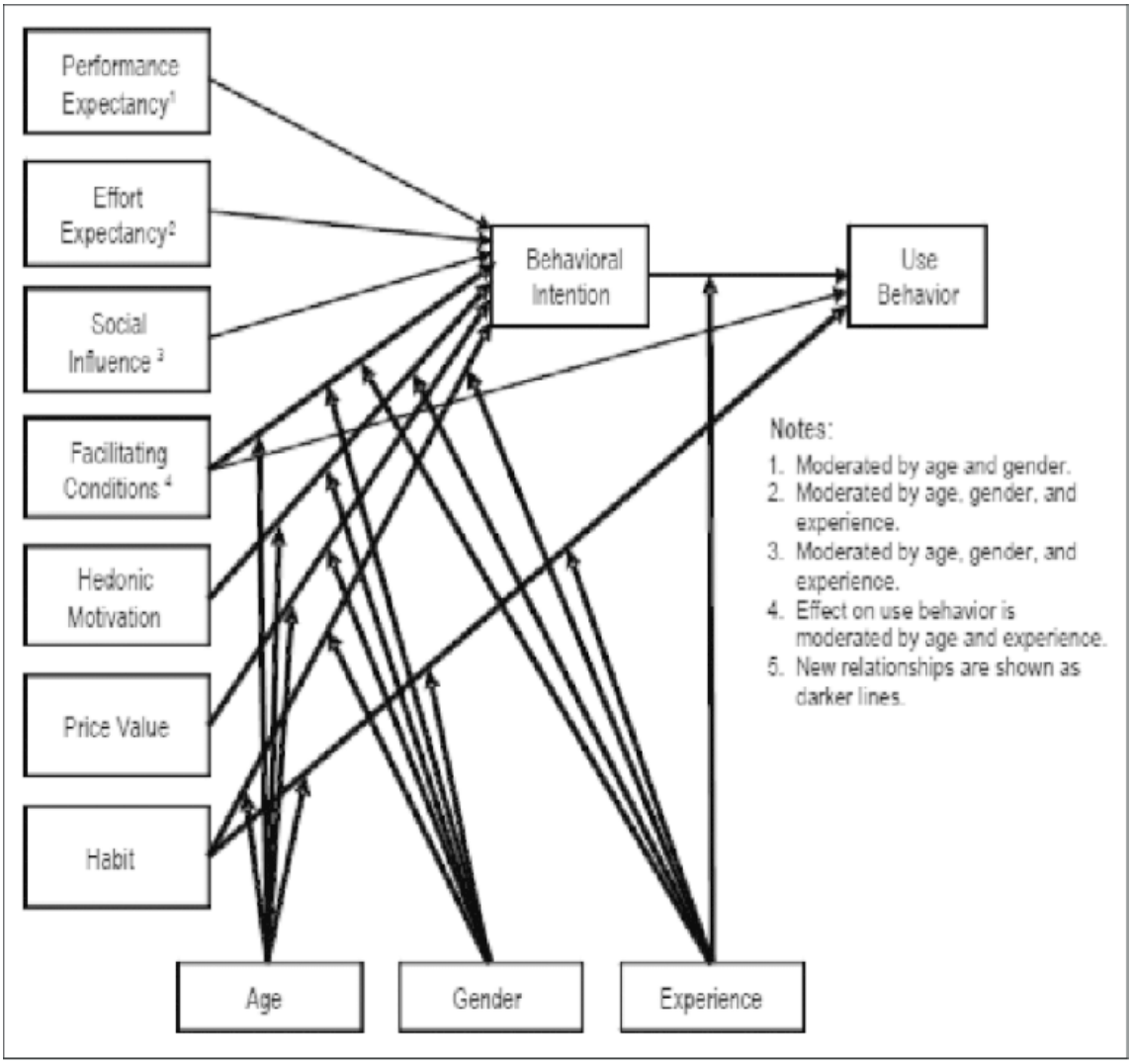


UTAUT-2

The UTAUT-2 is an extension of the UTAUT that combines hedonic motivation, price value, and habit. As shown in Figure 6, the constructs in the UTAUT-2 are performance expectancy, effort expectancy, social influence, perceived trust, habit, price value, and hedonic motivation. Few recent studies have adopted the UTAUT-2 to understand the factors affecting the growth of online retailing in specific cities and regions. While shopping convenience is a benefit found by some researchers in past studies, discounts and hedonic value were concluded in some studies as higher benefits than shopping convenience. The TPB and UTAUT's strong theoretical influence helps to determine the critical factors affecting an individual's behavior and purchase intention towards online retail shopping. I had chosen the TPB and the UTAUT2 as the foundational theories to apply to the research hypothesis. Figure 6 shows UTAUT-2.

Figure 6

UTAUT-2 Consumer Acceptance and Use of Information Technology



Literature Review

In the literature review, I reviewed the concepts and characteristics of online retail and analyzed the current online retail growth trends and factors. Few studies focus on understanding factors affecting the growth of online retailing in specific cities and regions in India. Also, few recent studies have researched how gender, income, and age

affected online purchase behavior in certain cities and regions in India. Limited empirical studies were performed on determining what factors (i.e., transaction costs, customer satisfaction, and customer trust) affect online retail growth in developing countries such as India. I did not find a study that applied MLR analysis and behavior-based analysis to understand how online retail may be growing in India.

The literature review is organized into understanding existing research in the areas of online retail development, characteristics of online retail, government regulations with regards to e-commerce, cloud computing adoption by small businesses in India, perceived benefits of online retailing, perceived barriers to adopting online shopping in India, and recent studies related to the growth of online retail in India. The literature review also described statistical regression methods and recent related studies applying variations of linear regression methods. Online retailing is still at a moderate growth rate in India, although the perceived opportunity for growth is considered high. Like many developing countries, the Indian e-commerce market poses advantages and challenges for online retail growth. I have researched approximately 50 articles to help understand the trend and the factors affecting online retail growth.

Concepts and Development of E-commerce

E-commerce is the method of selling and buying products and services via the internet. The growth and adoption of the internet have made it possible for businesses to overcome time and distance barriers. Further, the recent exponential growth of mobile computing adoption has contributed to online retail growth. In his study, Ghosh (2016) observed that India's mobile phone use has had a statistically significant impact on online

retail growth. There are six types of online retailers: business to consumer (B2C), business to business (B2B), consumer to consumer (C2C), consumer to business (C2B), consumer to administration (C2A), and business to administration (B2A). The online retail approach has been widely adopted in each of the six types though the requirements vary.

E-commerce is one of the everyday activities performed over the internet. Agag (2019) mentioned that small businesses would have already established a loyal and local customer base in countries like Egypt. Further, the online consumers' repurchase intentions and loyalty are derived from consumers' perceptions of the business's ethics (Agag). Kar and Pal (2016) concluded shopping convenience as a significant factor positively affecting e-commerce growth in Kolkata, India, and demographics such as gender and age did not affect online purchase behavior.

Though e-commerce is growing in most developing countries like India, customers are comfortable shopping online and in physical stores. Kumar and Khurana (2019) concluded that people in Haryana, India, use online and offline shopping, but still prefer offline shopping. Customers are also known to see products in stores before buying online. Customers like to search for products online and see products in physical stores before purchasing online (Joshi, 2017).

Technological development has made e-commerce a credible alternative way of buying and selling products and services online, and is also referred to as electronic commerce, electronic market, digital market, digital commerce, or online shopping (Haryanti & Subriadi, 2020). The growth of mobile communications has further

influenced mobile e-commerce. Chalam and Rao (2014) explored internet growth trends in India and e-commerce applications used daily in India. Their study highlighted mobile technology penetration as a critical factor in India's e-commerce growth and described a typical global structural model.

Critical Characteristics of E-commerce and Online Retail

I defined the dependent variables transaction costs, customer satisfaction, and customer trust in the following sections. Some recent literature describing the dependent variables are cited below to study the variables and the use of variables in other studies.

Transaction Costs

Transaction costs are incurred in online transactions similar to most economic transactions. Vanelslander et al. (2013) examined online grocery sales to analyze supply chain methods and the transaction and distribution cost of online retailing. Chintagunta et al. (2012) defined e-commerce transaction costs to include travel time, transportation cost, shopping time, quality inspection, and other convenience expenses. Policing and quality enforcement costs affect customers' perception of trust and cost increase.

Advancement in mobile technology in developing countries such as India has drastically reduced the information and search costs associated with online product retailing. In his study, Ghosh (2016) observed that India's mobile telephony has a statistically significant impact on online retailing growth. Hwang and Lee (2016) explored how electronic data interchange (EDI) affects the competitiveness of a firm's supply chain management (SCM) to show the mediating effect between environmental uncertainty, behavioral uncertainty, and transaction costs. However, online retailing's

perception of higher and hidden transaction costs can affect customers' behavior and intention.

Customer Trust

Some strategies help build a trust relationship with online customers in countries like India. Similarity and seller expertise were found to have a substantial impact on relational mediators, and word of mouth was the most critical outcome of relationship marketing efforts (Verma et al., 2016). Customer trust is one factor that affects online transactions in the drug markets (Tzanetakis et al., 2016). Tzanetakis et al. (2016) observed that to stabilize market processes in an online environment, different practices for building customer trust and reputation emerge.

Similarity and seller expertise substantially impact relational mediators (Verma et al., 2016). That word of mouth was critical, which expanded on the concept of *customer trust is vital*. Rajaretnam and Sheth (2018) concluded that trust was an essential factor in converting a user to an online buyer. Online retailers also need to establish trust with the local governments for ease of business. Jaiswal et al. (2018) explored how customer trust affects customer retention with a quantitative study to improve customer retention for India's online businesses based on how the customer was acquired and the length of customer engagement.

Customer trust is also essential for a B2B and business to government (B2G) relations. Tehrani (2014) studied tax avoidance by online retailers using Amazon as a prime example and guided online retailers on partnering with governments to improve tax compliance and business improvement.

The consumer's trust plays a direct or indirect role as an additional variable outside the theoretical framework in some recent studies. A credible internet search engine plays a role in bringing hedonic motivation for users promoting better water resource management, and users' trust affects habitual use of such an internet search engine (Reyes-Menendez et al., 2018). Gu et al. (2019) mentioned users' trust as positively affecting the increase in social media health management systems.

Customer Satisfaction

Customer satisfaction is measured from postpurchase product evaluation, usually a gap between product or service perception and product or service expectation (Xu et al., 2018)**.** Further, Tandon (2016) defined how customer satisfaction was improved in online retailing due to perceived usability. Such definitions of customer satisfaction had motivated other researchers to study customer satisfaction in developing countries with seven well-defined hypotheses establishing relationships with the aspects of usability, usefulness, and customer satisfaction from online retailing.

Some recent studies have tried to understand how customer satisfaction affects online purchase spending. There is a direct positive relationship between e-satisfaction, e-loyalty, and e-service quality with e-commerce spending (Nisar & Prabhakar, 2017). Nisar and Prabhakar (2017) also mentioned that e-commerce faces challenges from offline retailing as the consumers cannot feel and try the products; therefore buying products that they did not intend to purchase.

Other Factors

The rationale for selecting transaction costs, customer satisfaction, and customer trust was established from the literature above. The following literature references further synthesized studies related to the three key independent variables as a function of the online retail growth variable.

Few other prominent factors may affect the online retailing growth in developing countries such as India. Arora and Budree (2016) analyzed how online businesses were performing in India. The study concluded in a nonempirical study that India was a hot destination for e-commerce companies. The article concluded that many other factors (i.e., government regulation, penetration of mobile, promotions, discounts, demographics, and internet use) affected the growth of e-commerce in India (Arora & Budree).

Tandon (2016) examined the e-commerce related regulations in India. The article aimed to provide information about the legal repercussions of e-commerce for the customers in India. Tandon analyzed different business types, such as B2C, C2C, B2B, C2B, and B2B2C, and recommended that India should have an e-commerce specific regulation similar to some other countries to prevent security and authenticity issues. The study is relevant to the consumers and the research environment needing insights into legality in India's online shopping experience.

The retailing industry differs from other industries due to continuous and extensive interactions among industry employees and customers (Porricelli et al., 2014). Interactivity is empirically concluded as a factor affecting repurchase intention in the Chinese online marketplace Taobao.com (Bao et al., 2016). The retailing industry has

evolved from traditional retail stores to supermarkets and hypermarkets. Online retailing is the latest segment of the retailing industry.

Repurchase intention indicates the continual growth of online retailing. Luo et al. (2015) concluded from an online survey of 209 online consumers in China that the perceived quality of logistic services positively affects the relationship between customer trust in online shopping and the customer's repurchase intention. Luo et al. (2015) also concluded that a customer's gender did not affect the relationship between customer satisfaction and customer trust in online shopping. The perceived effectiveness of the online retailer-provided recommendations is also empirically evaluated to improve online repurchase intention; however, the recommendations did not seem to affect the relationship between the customer's trust in online shopping and customer satisfaction (Wang et al., 2015).

Liu et al. (2019) examined four factors that positively affected online shopping in China, and identified through empirical research that online promotion, content marketing, personalized recommendation, and social reviews affected online consumers' purchase intention. Online promotion and discounts play a differentiating factor between shopping online and shopping for the same product in physical stores. Personalized recommendation using artificial intelligence is one of the electronic services that add value to online shopping customers.

Some past studies mentioned that gender did not affect the online retailing growth and some localized studies concluded that gender affected online shopping behavior. Kar and Pal (2016) concluded shopping convenience as a significant factor positively

affecting online retailing growth in Kolkata, and demographics such as gender and age did not affect online purchase behavior. Similarly, Akram (2018) mentioned that demographical parameters such as gender, age, or education did not affect online customers' purchase intention in developing countries. However, Raman (2014) examined female online consumer behavior in India and concluded that female shoppers look for easy and risk-free online shopping.

Personal traits and personal recommendations are essential to determine online shoppers' buying intention. Repurchase intention for purchasing online will increase through perceived ease of use and perceived usefulness (Moslehpour et al., 2018). Moslehpour et al. (2018) surveyed Taiwanese online shoppers to empirically establish a relationship between personal traits such as openness to experience new technology and customers' repurchase intention.

Small Business in India and Government Regulating Online Retail

Per the Micro, Small, and Medium Enterprises Development Act of 2006, the Indian small-scale industry can be categorized into manufacturing and service industries. The small-scale manufacturing industry has an investment of less than 50 million Indian rupees, and the small-scale service industry has an investment of less than two crore Indian rupees (Sankaran, 2015). Dennis (2016) assessed how public policy affects small businesses in the United States. There will be a difference between systems supporting small business growth and those favoring enterprises, as lobbyists support the two types of firms (Dennis). Ensuring a favorable policy for small businesses to sustain competitive technological firms with online retailing is challenging.

Li et al. (2011) examined why China developed better small-scale industries; it was due to a supportive business environment. Research supported insights are necessary to understand what affects business growth in the global competitive environment. Li et al. provided an objective method of comparing the business growth across two Asian countries—India and China—whose gross domestic product (GDP) growth rate is commendable in recent years.

Government regulations are known to affect most businesses. Online retailing, where there is no face-to-face contact between the retailer and the customer, is expected to have legal aspects that require regulations. Tandon (2016) mentioned how online retailing has grown in India and suggests the need for legal regulations to ensure safe and secure e-commerce in India. The Information Technology Act (2000) mostly regulates the use of the internet, but India needs acts and regulations focused on e-commerce such as the Uniform Electronic Transaction Act and the Personal Information Protection and Electronic Documents Act (Tandon).

Cloud Computing Adoption by Small Businesses in India

Small and medium-sized enterprise (SME) development is vital for the nation's development. There is existing research literature that contributes to studies to influence SMEs' success in the intensively competitive global and online markets. Kumar et al. (2017) explored the determinants of cloud computing adoption by SMEs, and used the integrated research framework for perspective with a quantitative research methodology, and mentioned that the data derived and the model can be useful for cloud hosting providers, policymakers, and practitioners. Sandu and Gide (2018) explored factors that

influence SMEs' cloud adoption in India via the technological, organizational, and environmental lens.

Small business owners in developing countries need capital to invest in cloud computing adoption to compete with online retailing growth. SMEs with little capital investment enhance the nation's economic standards, and Uganda SMEs are at a disadvantage in the current world of e-commerce and Web presence (Okello-Obura et al., 2008). Similarly, small business owners in developing countries like India lack the awareness, capital, and financial instruments to adopt cloud computing to market their business online.

It is challenging for small business owners to compete with enterprises and aggregators' online presence in transaction costs, customer satisfaction, and customer trust. Customer trust can be evaluated in terms of website quality. Moeini et al. (2015) provided a comprehensive website evaluation model by integrating 93 other models using a quantitative approach. Website quality is essential for e-commerce business success (Moeini et al.). Such literature indicates the criticalness of quality and customer trust in online retailing growth.

Lack of expertise, limited resources, affordability, and time limitations affect small businesses from adopting cloud and e-commerce (Attaran & Woods, 2018). Attaran and Woods (2018) explained that business owners, especially small business owners, understand the need to provide mobile applications and websites to retain their customers.

Perceived Benefits of Online Retailing

Online retailing's perceived benefits are known to be lower prices due to discounts offered by prominent online retailers, secure search options, and convenience (Xu et al., 2015). Promotions, discounts, and redeeming coupons may also be seen as possible benefits of online shopping and driving online repurchase behavior (Kar & Pal, 2016). In developing countries such as India, with a rapidly growing population and traffic issues, Indians may prefer to shop online and have products delivered to their home. New payment instruments (e.g., COD) are considered largely successful mechanisms aiding the growth of online retail.

Shopping convenience may be a perceived benefit of online shopping. Kar and Pal (2016) concluded shopping convenience as a significant factor positively affecting online retailing growth in Kolkata. Akram (2018) concluded with an empirical study that perceived convenience and enjoyment from online shopping was a benefit of online retail. Time-saving convenience and perceived security were empirically derived antecedents to predicting a perceived value and customers trust in online shopping (Escobar-Rodríguez & Bonsón-Fernández, 2017). Shaikh and Daddikar (2017) studied the online shopping practices of business school students in Belagavi City in India and mentioned promotional offers and cashback offers amongst online shopping benefits.

The quality-value-purchase chain model with multichannel integration supported online shopping cost savings and better processes as perceived benefits of online retailing (Wu & Chang, 2016). While shopping convenience is a benefit found by some

researchers in past studies, discounts and hedonic value were concluded in some studies as higher benefits than shopping convenience.

The consumer's perceived level of control on their online shopping activity without being influenced by the upselling and cross-selling of store employees can benefit online shopping (Akram, 2018). Consumers develop a positive attitude and trust towards online stores due to a higher perceived level of control over their online shopping activity (Elwalda et al., 2016). Product variety has also been found as a benefit of online retail. Customers felt empowered shopping online to see more product options and variety in an online catalog (Akram, 2018).

Perceived Barriers to Online Retailing in India

There are different types of perceived risks in online shopping that can be broadly categorized as financial risks: security, psychological, and time. The perceived risks of online retailing are price risk, product quality risk, delivery risk, privacy issues, return/shipment policy, and financial risks (Xu et al., 2015). Customer trust in the online retail supply chain is an essential factor in decreasing the perceived risk. Customer trust, perceived risk, and COD ease of use affected customer satisfaction and online shopping growth (Tandon et al., 2018). Online companies may also need different product return and refund policies in developing countries than they do in developed countries. Return policies and refunds added to the transaction cost and increased transaction costs are barriers to online retail growth. Trust is perceived as a risk factor by the customer and online retail businesses.

Lack of physical presence, higher possibility of fraud, quality assurance, fear of hacking, and lack of customer support were seen as significant impediments to online shopping growth (Kar & Pal, 2016). Technical know-how may not be a considerable impediment for technically savvy and regular online shoppers, but the adoption can impede technically challenged users. The perceived risks of online shopping affect how online shopping benefits were perceived (Akram, 2018). The higher the perceived risks, the lower the perceived benefits and online purchase intention. Gorai (2018) sampled 300 participants from the Delhi NCR region in India to examine barriers to online shopping of physical products. The critical resistors to online shopping can be categorized into psychological, behavioral, demographic, cultural, social factors, and product category factors (Gorai).

Researchers studying online user activities have found that most online users use the internet for communication, social networking, and entertainment while shopping online was lower in priority (Kar & Pal, 2016). Therefore, while online retail is growing in developing countries such as India, online shopping competes with other online activities. Customer trust in online shopping can be a significant factor affecting the growth of online retailing.

There are existing recent studies in other countries where the researchers study the barriers to online retail. Only 23% of Romanians shopped at least one product online in 2019 (Andrei, 2020). Andrei (2020) recognized social and behavioral barriers ahead of educational and financial barriers to online retailing growth in Romania. The preferences

of the mode of payment and the habit of in-store purchases play barriers to online shopping.

Current Online Retailing Growth in India

Online retailing is still at a moderate growth rate in India, although the perceived opportunity for growth is considered high. Like many developing countries, the Indian e-commerce market poses advantages and challenges for online retail growth. I have researched approximately 50 articles to help understand the trend and the factors affecting online retail growth. From the trend perspective, there are a few essential aspects:

- BIs are affecting the choice of online shopping.
- Adoption of technology and mobile e-commerce.
- The e-commerce growth in India and the corresponding impact on small businesses.

BIs Affect the Choice to Shop Online

There is existing literature correlating the business segments and buying behavior with the growth of online retailing. Customer cluster and online purchase behavior vary by business segments (e.g., grocery shopping, textile shopping, pharmacy) and delivery costs (Vanessa & Japutra, 2017). Online retailing transaction costs vary due to country-specific pricing of payment instruments (i.e., PayPal, credit card, and prepayment options) (Grüschow, 2018). Joshi (2017) highlighted the relationship between online transaction costs and buying behavior. Despite India being the second-largest smartphone market globally with many internet users, the growth of online shopping is moderate

compared to developed countries (Attri et al., 2017). Studying the effect of factors affecting online retailing growth may help mitigate the negative impact of online retailing on small businesses.

Gurjar and Bhattacharya (2018) examined the environmental and online buying preferences of the Indian population to provide insights into e-commerce businesses, and concluded that the study helped with evaluating demographics and investments. Chatterjee (2015) explained the e-commerce position in India and its growth from a cultural viewpoint. The article concluded with solutions to improve e-commerce in India and provided scope for future research. In some countries (e.g., Emirates), the essential elements of stagnant to modest growth can be value-added costs, fear of fraud, lack of education, culture, and customer satisfaction (Seetharaman et al., 2017). Such a study is still relevant to the academic community and e-commerce businesses to understand the factors affecting online growth in high-potential developing countries.

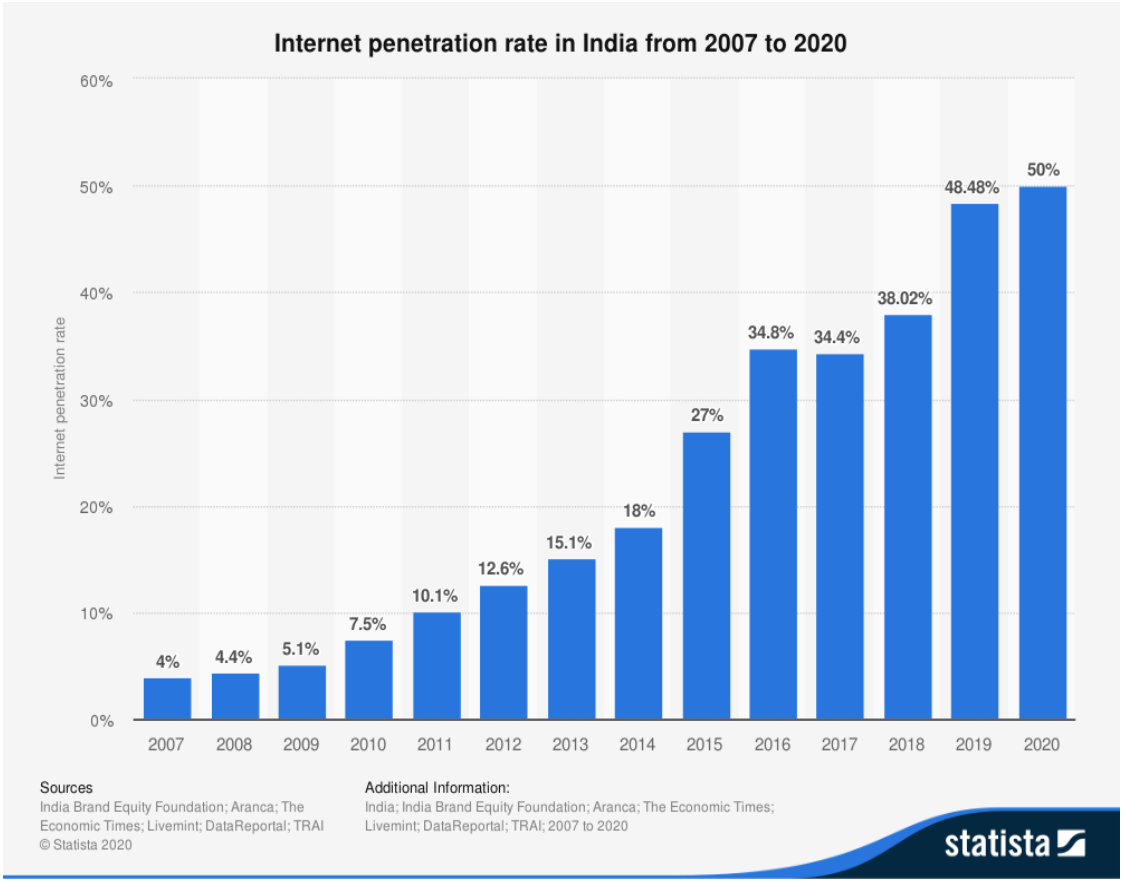
Arora and Budree (2016) analyzed how online companies were performing in India. The nonempirical study concluded that India was a hot destination for e-commerce companies. The researchers found that many factors (i.e., government regulation, penetration of mobile phone use, promotions, discounts, demographics, and internet use) affected the growth of e-commerce in India (Arora & Budree). Choudhary and Dhillon (2018) documented the factors affecting India's online shopping and what differentiated rural and urban consumers. The researchers used quantitative research methods, and the data was collected with a survey questionnaire via random sampling of urban and rural

consumers in India. The study applied to similar Southeast Asian developing countries (Choudhary & Dhillon).

The internet penetration in India has grown significantly in recent years; according to statista.com, the penetration rate increased to 50% in 2020 from approximately 35% in 2017, as shown in Figure 7. Digital usage in India is also growing as data usage costs are reducing drastically per the McKinsey Global Institute (Bughin et al., 2019). Few researchers concluded that India's smartphone usage grew from 5.4% in 2014 to 26.2% in 2018. Figure 7 shows India's internet penetration rate.

Figure 7

India's Internet Penetration Rate



Note. A figure showing the internet growth in India from 2007 to 2020. Adapted from *Statista.com*, by T. Basuroy, 2021, https://www.statista.com/statistics/792074/india-internet-penetration-rate. Reprinted with permission (see Appendix E).

Along the same lines, Tzanetakis et al. (2016) observed that to stabilize market processes in an online environment, different practices for building customer trust and reputation emerged. Customer trust is considered one factor that affects online transactions in the drug markets; however, the authors did not consider medical practitioners' role in online drug markets (Tzanetakis et al.). The purpose of this study and the RQ was extended with relevant hypotheses. This study is related to the current business environment, where SMEs need to compete with online retailing in most markets.

Gelbrich et al. (2017) developed a nonreturn reward for consumers purchasing online. They explained that the study's purpose was to propose a marketing strategy that promotes no returns rather than the general return policies. Gelbrich et al.'s data collection included broad journal sets and opinion surveys to develop an objective method. This study was relevant to the current research environment needing insights into avoiding losses to online retailers from online shopping returns. This study filled the gap in having an objective method of comparing the no-return promotion to the current lenient return policies (Gelbrich et al.). Return policies and refunds added to the transaction cost and increased transaction costs are barriers to online retail growth.

Online shopping risks and uncertainties may influence the purchase behavior of online shoppers. Hwang and Lee (2016) explored how EDI affected a firm's SCM

competitiveness and used a conceptual framework to compare purchase order fulfillment with and without EDI. Hwang and Lee showed the mediating effect between environmental uncertainty, behavioral uncertainty, transaction costs, and the moderating effect of using EDI on the impact of environmental uncertainty on transaction costs.

Demographics and past experiences are expected to have an impact on behavior in general. Studying online consumer purchase behavior by demographics was relevant. Raman (2014) examined female online consumer behavior in India and concluded that female shoppers look for easy and risk-free online shopping. Similarly, Mishra (2018) applied the TPB to explore the impact of online shoppers' transaction experiences on the merchandise's customer value perception. Arora and Rahul (2017) examined how trust affected women shopping online in India; the TPB was used in the study.

Additionally, Juyal (2018) compared the profile of internet buyers with buyers who buy from brick and mortar stores in terms of demographics, technical expertise, and purchasing behavioral experiences towards marketing, and concluded how the different demographical factors and buying behavior attitudes could be understood better to influence online retail growth (Juyal). However, some researchers concluded that gender, age, or education did not affect online purchase intention, but positive past experiences positively affected the growth of online retailing. Akram (2018) mentioned that demographical parameters such as gender, age, or education did not affect online customers' purchase intention in developing countries.

Literacy and education level are other demographic factors that may affect online purchase behavior in developing countries. Vasumathi et al. (2016) assessed the impact

of younger generations (e.g., engineering students), on India's online shopping growth. The study's findings regarding the number of years of internet use and the students' pocket money influenced online shopping behavior. The data set makes the study results valid across India (Vasumathi et al.). The researchers concluded the possibility of different results in countries like the United States.

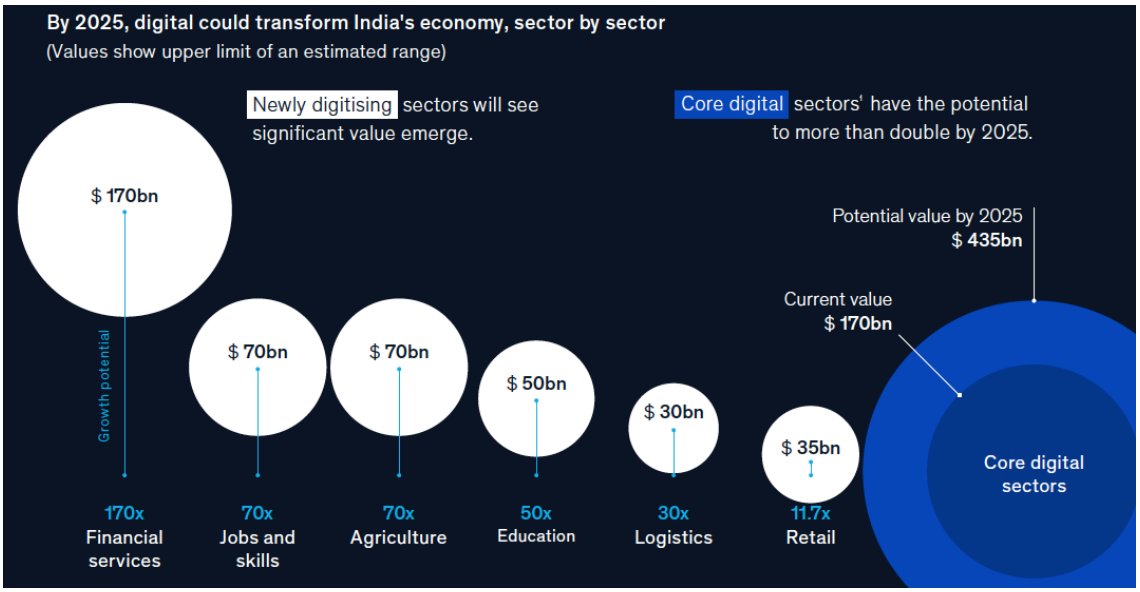
Income and gender attributes are known to affect customers' attitudes towards online shopping. A study of Haridwar City residents in India explored how income and gender attributes relate to developing a positive attitude towards online shopping (Jain & Tomar, 2017). Kumar et al. (2017) concluded that younger, higher-income females help grow online retailing.

Gender and product type attributes may affect customers' online repurchase intention. While some customers may prefer to purchase some product types offline more often than online, this behavior may depend on a customer's gender. The type of product affects women, but not men, in terms of the perceived risk of purchasing some products online (Pascual-Miguel et al., 2015). Overall, recent statistics show that online retailing in India is competing hard with other internet services. As shown in Figure 8, financial services, agriculture, education, and logistics sectors are digitizing at much higher rates than online retail in India. By 2025, financial service digitization is expected to grow by 170 times and agriculture by 70 times, while online retail is expected to grow by only 11.7 times to about 35 billion Indian rupees (Bughin et al., 2019). Pascual-Miguel et al. (2015) studied data collected by surveying 815 Spanish consumers in the theoretical

parameters of the UTAUT-2 and two additional variables of perceived risk and trust. Figure 8 shows 2025 prediction of sector-wise digital transformation in India.

Figure 8

Digital Transformation in India in 2025 by Sector



Note. The figure shows 2025 prediction of sector-wise digital transformation in India. *Exhibit from "Digital India: Technology to transform a connected nation"*, March 2019, McKinsey Global Institute, https://www.McKinsey.com. Copyright © 2022 McKinsey & Company. All rights reserved. Reprinted with permission (see Appendix D).

Similarly, Obeidat and Young (2017) comparatively assessed online shopping adoption by digital immigrants and digital natives by using the TAM. The data set made the study results valid across developing countries. The article concluded that digital natives trusted online shopping more (Obeidat & Young). Tandon (2016) extended the TAM to examine online shopping adoption in India. The researchers concluded affecting factors such as customer trust, perceived risk, and the COD ease of use. The attitude,

subjective norm, and perceived behavioral control were applied to understand consumers' online purchase behavior. Pandey et al. (2015) documented the factors motivating online shoppers' buying behavior in three districts in Chattisgarh State in India. The researchers concluded the buying behavior in terms of attributes (i.e., future purchase intention, frequency of online shopping, and spending) (Pandey et al.). Such behavior will be helpful in research related to understanding e-commerce growth in India and other countries.

Though COD has been the preferred mode of payment for online retail shopping in India, cashless transactions are expected to grow. For online shoppers in India, the number of annual cashless transactions has grown from about two transactions per person in 2014 to 18 transactions per person in 2018 (Bughin et al., 2019). Such statistics show the payment method as a factor that needs technological support to grow customers' trust in online shopping.

Bhasin (2016) examined the role of privacy in Indian e-commerce and mentioned that customer trust was essential for e-commerce growth by facilitating the transfer of sensitive consumer information to online retailers. Bhasin said the three most widely-used website seals, are the AICP Web trust, BBBOnLine, and the TrustE. The author explained that there was no specific legislation for consumer data protection and privacy.

Customer trust and privacy are important factors in online purchasing behavior and can be improved with security and legal regulations. Tandon (2016) examined e-commerce legality in India and aimed to provide insights to the consumers about

accepting legal e-commerce transactions and recommended effective legislation and pixilation detector use for India's e-commerce security.

Rajaretnam and Sheth (2018) concluded that customer trust was an essential factor in converting a consumer to an online buyer. The researchers mentioned that online buyers are more affluent and documented how they can become an online buyer. The study applied to e-commerce companies in converting users towards online buying (Rajaretnam & Sheth).

Joshi (2017) explored adults' purchasing behavior in a mid-size Indian city called Pune, and recommended that behavior patterns be studied in similar cities in developing countries. The study highlighted the relationship between buying costs and buying behavior. Similarly, the study also helped to understand the e-commerce development in other Indian cities (Joshi). Seetharaman et al. (2017) defined transaction costs in travel, transportation, bargaining, searching, shopping time, and quality inspection costs.

Performance expectancy, hedonic motivation, and habit affect online shopping (Baptista & Oliviera, 2015). Performance expectancy, effort motivation, and habit affect online shopping (Albugami & Bellaaj, 2014). There is not much uniformity about the factors affecting online retailing growth (Tandon & Kiran, 2019). Therefore, there is a need to understand the importance of transaction cost, customer trust in online shopping, and customer satisfaction as the factors affecting the growth of online retailing in India.

Researchers of some past studies related to online retailing growth in India focused on studying specific regions, cities, and states in India. Such studies are also limited by the lack of generalization of the factors affecting the growth of online retailing

in India. Kar and Pal (2016) focused on studying the factors affecting online shopping growth in Kolkata by surveying 175 internet users in Kolkata City. Kar and Pal concluded shopping convenience as a significant factor positively affecting online retailing growth in Kolkata. Kumar et al. (2017) conducted an empirical study using primary data from surveying 220 online shoppers in third-tier cities in India, such as Bareilly in Uttar Pradesh, to conclude that younger and higher-income shoppers help grow online retailing. Sharma (2018) conducted his study in Lucknow, India, and concluded that the convenience of online shopping and easy monthly installments are factors attracting online shopping customers of all age groups.

More existing literature related to the growth of online retailing in India focused on studying specific regions, cities, and states in India. Joshi (2017) focused on surveying adult female online shoppers in Pune city and concluded that online shoppers were price and quality sensitive. The preferred categories for online shopping are clothes and baby products though customers prefer to search for products online and see products in physical stores before purchasing online (Joshi). Sachdeva et al. (2018) studied online shoppers in Haryana State and showed that ease of use, awareness, redressal of complaints, and reliability are significant predictors of online purchase behavior. Gorai (2018) sampled 300 participants from the Delhi NCR region in India to examine barriers to online shopping of physical products. Shaikh and Daddikar (2017) studied business school students' online shopping practices in Belagavi City in Karnataka, India, and mention discounts, promotional offers, new shopping experience, and cashback offers benefits of online shopping.

Grocery shopping is unique in the sense that online shoppers and offline shoppers are motivated by individual requirements. Online shoppers of fruits and vegetables are motivated by convenience, reduced time in traffic, home delivery, and queuing, while offline shoppers desire freshness and quality of fruits and vegetables (Verma & Singla, 2019). For offline shoppers, the risks of receiving low-quality fruits and vegetables outweigh the benefits of online shopping. Verma and Singla (2019) conducted a quantitative study to identify the factors motivating the two sets of fruits and vegetable shoppers.

Online and offline shopping coexist in most developing countries though online shopping is expected to grow due to the perceived benefits. In a scoped down study of online shoppers in Haryana City, India, Kumar and Khurana (2019) concluded that Haryana people use online and offline shopping, but still preferred offline shopping. One study focused on a small geographical rural and urban area in Vadodara, Gujarat, India (Vyas et al., 2017). Vyas et al. (2017) studied under the limitations of time, sample size, small geographical area, and cost to derive the conclusion that COD was the preferred payment mode for online shoppers. Arora and Budree (2016) mentioned that online and offline shopping coexist, contrary to the belief that online shopping was driving away offline shopping.

There is existing research related to the growth of online retailing in other developing countries. Personal traits and personal recommendations are essential to determine online shoppers' buying intention per studying Taiwanese online shopping customers (Moslehpour et al., 2018). Sim et al. (2018) concluded that online shopping

customer's trust in the vendor is an essential factor. The adoption of online shopping in Indonesia was still relatively low in 2016 due to inhibiting factors such as lack of supporting infrastructure, lack of business compatibility, no perceived benefit, and no direct vendor interaction (Muslim & Sandhyaduhita, 2016). Ofori et al. (2018) studied C2C online shopping using the UTAUT and the initial trust model theoretical frameworks to understand how customers' trust in online shopping is related to online retailing growth in Ghana, Africa. Similarly, purchasing music over the internet in Indonesia was studied using the UTAUT-2 parameters (Widodo et al., 2017).

Adoption of Technology and Mobile E-commerce

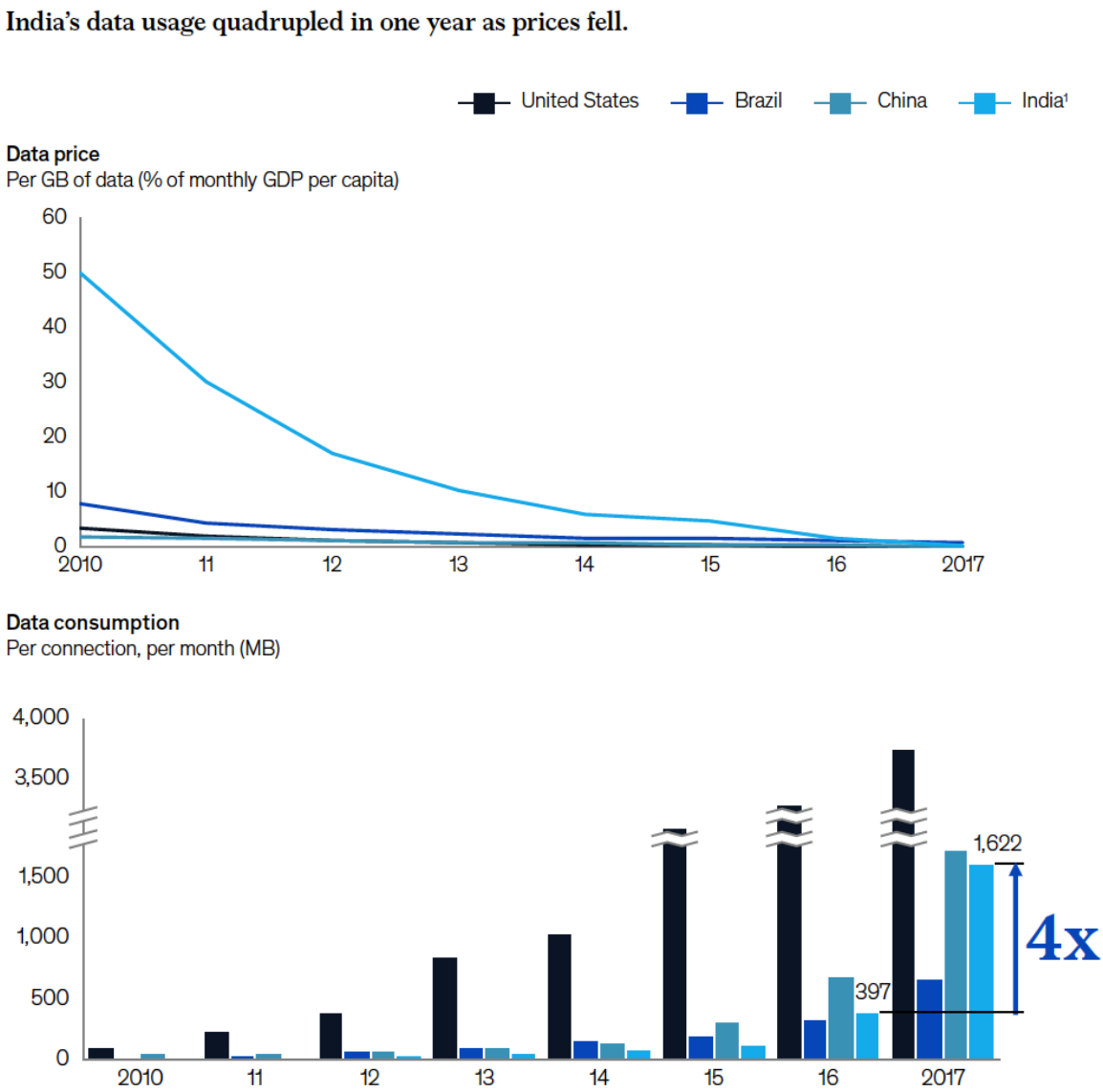
Some organizations and industries may adopt technology more quickly than others. Orlikowski (1992) proposed a reconceptualization of technology that took human resource and structural perspectives into account and justified the need for such research as either of the two views can mislead the information systems community. Orlikowski suggested that the reformulation of the technology concept and the structuration model of technology allow a deeper and more rational understanding of technology and organizations' interaction. Although this was an older reference source, this study is still relevant to the current research environment needing information to invest in technology.

Chalam and Rao (2014) explored internet growth trends in India and e-commerce applications used daily in India. Their study highlighted mobile technology penetration as a critical factor in India's e-commerce growth and described a typical global structural model. Their research also helped understand India's structural e-commerce development

and technological evolution (Chalam & Rao). Figure 9 shows internet data usage growing drastically as internet data rates dropped (Bughin et al., 2019).

Figure 9

India's Internet Data Usage Quadrupled Between 2016 and 2017

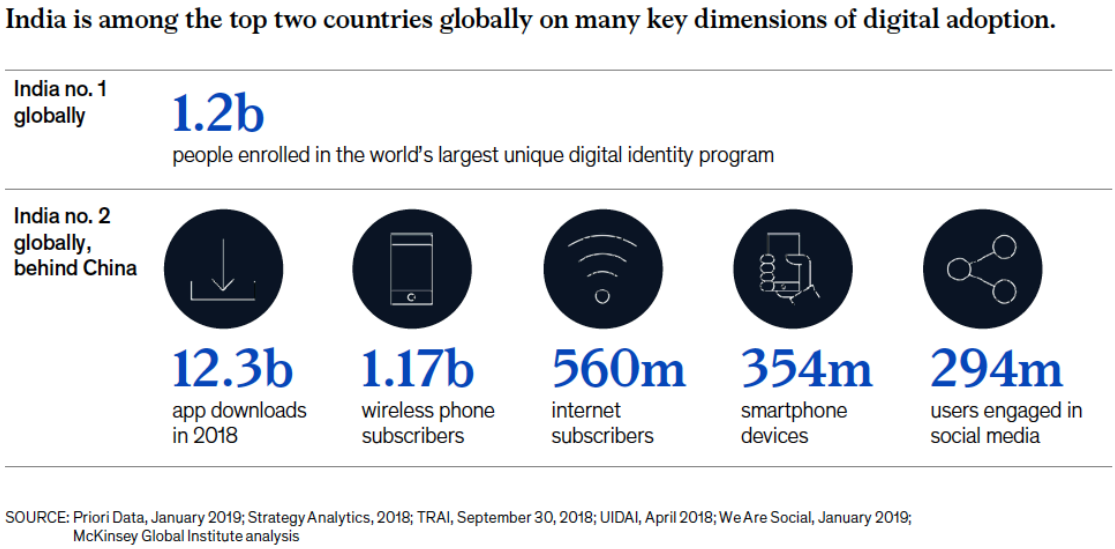


Note. The charts above show that India's mobile and internet data consumption increased as the data price reduced. *Exhibit from "Digital India: Technology to transform a connected nation"*, March 2019, McKinsey Global Institute, https://www.McKinsey.com. Copyright © 2022 McKinsey & Company. All rights reserved. Reprinted with permission (see Appendix D).

Though mobile internet penetration may have influenced India's online retail growth, the growth may differ from those in developed countries. Agarwal and Dixit (2017) comparatively assessed India's internet penetration and e-commerce growth with that of the top three developed countries (i.e., United States, United Kingdom, and China). The study's findings regarding the drawbacks of political, legal, social, and infrastructure were explained. The research methodology used was quantitative using linear regression, and the data set made the study results valid across India (Agarwal & Dixit). The researchers found that India's e-commerce growth had a significant statistical relationship with the number of internet users with the possibility of different results in countries like the United States, United Kingdom, and China (Agarwal & Dixit). Figure 10 shows that India has the world's largest digital identity program.

Figure 10

India's Digital Adoption and Mobile Penetration



Note. According to Figure 10, India is only behind China in the world's digital adoption with high mobile internet penetration. *Exhibit from "Digital India: Technology to transform a connected nation"*, March 2019, McKinsey Global Institute, https://www.McKinsey.com. Copyright © 2022 McKinsey & Company. All rights reserved. Reprinted with permission (see Appendix D).

By the end of 2018, 50% of Indian mobile phone users were using smartphones compared to 18% in 2016. The number of internet subscribers and social media users has also grown as the data usage rates decreased.

In addition to mobile internet growth, favorable government regulations may also affect the growth of e-commerce. Krishna and Chalam (2016) explained the explosive growth of e-commerce in India from a cultural and technological viewpoint. The Information Technology Act, growth of logistics, and technology infrastructure were also

found to positively affect the growth of e-commerce in India. While government regulations balance e-commerce companies and small local businesses' growth, online customers' behavior may not be directly affected by government regulations. The study applied to e-commerce businesses to grow in countries with varying cultures.

Similarly, Sharma (2015) reviewed the regulations and the state of e-commerce in India and concluded innovation logistics, mobile commerce, price comparison engines, and online grocery stores as the key points that would help drive e-commerce. The UTAUT framework has been adopted to understand the growth of mobile e-commerce, and its parameters positively impact mobile shopping growth and online customers' trust in mobile shopping (Sim et al., 2018). Sim et al. (2018) concluded that the trust in the vendor is an important factor in addition to the trust in mobile technology.

E-Government services can be defined as services made available by the government using the internet. Information system quality and other UTAUT parameters were empirically found to affect the adoption of e-government services in the Republic of Indonesia (Berlilana & Nurfaizah, 2017). Cybersecurity and privacy are important factors necessary for better adoption of e-government services. Reliability, security, and privacy positively affect the perceived usefulness, in general, of typical websites and e-government websites (Rasool & Warraich, 2018).

Low-cost logistics technology and SCM may play an essential role in the adoption of online retail. Vanelslander et al. (2013) focused on the logistics of grocery items' online sales and analyzed supply chain methods, general methodology, and high-level view of online retailing. Vanelslander et al. explained a form of transaction cost

distribution, but did not explicitly sample from different company sizes, firms' history, and geographical locations, which encouraged future research in determining the success and risk factors of supply chain management in online retailing. Similarly, Krishnapillai et al. (2011) examined the barriers to online SCM practices in the tourism industry.

An estimated 80% of retail in India operates in the cash-driven payment mode compared to 35% in Brazil and 55% of China retailers (Bughin et al., 2019). The pay-on-delivery (POD) mode of payment was empirically validated as one of the factors influencing the growth of online retailing in Northern India (Tandon & Kiran, 2019). POD or COD requires additional technological support. Also, the POD payment mode reduces the need for customer trust in online shopping. Akroush and Al-Debei (2015) mentioned that adopting POD payment mode in Jordan positively influenced the online buying attitude and customer trust in online shopping. Similarly, POD was identified as a trust builder between customers and online retailers in Nigeria.

Security and privacy are essential considerations for online shopping. While perceived privacy affects the buying behavior, lack of technical security may negatively affect the transaction costs and long-term trust of online shoppers. Schneier (2008) debated how to prioritize investing in information technology (IT) security. The researcher used prospect theory and utility theory to determine why selling IT security was tough though information systems security is necessary for legal and privacy needs. Schneier referred to many cognitive bias examples to illustrate that IT security should be emphasized by describing the negative results of not focusing on IT security and including security to be part of IT policy.

The next step of online retailing is virtual world shopping, and virtual worlds provide an immersive experience for customers to purchase products (White et al., 2019). White et al. (2019) mentioned that virtual reality environments provide more interactivity and functionality to existing Web-based e-commerce transactions. Therefore, virtual reality technology may further affect the growth of online retailing as more online retailers invest in virtual worlds technology and integrate their current shopping offerings with virtual reality.

Real-time product targeting, voice-powered search such as Amazon's Alexa or Apple's Siri, and virtual personal shoppers influence online shopping customers' perception of the use of artificial intelligence in e-commerce shopping (Suresh & Rani, 2020).

E-Commerce Growth in India and the Corresponding Impact on Small Businesses

Online retail helps expand businesses across geographical boundaries, while local small businesses focus on developing domestic markets. Godoy (2017) discussed how online companies and digitization disrupted international trade and mentioned micro, small, and medium enterprises' opportunities. The researcher also suggested women empowerment initiatives in India and the e-residency program of Estonia.

Customers tend to have an affinity to shop at local small businesses due to familiarity and trust built over the years. This affinity may also help small companies that expand to online retail. Cyr et al. (2008) explained the effect of website design on end-user loyalty, customer trust, and satisfaction. They addressed the gap in understanding

how website design affected customer retention and buying behavior. Cyr et al. concluded that local websites were preferred to websites that looked the same globally.

Krishna and Chalam (2016) categorized India's online businesses into five categories: online travel, online retail, online classifieds, digital downloads, and financial services. Online retail is the e-commerce of products such as mobile phones, books, electronics, clothing, shoes, etc. Automobiles, financial instruments, matrimonial services, and real estate transactions were also gaining online transaction growth (Krishna & Chalam). Some products and services may find more online customers than others.

Krishna and Chalam (2016) explained the growth of online retail in India in three phases, with the first phase showing a slow growth of about $200 million in 15 years ending in 2010. In the second phase, e-commerce grew in India by about $8 billion during the 5 years ending in 2015. The third phase is positively affected by innovations in payment infrastructure, mobile commerce, the government's digital initiatives, increased foreign capital investments, and big international players (Krishna & Chalam).

Narasimha (2017) explained how the Dharavi cotton industry markets helped compete with the e-commerce markets by providing a Dharavi public market. The study is complete in introducing the reader to the cottage industries in the Dharavi slum and included many secondary resources to drive the findings. In conclusion, the case study described the advantages of having a public Dharavi market to improve small-business owners' lives and the overall economic impact of the direct-to-portal market (Narasimha, 2017). This study was vital to help small-scale business owners in India cope with the challenges of competing with online retailing growth.

Li and Miao (2017) proposed the innovative idea of e-commerce fresh agricultural products marketing based on the big internet data platform. Their study is relevant to the current business environment requiring rapid innovations in understanding the impact of e-commerce on fresh agricultural products' marketing. Li and Miao did not consider temporal, cultural, and geographical disparate environments prevalent in the farming market; however, this article was vital to help small-scale agricultural farmers benefit from online retailing growth.

Khanna and Sampat (2015) examined the growth of online retailing in India by observing the trends of two big influencers—Flipkart and Amazon India—in the online retailing industry. The competitive strategies adopted by Flipkart and Amazon India during the 2014 Diwali festival season were studied. Khanna and Sampat used SWOT analysis to compare Flipkart (now owned by Walmart) and Amazon India strategies in this nonempirical study. Similarly, Eisenberg and Gupta (2015) examined India's e-commerce growth using Flipkart as an example. They provided a template and e-commerce sustainability information for other e-commerce businesses to grow in developing countries. Eisenberg and Gupta's study was relevant to the research environment needing insights into the role of online shopping festival marketing initiatives in growing online retailing in India.

Pandey and Chawla (2016) explored the consumer- and technology-related factors affecting the online buying loyalty of clothing shoppers in India. Their study filled the gap in understanding how consumer lifestyle factors affected the loyalty of buying

clothing online in India. Similar studies explored the online buying growth of other products such as electronics and books.

The entry of big online retail players such as Amazon and Walmart has accelerated online retail growth in India. Sujata and Menachem (2017) studied the impact of flash sales on India's e-commerce companies using secondary data of Flipkart, Amazon, and Snapdeal over five years. The researchers aimed to provide insights into e-commerce businesses and concluded that studying the impact of flash sales on revenue and logistics helps e-commerce businesses. The big players also have the advantage of offering high discounts on products attracting more online customers. Small business owners often seek government regulation to curb online retail players' practice of providing unfair deals to attract new online customers (Sujata & Menachem).

Online banking plays an essential role in reducing transaction costs. Kannabiran and Narayan (2005) described a private bank's experiences in India that deployed internet banking and e-commerce. The article provided insights to the consumers about e-commerce banking transactions. Kannabiran and Narayan concluded that there was a tremendous benefit for consumers with internet banking and e-transactions.

Kaur (2013) examined the benefits and costs of electronic banking compared to paper banking. The researcher concluded that electronic banking was beneficial from a transaction cost perspective. The conclusion of Kaur's study applied to e-commerce banking and transaction cost evaluations and evaluated how online transactions were affected by cost, value, and return. Recent research studies have called transaction cost out to influence online sales in banking, education, retail, travel, etc. Dijesh and Babu

(2016) examined how e-commerce businesses may reduce transaction costs and improve overall business processes. Dijesh and Babu mentioned that offline transactions had to include the number of transactions as a factor, unlike online transactions.

Online education is considered an evolving channel. Lepkova (2009) examined the challenges of selling online education opportunities and mentioned the four P's (i.e., product, price, promotion, and place) and a theoretical framework of decision making for marketing online education to students. A decade after Lepkova's research, major universities in developed countries offered online education; however, in developing countries such as Turkey and India, online learning is still an evolving education approach. The adoption of online learning was strongly influenced by the perceived quality, perceived usability, and student satisfaction (Bagci & Celik, 2018). Personality traits affected the relationships between perceived value and intention for adopting online learning (Watjatrakul, 2020). The adoption of online education was similar to online retail purchase behavior within the TPB theoretical framework.

Statistical Regression Methods

The purpose of this quantitative correlational study was to evaluate the relationship between transaction costs, customer satisfaction, and customer trust in online shopping with the growth of online retailing in India and measure the presence and strength of the relationship between variables (Frankfort-Nachmias & Leon-Guerrero, 2018). Multiple linear regression (MLR) is a statistical analysis method to determine the value of a dependent variable based on two or more independent variables. MLR provides the capability to simultaneously understand the dependent variable's impacting

multiple independent variables simultaneously without needing to measure by controlling all but one independent variable (Babbie, 2016).

Frankfort-Nachmias and Leon-Guerrero (2018) defined the regression model as a linear model for predicting the dependent variable's effect by one or more independent variables. In a single linear regression model, the researchers are predicting the dependent variable using one independent variable. Similarly, bivariate and multiple regression models use two or more independent variables to predict the outcome or dependent variable. The general form of the MLR equation involving three independent variables is $Y = a + b_1X_1 + b_2X_2 + b_3X_3$, where Y is the dependent variable, X_1, X_2, and X_3 are dependent variables (Frankfort-Nachmias & Leon-Guerrero). MLR helps to understand the dependent variable's mean response with the three independent variables' interrelationship effect. The regression model is linear (i.e., linear regression) and the prediction model uses a linear function (Babbie, 2016).

In an MLR model, the dependent variable Y and the independent variables Xi have a continuous type of data values, such as a range or ratio (Babbie, 2016). The dummy coding method is used to convert ordinal or nominal independent variables. Those independent variables would be called categorical variables, and the regression model would be called a categorical regression model (Frankfort-Nachmias & Leon-Guerrero, 2018). If the dependent variable has discrete data values, then the logistics regression method is used (LaMorte, n.d.).

The linear regression model assumes that the variables have a linear or straight-line relationship. Sometimes a relationship cannot be represented by a straight line, and

nonlinear regression models are needed. The popular types of nonlinear regression models are Cox proportional hazard regression, negative binomial regression, and Poisson regression. The Cox proportional hazard regression is used when the dependent variable is a specific event's time value. The other two nonlinear regression methods are used when the outcome variable is the sum of counts (Benjamin et al., 2019).

The purpose of this quantitative correlational study was to evaluate the relationship between transaction costs, customer satisfaction, and customer trust in online shopping with the growth of online retailing in India. There is a set of three independent variables to predict the growth of online retailing in India. One assumption was that the independent variables were linear with the dependent variable, validated via analysis. The data types of three independent variables (transaction costs, customer satisfaction, and trust) were interval, and those values were used in the MLR model. The SPSS tool was used for statistical analysis.

Building a Regression Model

The common approaches for determining the best-estimated predictor variables are the standard and the stepwise regression. In the standard or contemporary approach, researchers use a literature review to include all the independent variables in one step. In the stepwise procedure, researchers use statistically significant *t*-values to determine whether an independent variable must be included in the regression equation (Vogt & Johnson, 2016). The model is called *forward stepwise* when an independent variable's significance is determined after adding the variable to an existing set of independent variables to assess the newly added independent variable's effect. The statistical R2 value

determines the outcome. In a *backward stepwise* approach, an independent variable will be removed from a regression equation, and the model will be rerun. If the rerun is less effective, then the excluded independent variable will be included in the regression model.

A regression model result should be repeatedly consistent, unbiased, and minimum variance across multiple analysis runs. Consistent means repeated runs give an accurate estimated effect. Unbiased means that the actual value and the estimated dependent variable's mean value should be within the established confidence interval. The dependent variable's estimated value should have minimal variance with the observed outcome value (Heinze & Dunkler, 2018). Normality is another essential attribute of a regression model. Outlier elimination is key to achieving normality and increasing the accuracy of the coefficient estimation. In one approach, the values beyond two standard deviations can be excluded as outliers. In another method, the enhancement of the data points' weighting quality was enhanced using Tukey's biweight function in the mean calculation (Nguyen et al., 2014). If there are dummy coded predictor variables, then the two groups should approximately have equal normal distribution values in the histogram (Warner, 2013).

The sample size is critical to the strength of the regression model. A power analysis may be used to determine the sample size. Researchers plan for their sample size to achieve a statistically significant model (Cohen, 1988). While this method helps distinguish statistically significant effects from the nonsignificant models, the method does not accurately estimate the actual significance. An alternative approach provides

accuracy in effect size estimation, sample size calculation with narrow confidence intervals (Norouzian, 2020). Researchers should calculate the sample size using tools that leverage multiple factors such as the number of independent variables, the required smaller confidence intervals, and the magnitude of multiple correlation coefficients.

Assumptions for the Multiple Regression Model (MLR)

The MLR has assumptions similar to other statistical methods. One assumption is that the dependent variable should be a quantitative variable with normal distribution values; the second assumption is that the relationship between the dependent and independent variables is linear (Warner, 2013). The third assumption is that of homoscedasticity, which means that the variances of errors match across the dependent variable (Vogt & Johnson, 2016). The fourth assumption is independence, which means each predictor variable is independent of the other independent variables (Warner, 2013). If the independent variables are highly correlated, then each independent variable's effect will be challenging to explain, while it is simpler to explain the impact of all independent variables together.

Validation Tests

Validating MLR assumptions requires conformational statistical tests. The normality assumption failure can cause disturbances to the Tukey test statistic distribution (Volkova, 2016). The K-S test can confirm that the sample data trail a normal distribution. However, the Shapiro-Wilk (S-W) test may be a more accurate normality (Godina & Matias, 2018). Researchers can identify linearity by visual interpretation of the graphs (Benjamin, 2019). For validating linearity, one method uses scatter plots and

visually identifies linearity or the lack of linearity between the dependent variable and each independent variable.

Per the independence assumption, if the independent variables are highly correlated, then each independent variable's effect will be difficult to explain. This situation is the collinearity situation that can be diagnosed with *k*-value tests, determinant, variance inflation, and condition numbers (Spanos, 2019). Balling (2008) recommended that a ~~*k*~~-value higher than 30 indicates collinearity. When collinearity is present, the R^2 model will not be accurate. One way to work around the collinearity issue is to build another linear regression model with the two correlating independent variables and replace one variable with the other in the original regression model.

R stands for correlation-coefficient. *R*-squared or R^2 is a statistical value determining how many independent variable changes caused the observed variations in the dependent variable. A high R^2 value indicates strong statistical support to predict the dependent variable (Vogt & Johnson, 2016). Researchers may assign the null hypothesis to the independent variables' variance effect on the predictor variable (Warner, 2013). Examining R^2 in the *F* test can explain the outcome variable's changes to the regression model variance. The *t*-test on each independent variable's coefficient demonstrates the predictor's contribution to the variation variable.

Some studies have assessed the measurement model from the reliability of variables, internal consistency between variables, the model's convergence, and the discriminant validity. Gu et al. (2019) provided descriptive statistics generated from the initial data, including the mean, standard deviation, and factor loading for each variable.

Gu et al. (2019) also calculated the Cronbach's alpha, composite reliability, average variance extracted (AVE), and the AVE's square root using above 0.7 as an acceptable measure. Convergent validity and discriminant validity tests were conducted using SmartPLS2.0 or SmartPLS3.0 to establish study reliability.

Recent Studies Using Quantitative Multiple Linear Regression

Many researchers have applied the MLR model in quantitative studies, but few recently applied it to understanding online retail growth or cloud adoption by small businesses. This section mentions a few of the studies representing the new and relevant use of MLR in quantitative studies.

Moeini et al. (2015) provided a comprehensive website evaluation model by integrating 93 previous models and aimed to provide insights into e-commerce businesses and how website quality was essential for e-commerce business success. The new model established validity due to using the 93 previous models in a quantitative approach. The applicability of global research was also mentioned (Moeini et al.).

Choudhary and Dhillon (2018) applied a traditional use of MLR in their research study and documented the factors affecting online shopping in India and what differentiated rural consumers from urban consumers. The data was collected with a survey questionnaire via random sampling of urban and rural consumers (Choudhary & Dhillon). Choudhary and Dhillon developed an MLR model to predict that the marketer needs to focus on the functional and nonfunctional motives for online buying. They added other statistical analysis methods to the standard MLR (i.e., factor analysis) and used the Kaiser-Meyer-Olkin (KMO) and Bartlett's tests for sample adequacy.

Akram (2018) applied partial least squares (PLS) and structural equation modeling (SEM) using the SmartPLS 3 to analyze relationships with the regression analysis. The analysis results indicated a positive relationship between online shopping benefits and consumers' purchase intention for online shopping (Akram). Using PLS, Akram also assessed the boundary conditions due to which consumers' perceived risks reduce the positive effect of online shopping benefits. PLS was used to analyze data from surveying 156 respondents, to conclude that the UTAUT parameters positively impacted mobile commerce (Asastani et al., 2018). Similarly, Ofori et al. (2018) analyzed using the PLS-SEM approach with data collected from 193 university students with experience using Ghanian websites. Ofori et al. studied C2C online shopping using the UTAUT and the initial trust model theoretical frameworks to understand how customer trust in online shopping is related to the growth of online retailing in Ghana, Africa. LISREL 8.7 statistical software was used for SEM, and SPSS was used for reliability analysis (Zhuo & Xiaoting, 2010).

A 5-point Likert scale was used in the survey, resulting in 130 usable responses (Wang et al., 2015). The 5-point Likert scale ranges from 1 = *strongly disagree* to 5 = *strongly agree*. Wang et al. (2015) used the PLS-SEM approach to estimate path coefficients, discriminant validity, and internal consistency reliability, and concluded that the trust in the vendor increases slowly while online customers' purchase intention increases rapidly as vendors' trust increases.

The quality-value-purchase chain model with multichannel integration supported online shopping cost savings and better processes as perceived benefits of online

retailing. A screening question was used to determine multichannel shoppers as the right survey participants (Wu & Chang, 2016). Wu and Chang (2016) compared early and late respondents to the survey to determine any response bias. They used mediating variables and the dependent and independent variables in their study. The SEM approach was used to determine the relationship between variables and to answer the RQs. Multiple goodness-of-fit indexes and root-mean-square error of approximation was assessed by Wu and Chang.

Chi (2018) applied a traditional use of MLR in their research study and documented the factors affecting online mobile shopping. The data was collected by surveying 293 eligible participants. Chi concluded that website information quality, website visual appeal, apparel visual appeal, and website security positively affected consumer satisfaction from online mobile websites. Chi found that brand trust and website response times did not significantly affect consumer satisfaction from online mobile websites. Similarly, Escobar-Rodríguez and Bonsón-Fernández (2017) applied regression analysis of variables based on PLS optimization techniques to conclude the factors affecting online fashion purchase intention.

Okello-Obura et al. (2008) explored the information and communication technologies (ICTs) application by small and medium enterprises (SMEs) in business transactions in northern Uganda. The researchers adopted the descriptive quantitative survey design and referred to other theorists who defined the role of e-commerce in SME success. The quantitative instruments obtained data regarding SME operations, the use of ICTs, SME managers' skills, internet adoption, and ICT information access by

interviewing SME managers, information providers, and regulation makers. Okello-Obura et al. concluded that SMEs with little capital investment enhance the economic standards of the nation. Still, the Uganda SMEs are at a disadvantage in the current world of e-commerce and Web presence.

Akroush and Al-Debei (2015) examined an integrated model of critical factors impacting Jordan's online shopping attitudes, and analyzed using structural path model, and exploratory and confirmatory factor analyses. They concluded that perceived website reputation, customer's trust, relative advantage and perceived website image impacted online shopping attitudes in developing countries such as Jordan. The primary data for analyses were collected from 273 online shoppers of one Jordanian website called *MarkaVIP*. Similarly, Luo et al. (2015) concluded with exploratory and confirmatory factor analyses that the gender of the online shopping customer does not affect customer satisfaction or customers' trust in online shopping.

Yang (2017) used a quantitative method and evaluated how the copyright royalty rule may weaken competition in the Korean online music industry, and concluded that royalty regulation was disadvantageous and may be preventing price reduction opportunities. Yang used a random utility model with a logit error to estimate the demand function and then conducted the counterfactual analysis. This study was relevant to the research environment needing insights into how regulation and government policy may affect online retailing growth.

Moeini et al. (2015) provided a comprehensive website evaluation model by integrating 93 other models using a quantitative approach and concluded that website

quality was substantial. The new quantitative model got its validity from the 93 models' validity using a heuristic evaluation method. Determining the effectiveness of email marketing and email sales negotiations in B2B e-commerce was a useful study (Singh et al., 2020). Singh et al. (2020) used descriptive statistics, heuristic analysis, and a probit model to conclude sales negotiations' effectiveness by email. A probit model is a regression technique where the dependent variable may have only two absolute values (Vogt & Johnson, 2016). To measure regression model validity, Singh et al. applied confirmatory factor analyses such as maximum likelihood robust and maximum likelihood parameter estimates with Satorra-Bentler correction.

Chandra and Jhonsons (2019) studied 307 factors to compare customer satisfaction scores with airline e-ticketing facility versus travel agent e-ticketing. The researchers had two RQs that included determining factors affecting customer satisfaction scores using two research models and six hypotheses. The researchers applied the backward stepwise approach to eliminate the irrelevant independent variables as factors with airline e-ticketing (Chandra and Jhonsons).

Vakeel et al. (2017) examined customer data regulation policies with B2B and B2C e-commerce businesses and aimed to provide insights as the business vendors in B2B and the end-user customers in B2C have different requirements and concerns about transacting online. The study design used by Vakeel et al. was quantitative, and the article used regression analysis with ANOVA.

Sanny and Gerardo (2020) concluded that privacy risk, cognition, and affect-based trust impacted Millennials' and Baby Boomers' online buying behavior in

Indonesia, but the transaction risk affected only millenials. The researchers conducted a quantitative partial least squared structural equation modeling (PLS-SEM) using the WarpPLS application (Sanny & Gerardo). The PLS-SEM approach was used to estimate complex cause-effect relationships when the relationships between latent variables are determined.

Majdzadeh et al. (2017) studied the relationship between seven crash-related factors and the severity of road traffic injuries in Iran and used separate simple linear regression models for seven variables. The researchers used the forward stepwise MLR with each of the seven simple linear regression models adjusting for age, sex, time of arrival of paramedics, type of vehicle used for transferring victims to hospitals (ambulance vs. others), and the presence of paramedics (Majdzadeh et al.). The dependent variable was log transformed to adjust for skews, and the categorical independent variables were dummy coded.

Carpineto and Romano (2020) conducted an experimental quantitative study of automatic detection and measurement of counterfeit products in an online search. They used the machine learning support vector model and Naïve-Bayes classifiers for analysis. Machine learning classification is a new approach amongst quantitative research methodology.

Zhu et al. (2018) introduced a model for increasing online shopping recommendation systems' certainty and used a fuzzy clustering quantitative design within entropy and information theory. Clustering analysis is a common classification design, and a fuzzy C-means algorithm was used in this study.

Chi (2018) examined the antecedents of mobile commerce purchase intention and customer satisfaction in the United States apparel industry using Pearson correlation coefficients, chi-square analysis, and factor analysis. The instrument collected was analyzed through Pearson product correlation within the collinearity test (Chi). Then, the MLR was applied, along with factor analysis, to determine the antecedent factors. Finally, scatter plots were used to verify linearity.

Sivakumar and Gunasekaran (2017) studied the purchase intention factors affecting millennials' online shopping in metropolitan Chennai City in India. They used multiple statistical tools for their factor analysis (i.e., chi-squared tests, Pearson correlation, ANOVA, multiple regression, and *t*-tests). The study instrument used a systematic random sampling amongst millennials. The sample adequacy was established using the KMO and Bartlette's test. First, the data collected was interpreted with demographic analysis. Second, exploratory factor analysis was done to extract four factors. Third, a correlational analysis was conducted to establish the relationship between the product quality, website quality, and the customer satisfaction of online customers with the Pearson correlation value of $r = 0.653$ (Sivakumar & Gunasekaran). Fourth, the regression model showed a strong correlation between website quality, website attractiveness, cost effectiveness, and convenience factors at the 0.01 level.

Damghanian et al. (2016) examined the adoption of online banking by Iranians as the perceived security and trust in improved internet banking. They used SEM, along with Cronbach's alpha test for evaluating the instrument's reliability (Damghanian et al., 2016). The justifiability was established using the first- and second-order confirmatory

factor analysis. The researchers concluded from SEM results that internet banking's perceived security and trust positively impacted online banking adoption in Iran.

Godina and Matias (2018) used statistical process control (SPC) to improve product quality by reducing variability. The variability was established using error avoidance instead of error detection. The researchers showed the normality test with the K-S test and compared the results with the S-W test.

Realtime product targeting and voice-powered search such as Amazon's Alexa or Apple's Siri, and virtual personal shoppers influence online shopping customers' perception of the use of artificial intelligence in e-commerce shopping (Suresh & Rani, 2020). Suresh and Rani (2020) used factor analysis and regression analysis on primary data collected from 100 survey participants to determine online shopping customers' perceptions of artificial intelligence in e-commerce services.

Bojang et al. (2017) investigated factors that influenced online consumer trust in B2C e-commerce. The independent variables were perceived security, perceived privacy, perceived third-party assurance, perceived reputation, perceived familiarity, and perceived website quality; the dependent variable was online trust in the B2C market (Bojang et al.). The researchers used a convenience sampling technique. Then, Pearson's correlation was used to test the hypotheses. Bojang et al. concluded that perceived security strongly influences customer trust in online B2C, followed by perceived brand reputation and perceived privacy.

Summary and Conclusions

In the literature review, I reviewed four themes: (a) comparison of different adoption theories, (b) overview of online retailing adoption, (c) recent development and adoption of related technology, and (d) various regression analysis methods. From the literature review, the conclusion was that the TPB and UTAUT2 were relevant for this research study. The TPB contained the required technological, social, and behavioral factors to construct a predictive model to derive online retail growth relationships.

Besides reviewing online retail's concepts and characteristics, I analyzed the current trends in online retail growth and factors. The literature review confirmed my selection of dependent variables and also explained the concepts of MLR models. The transaction costs factor has been suggested and considered in past studies as possibly influencing online retailing growth, but has not been empirically validated. Limited studies were performed on empirically determining what factors (i.e., transaction costs, customer satisfaction, and customer trust) affected online retail growth in India.

The previous research has not empirically verified the relationship between transaction costs, customer satisfaction, and customer trust in online shopping with the growth of online retailing in India. Some existing research in other developing countries analyzed the factors affecting the growth of online retailing in those countries. Additionally, there were some recent studies of which the focus was on individual factors affecting online purchase intention in specific cities and regions in India. I did not find a study that applied MLR analysis and behavior-based analysis to understand how online retail may be growing in India and the relationship between transaction costs, customer

satisfaction, and customer trust in online shopping with the growth of online retailing in India.

In chapter 3, I have explained the research design, including sample selection, data collection, analysis, and validity tests.

Chapter 3: Research Method

The purpose of this quantitative correlational study was to evaluate the relationship between transaction costs, customer satisfaction, and customer trust in online shopping with the growth of online retailing in India. The basis for the study's theoretical framework was the TPB and UTAUT2, which contained the required technological, social, price-value, performance expectancy, and behavioral factors to construct a predictive model to derive online retail growth relationships. The research design included a cross-sectional survey to confirm the relationship between each predictor variable and the growth of online retailing in India. The RQs examined online retailing growth in India due to transaction costs, customer satisfaction, and customer trust. Transaction cost is the cost to the customer for shopping from the online version of a store. Customer satisfaction indicates the fulfillment that customers derive from shopping online. Customer trust in online shopping suggests customer confidence in the online store. The regression related null and alternative hypotheses are as follows:

RQ1: What is the relationship between online retail transaction costs and the growth of online retailing in India?

$H1_0$: There is no relationship between online retail transaction costs and online retailing growth in India.

$H1_A$: There is a relationship between online retail transaction costs and the growth of online retailing in India.

RQ2: What is the relationship between customer trust in online shopping and the growth of online retailing in India?

$H2_0$: There is no relationship between customer trust in online shopping and the growth of online retailing in India.

$H2_A$: There is a relationship between customer trust in online shopping and the growth of online retailing in India.

RQ3: What is the relationship between customer satisfaction from online shopping and the growth of online retailing in India?

$H3_0$: There is no relationship between customer satisfaction from online shopping and online retailing growth in India.

$H3_A$: There is a relationship between customer satisfaction from online shopping and the growth of online retailing in India.

This chapter contains five sections: research design and rationale, methodology, data analysis plan, threats of the validity, and summary. The research design and rationale section provide an explanation of the predictor and outcome variables and the research design aligned with the RQ. I describe the population, sample size, sampling procedure, data collection process, survey instrument, and constructs' operationalization in the methodology section. In the data analysis plan section, I mention the software used for analysis and a description of statistical tests and interpretation. In the validity section's threats, I discuss the possible threats to construct external and internal validity and describe the ethical process followed to reuse survey instrument and data management. I conclude chapter 3 with a summary.

Research Design and Rationale

Study Variables

There are three types of statistical variables: nominal, ordinal, and categorical. Nominal data are measurable absolute data that can be continuous or discrete. Continuous data are a range of numerical values. Ordinal data are a mix of nominal and categorical data. Categorical data represent classification, such as a person's gender or marital status, and are usually coded in data analysis.

The purpose of this quantitative correlational study was to evaluate the relationship between transaction costs, customer satisfaction, and customer trust in online shopping with the growth of online retailing in India. There is a set of three independent variables used to predict the growth of online retailing in India. The prediction accuracy decreases if more dependent variables are added (Hand, 2010). One assumption is that the independent variables were linear with the dependent variable, validated via analysis. The data types of two independent variables (transaction costs and customer satisfaction) are interval, and those values can be used directly in the MLR model.

Transaction Costs

Transaction costs are incurred in online transactions similar to most economic transactions. Vanelslander et al. (2013) examined online grocery sales to analyze supply chain methods and the transaction and distribution cost of online retailing. Chintagunta et al. (2012) defined e-commerce transaction costs to include travel time, transportation cost, shopping time, quality inspection, and other convenience expenses. Policing and quality enforcement costs affect customers' perception of trust and cost increase.

Advancement in mobile technology in developing countries such as India has drastically reduced the information and search costs associated with online product retailing. In his study, Ghosh (2016) observed that India's mobile telephony has a statistically significant impact on online retailing growth. Hwang and Lee (2016) explored how EDI affects the competitiveness of a firm's supply chain management to show the mediating effect between environmental uncertainty, behavioral uncertainty, and transaction costs. However, the perception of online retailing's higher and hidden transaction costs can affect customer behavior and intention.

Customer Trust

Some strategies help build a trust relationship with online customers in countries like India. Similarity and seller expertise were found to have a substantial impact on relational mediators, and word of mouth was the most critical outcome of relationship marketing efforts (Verma et al., 2016). Customer trust is one factor that affects online transactions in the drug markets (Tzanetakis et al., 2016). Tzanetakis et al. (2016) observed that to stabilize market processes in an online environment, different practices emerge for building customer's trust and vendor reputation.

Similarity and seller expertise substantially impact relational mediators and that word of mouth was critical, which expanded on the concept of customer trust is vital (Verma et al., 2016). Rajaretnam and Sheth (2018) concluded that trust was an essential factor in converting a user to an online buyer. Online retailers also need to establish trust with the local governments for ease of business. Jaiswal et al. (2018) explored how customer trust affects customer retention with a quantitative study to improve customer

retention for India's online businesses based on how the customer was acquired and the length of the customer engagement.

Customer trust is also essential for the B2B and B2G relations. Tehrani (2014) studied tax avoidance by online retailers using Amazon as a prime example and guided online retailers in partnering with governments to improve tax compliance and business improvement.

Customer Satisfaction

Customer satisfaction is measured from postpurchase product evaluation, usually a gap between product or service perception and product or service expectation (Xu et al., 2018)**.** Further, Tandon (2016) defined how customer satisfaction was improved in online retailing due to perceived usability. Such definitions of customer satisfaction have motivated other researchers to study customer satisfaction in developing countries, with seven well-defined hypotheses establishing relationships with the aspects of usability, usefulness, and customer satisfaction from online retailing.

Some recent studies have tried to understand how customer satisfaction affects online purchase spending. There is a direct positive relationship between e-satisfaction, e-loyalty, and e-service quality with e-commerce spending (Nisar & Prabhakar, 2017). Nisar and Prabhakar (2017) mentioned that e-commerce faces challenges from offline retailing as the consumers cannot feel and try the products and, therefore, may buy products that they did not intend to purchase.

Research Design to Answer RQs

The research design employed a cross-sectional survey to confirm the relationship between each predictor variable and the growth of online retailing in India. I used a validated research instrument that Tandon and Kiran (2019) used in their research regarding factors that impact customer satisfaction for online shoppers in India. Per the literature review, this research addresses the gap in understanding the relationship between critical factors (e.g., transaction costs, customer satisfaction, and customer trust) in online shopping with the growth of online retailing in India.

The research goal was explanatory rather than exploratory and, therefore, a quantitative methodology was suitable (Zulfadil & Machasin, 2020). As an explanatory quantitative study, the aim of my study was to answer the correlational hypotheses, including the independent variables and the dependent variable.

In Information Systems (IS) research, partial least squares path modeling has been predominantly used (Benitez et al., 2020). However, MLR is a statistical method for estimating the linear relationship between the predictor variables and the dependent variable; the research goal is to determine the dependent variable's value concerning one or more predictor variables (Benjamin et al., 2019). The purpose of the analysis was to determine the dependent variable's value as a function of one or more independent variables. In MLR, the dependent variable's estimated value should have minimal variance with the observed outcome value (Heinze & Dunkler, 2018). Normality is another essential attribute of a regression model. Similar to factorial analysis, in MLR, multiple independent variable effects can be studied together (Balling, 2008).

Time and Resource Constraints

I had limited time and resources for completing this dissertation. I had not planned to conduct pilot research to understand the critical factors affecting the growth of online retail in India. I relied on the theoretical and literature review to determine the critical factors affecting online retailing growth in India. My analysis and conclusion is limited to India and similar developing countries. Validity tests from future research were needed to establish a generalization to other countries. I modified the survey to the critical factors based on a prevalidated survey questionnaire. I also excluded volatile factors in my research and analysis.

Methodology

Population

The target population of my research was comprised of Indian consumers with some online shopping experience. The entire population could not be surveyed. Therefore, a sample of members were targeted to receive the email survey across genders, rural and urban citizens of India, varying education and income levels, and different states in India. The online survey link was emailed to the survey participants. The estimated and required responses were received by sending repeated email reminders to the online administered survey. The actual sample size of $N = 299$ is shown in Table 4.

Table 4

Frequency Distribution Illustration for Survey Respondents' Demographics

Characteristics $N = 299$	Response	Valid percentage
Gender		
Male	145	48.49%
Female	154	51.51%
Age		
18–24	57	19.06%
25–34	152	50.84%
35-44	67	22.41%
45+	23	7.69%
Education level		
Undergraduate	37	12.37%
Graduate	116	38.80%
Postgraduate	146	48.83%
Annual income (Indian rupees—INR)		
< 5 Lakhs (< USD 6600)	105	35.12%
5 Lakhs – 10 Lakhs (~USD 6600–USD 13300)	124	41.47%
>10 Lakhs (> USD 13300).	70	23.41%

Sampling and Sampling Procedures

Sampling is necessary as it is not economical to study the entire population. The purpose of quantitative research is to answer RQs by confidently deriving the analysis results from a sample of the population (Murad et al., 2018). The sampling strategy for the study is required to align with research ethics and quantitative design. A sampling strategy can be probable or nonprobable. Probability sampling techniques include randomness, and a random selection is essential to ensure the selected participants are genuinely representative of the population (Ellis, 2020).

A stratified random sampling method was relevant with the following population groups or strata: age range, education level, gender, five zonal councils of India, and

annual income range. The sample inclusion criteria consisted of online shoppers and long-term residents of India. While most of the strata are self-explanatory, India's five zonal councils are shown in Figure 11.

Figure 11

India's Five Zonal Councils

Note. India's five zonal councils are Northern Zonal Council, comprising the States of Haryana, Himachal Pradesh, Punjab, Rajasthan, National Capital Territory of Delhi, Union Territory of Chandigarh, Union Territory of Jammu and Kashmir, and Union Territory of Ladakh; Central Zonal Council, comprising the States of Chhattisgarh, Uttarakhand, Uttar Pradesh, and Madhya Pradesh; Eastern Zonal Council, including the States of Bihar, Jharkhand, Odisha, and West Bengal; Western Zonal Council, comprising the States of Goa, Gujarat, Maharashtra, and the Union Territory of Dadra and Nagar Haveli and Daman and Diu; and Southern Zonal Council, including the States of Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, Telangana, and the Union Territory of Puducherry. Table 5 cross references India states to zonal councils.

Table 5

India States to India Zonal Council Cross Reference

Zonal Council	State	Zonal Council	State	Zonal Council	State
Northern	Haryana	Central	Chhattisgarh	Eastern	Bihar
Northern	Himachal Pradesh	Central	Uttarakhand	Eastern	Jharkhand
Northern	Punjab	Central	Uttar Pradesh	Eastern	Odisha
Northern	Rajasthan	Central	Madhya Pradesh	Eastern	West Bengal
Northern	NCR Delhi	Central			
Northern	Union Territory of Chandigarh				
Northern	Union Territory of Jammu and Kashmir				
Northern	Union Territory of Ladakh				
Western	Goa	Southern	Karnataka		
Western	Gujarat	Southern	Tamilnadu		
Western	Maharashtra	Southern	Andhra Pradesh		
Western	Union Territory of Dadra and Nagar Haveli	Southern	Telangana		
Western	Union Territory of Daman and Diu	Southern	Kerala		
		Southern	Union Territory of Puducherry		

As the sample size increases, the standard error reduces and the results from sampling will be closer to that of the population. However, having a large sample was not

feasible due to time and financial limitations. Therefore, the research design decisions included the values for Type-I error alpha, Type-II error beta, and the expected effect size. The Type-I error means rejecting a true null hypothesis, while the Type-II error does not reject a false null hypothesis (Taylor, 2014). Type-I error value should be lower (e.g., 0.05), implying that the rejection of the null hypothesis is 95% accurate. Cohen (1988) determined that the maximum Type-II error should be 0.2 (Beta = 0.2), implying an 80% chance of correctly accepting the null hypothesis.

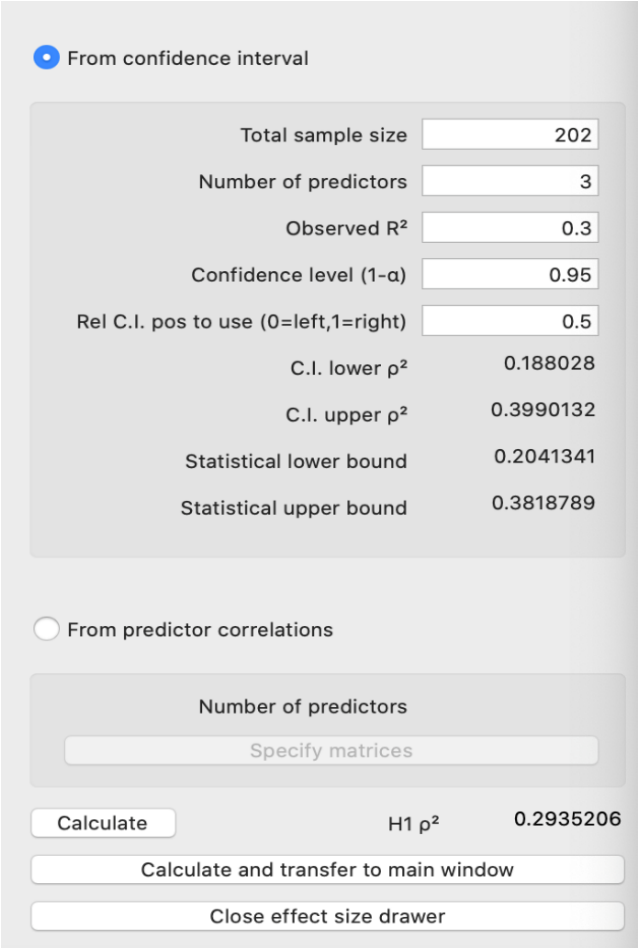
For an MLR, R^2 is typically useful for getting the effect size. The number of predictor variables, the estimated survey population size, confidence level, and the relative central interval position can be input to the G*power tool to calculate the sample effect size. G*Power tool is a commonly used sample size calculator. Cohen (1988) recommended the following R^2 values for the desired effect sizes; $R^2 = .02$ (yes, 2% of variance) for small effect size, $R^2 = .13$ for medium effect size, and $R^2 = .26$ for large effect size. R^2 value can be set to 0.3 to ensure a large effect size. The number of predictor variables is three for transaction cost, customer satisfaction, and customer trust. Based on the chosen Type-I error value, the confidence level is 0.95. The relative interval position can be set to 0.5. Figure 6 shows the G*Power tool output for H1 p^2.

Five power analysis types are available for each G*Power test, such as A-priori, compromise, criterion, posthoc, and sensitivity analysis (Faul et al., 2009). I am choosing the A-priori analysis and MLR random model test. The input parameters are a two-tailed test, the H1 p^2 value of 0.2935206 as derived in Figure 13, H0 p^2 of zero, Type-I error probability of 0.05, and a statistical power value 0.95. I substitute the following values to

determine G*Power H1 p^2, as shown in Figure 12. The number of predictors is 3, the observed R^2 value is 0.3, and the confidence level is 0.95. The calculation yields a p^2 value of 0.2935206. For the next step of G*Power calculation, I use the p^2 value as 0.2935206, test family as exact, and the statistical test as random linear multiple regression. Figure 12 shows the G*Power too calculating the per strata sample size.

Figure 12

*G*Power H1 p^2 Determination*

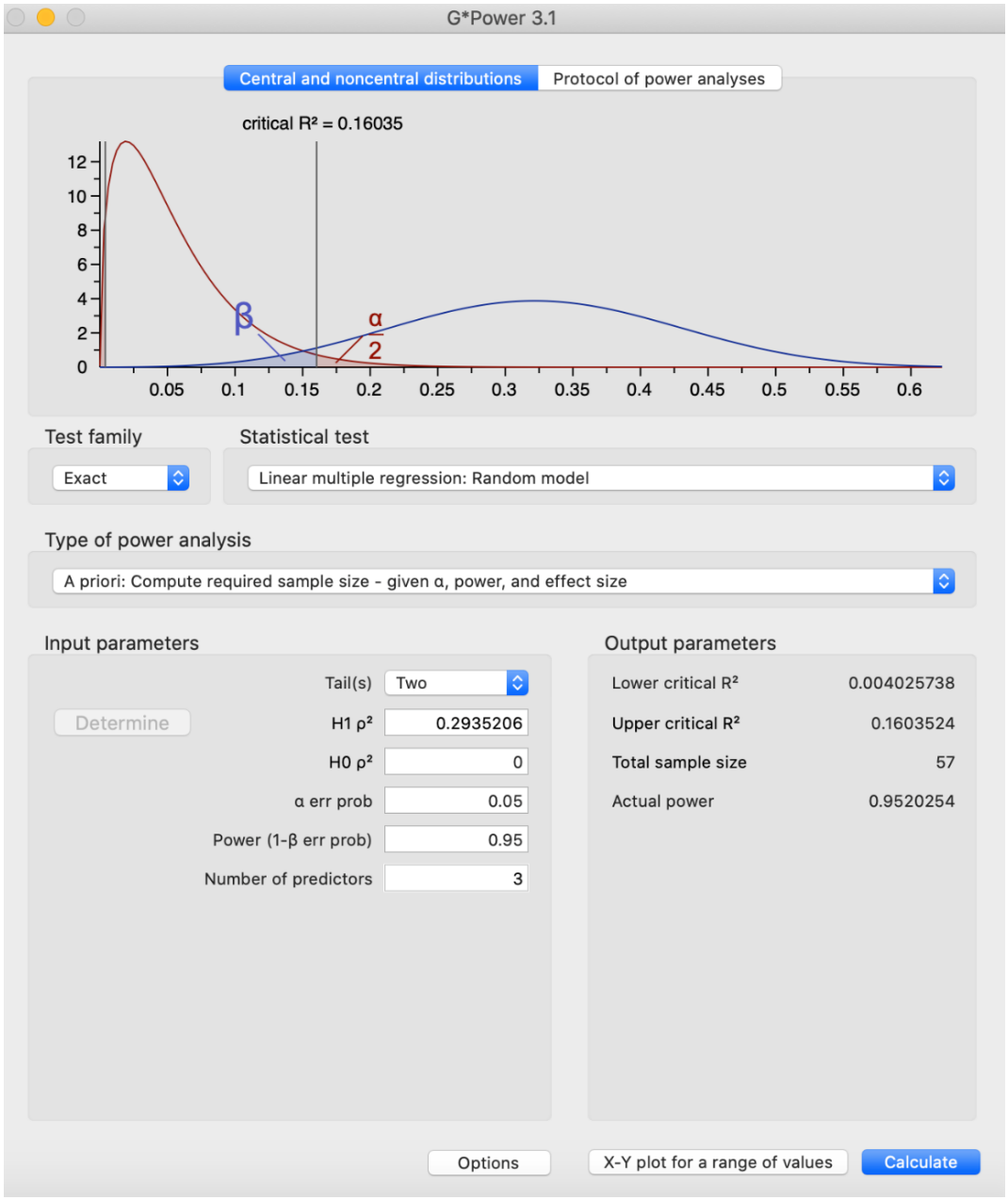


Note. Determining G*Power H1 P^2 for use in calculating the sample size in the next step.

Figure 13 shows G*Power tool output.

Figure 13

*G*Power Tool Screen*

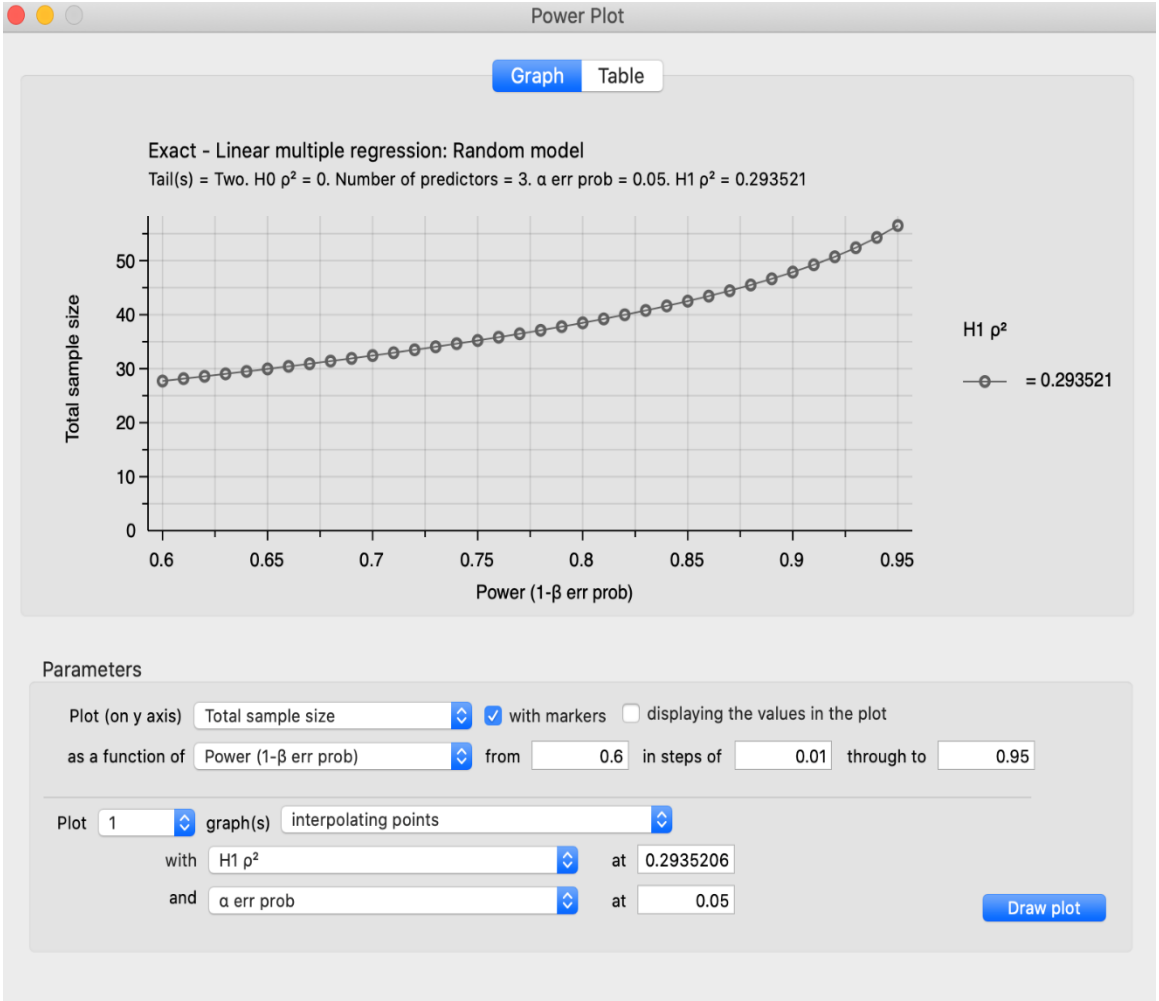


Note. G*Power tool use for calculating the sample size per strata.

Per the calculation and the stratified sampling method, a minimum sampling size of 57 was needed for each of the sampled strata of zonal councils in India, assuming the same population across the five zonal councils. The Figure 14 shows the power plot of sample size calculation. The population groups or strata are age range, education level, gender, five zonal councils of India, and annual income range. The five zonal councils were shown in Figure 11. Figure 14 shows the power plot of sample size calculation.

Figure 14

The Power Plot of Sample Size Calculation



Note. Use of power plot for sample size calculation.

Procedures for Recruitment, Participation, and Data Collection

The target population of my research was comprised of Indian consumers with some online shopping experience. The entire population cannot be surveyed. Therefore, a calculated sample of members were targeted to receive the email survey across genders, rural and urban citizens of India, varying education and income levels, and across different states in India. The actual per strata sample size was calculated above to be 57. With five strata zones, the estimated sample size was 57 multiplied by five, equal to 285. The survey was conducted online, and about a 30% response rate was expected for online surveys (Hamilton, 2003). For statistical analysis, I needed useful survey submissions of 285 participants with a response rate of approximately 30%; 1,035 members received the survey and 299 valid responses were retained, which is a response rate of approximately 29%. The following demographic information will be collected: gender, age, city and state in India, education level, and income range.

The survey was sent to different gender, rural and urban citizens of India, varying education and income levels, and across various states in India. The survey invitation was emailed to the selected participants. Garnering support for social contribution in invitation emails helps receive more responses (Dillman et al., 2014). If respondents identify with the social benefits, then they are more likely to respond to the survey. The survey invitation email also mentioned the study purpose, contained the link to the online survey, stated my contact email for questions, and explained the incentive to the respondents. The collected survey results and answers were stored in a Microsoft Excel spreadsheet on my laptop for analysis.

The survey invitation email included the following:

- the research objective,
- encouragement for the participant,
- researcher's contact information, and
- the link to the online survey.

The target population of my research was comprised of 1,035 Indian consumers with some online shopping experience who were targeted to receive the email survey across genders, rural and urban citizens of India, varying education and income levels, and across different states in India. I collected the 299 valid individual responses in a Microsoft Excel spreadsheet. I added two additional columns next to the city in India response. The first column is the state in India and the second column categorized and indicated the corresponding zonal council in India. Table 6 cross references India cities to states and zonal councils.

Table 6

India Cities to India States to India Zonal Council Cross Reference

City	State	Zonal Council	City	State	Zonal Council
Agra	Uttar Pradesh	Central	Dhanbad	Jharkhand	Eastern
Ahemadabad	Gujarat	Western	Dombivali	Maharashtra	Western
Aligarh	Uttar Pradesh	Central	Durg	Chattisgarh	Central
Asansol	West Bengal	Eastern	Erode	Tamilnadu	Southern
Aurangabad	Maharashtra	Western	Firozabad	Uttar Pradesh	Central
Bareilly	Uttar Pradesh	Central	Gaya	Bihar	Eastern
Bengaluru	Karnataka	Southern	Guna	Madhya Pradesh	Central
Bhilai	Chattisgarh	Central	Gurgaon	Haryana	Northern
Bhopal	Madhya Pradesh	Central	Guwahati	Assam	Eastern
Bhubaneswar	Orissa	Eastern	Gwalior	Madhya Pradesh	Central
Cachar	Assam	Eastern	Harda	Madhya Pradesh	Central
Chandigarh	Punjab	Northern	Hubli	Karnataka	Southern
Chennai	Tamilnadu	Southern	Hyderabad	Telangana	Southern
Delhi	Delhi	Northern	Indore	Madhya Pradesh	Central
Jabalpur	Madhya Pradesh	Central	Jammu	Jammu	Northern
Jagdalpur	Chattisgarh	Central	Jowai	Meghalaya	Eastern
Jaipur	Rajasthan	Northern	Khandwa	Madhya Pradesh	Central
Kochi	Kerala	Southern	Kolkata	West Bengal	Eastern
Lucknow	Uttar Pradesh	Central	Ludhiana	Punjab	Northern

City	State	Zonal Council	City	State	Zonal Council
Meerut	Uttar Pradesh	Central	Mumbai	Maharashtra	Western
Murshidabad	West Bengal	Eastern	Mysore	Karnataka	Southern
Nagpur	Maharashtra	Western	Navi Mumbai	Maharashtra	Western
New Delhi	Delhi	Northern	North Lakhimpur	Assam	Eastern
Patna	Bihar	Eastern	Pune	Maharashtra	Western
Rajkot	Gujarat	Western	Sambalpur	Odisha	Eastern
Shimla	Himachal Pradesh	Northern	Tirunelveli	Tamilnadu	Southern
Tirupati	Andhra Pradesh	Southern	Ujjain	Madhya Pradesh	Central
Ulhasnagar	Maharashtra	Western	Vishakapatnam	Andhra Pradesh	Southern
Wokha	Nagaland	Eastern			

Instrumentation and Operationalization of Constructs

I used a validated research instrument that Tandon and Kiran (2019) used in their research regarding factors that impact customer satisfaction for online shoppers in India. The instrument was applied to a population of only North Indian residents. Only the relevant part of the research instrument will be used in my study. Tandon and Kiran sent 2,000 questionnaires and received 500 valid responses. To ensure the research instrument's validity and the measurement model, a pilot study, construct validity, and confirmatory factor analysis were carried out (Tandon & Kiran). I received permission from Dr. Tandon to use her research instrument (as shown in Appendix A). I also referred to the instrument of published research by SivaKumar and Gunasekharan (2017), who

researched and published how millennials in India adopted online shopping. The study was limited to a particular age group in Chennai City. I also received permission to use the instrument from Sivakumar and Gunasekharan's study (as shown in Appendix A).

Tandon and Kiran's (2019) instrument was an online survey questionnaire used to collect data and analyze the correlation between customer satisfaction and online shoppers in India. The survey questionnaire of Tandon and Kiran included questions relevant to measuring correlating factors such as trust-security-privacy, website design, ease of navigation, ease of ordering, product customization, performance expectancy, effort expectancy, facilitating conditions, hedonic motivation, price value, POD mode of payment, social media interactions, and customer satisfaction.

I selected the instrument as a base instrument for my study for the following reasons:

- The survey questionnaire had similar research objectives as my research, with some questions, which helped gather data related to my research factors.
- The theoretical foundations used by Tandon and Kiran (2019) are related to the theoretical foundation used in my study.
- Tandon and Kiran conducted satisfactory validity and reliability assessments of the survey and research model.
- The instrument used by Tandon and Kiran (2019) was based on other established studies such as Wolfinbarger and Gilly (2003), Venkatesh et al. (2012), and Duffett (2015). These studies have also been applied to other quantitative studies (Tandon & Kiran).

I limited the questionnaire to questions related to trust-security-privacy, customer satisfaction, price value, and website design. These categories relate to the independent variables of my study. There are many differences between my research and that of Tandon and Kiran (2019) who focused on the website quality and all factors affecting customer satisfaction amongst a sample of North Indian residents. My research has a relatively narrower scope to studying transaction costs, customer satisfaction, and customer trust as factors affecting online shopping across India.

Per Table 1, the study's independent variables were transaction cost, customer satisfaction, and customer's trust in online shopping. The dependent variable is the growth of online retailing in India. Two types of variables are used in the study: continuous interval and ordinal. An interval scale is measured in equal intervals or with a difference, but with no zero points on the scale (Simon & Goes, 2013). Simon and Goes (2013) concluded that Likert type values allow for measuring behaviors, beliefs, and attitudes, commonly used as interval data when the scale has at least five to seven values. For the interval variables transaction cost and customer satisfaction, the corresponding survey answers will be measured with a 5-point Likert scale that ranges from *strongly disagree* to *strongly agree.* The *strongly disagree* value will be coded as 1, and the *strongly agree* value will be coded as 5. Adding the survey answer values to get the value of the composite variable will provide interval data. Also, with sufficient scale values, the data collected fall into a normal distribution. The values for the categorical, ordinal variable trust will carry a predefined set of levels. The general linear model function in

SPSS can transform ordinal values before applying ML. Table 1 shows each predictor variable along with its definition and data type.

Data Analysis Plan

I used the statistical software package IBM SPSS for descriptive and inferential statistical tests. The online survey data was stored in a Microsoft Excel worksheet for initial analysis and data cleaning. The valid and filtered Excel worksheet data was used as input for the IBM SPSS tool.

The RQs and hypotheses are as follows:

RQ1: What is the relationship between online retail transaction costs and the growth of online retailing in India?

$H1_0$: There is no relationship between online retail transaction costs and online retailing growth in India.

$H1_A$: There is a relationship between online retail's transaction cost and the growth of online retailing in India.

RQ2: What is the relationship between customer trust in online shopping and the growth of online retailing in India?

$H2_0$: There is no relationship between customer trust in online shopping and the growth of online retailing in India.

$H2_A$: There is a relationship between customer trust in online shopping and the growth of online retailing in India.

RQ3: What is the relationship between customer satisfaction from online shopping and the growth of online retailing in India?

$H3_0$: There is no relationship between customer satisfaction from online shopping and online retailing growth in India.

$H3_A$: There is a relationship between customer satisfaction from online shopping and the growth of online retailing in India.

The valid data was analyzed first for descriptive statistics. Descriptive statistics outputted the mean, median, range, standard deviation, and other statistical parameters for the valid sample. I plotted scatterplots and construct validity tests for linearity, outliers, and normality. Any required data transformations was applied. For the correlational analysis, the generalized linear model function in SPSS is relevant. Based on the chosen Type-I error value, the desired confidence level is 0.95.

The common approaches for determining the best-estimated predictor variables are the standard and the stepwise regression. In the standard or contemporary approach, researchers use a literature review to include all the independent variables in one step. In the stepwise method, researchers use statistically significant *t*-values to determine whether an independent variable must be included in the regression equation (Vogt & Johnson, 2016). The stepwise model may be the forward stepwise model or the backward stepwise model. A forward stepwise model begins with a model with no variables selected. Then, the model starts including the most significant variables one after another until all the variables are included, or if the stopping criterion is met. A backward stepwise model begins by including all variables in the model. Then, the MLR starts removing the least significant variables one after another. Figure 15 shows forward stepwise regression.

Figure 15

Forward Stepwise Regression

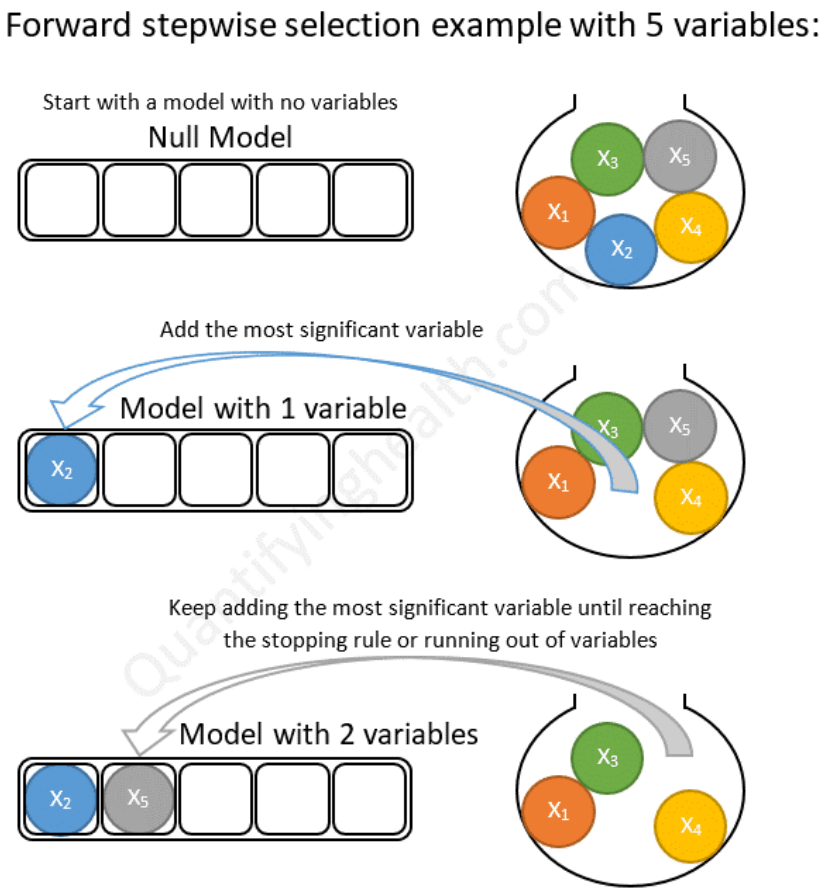
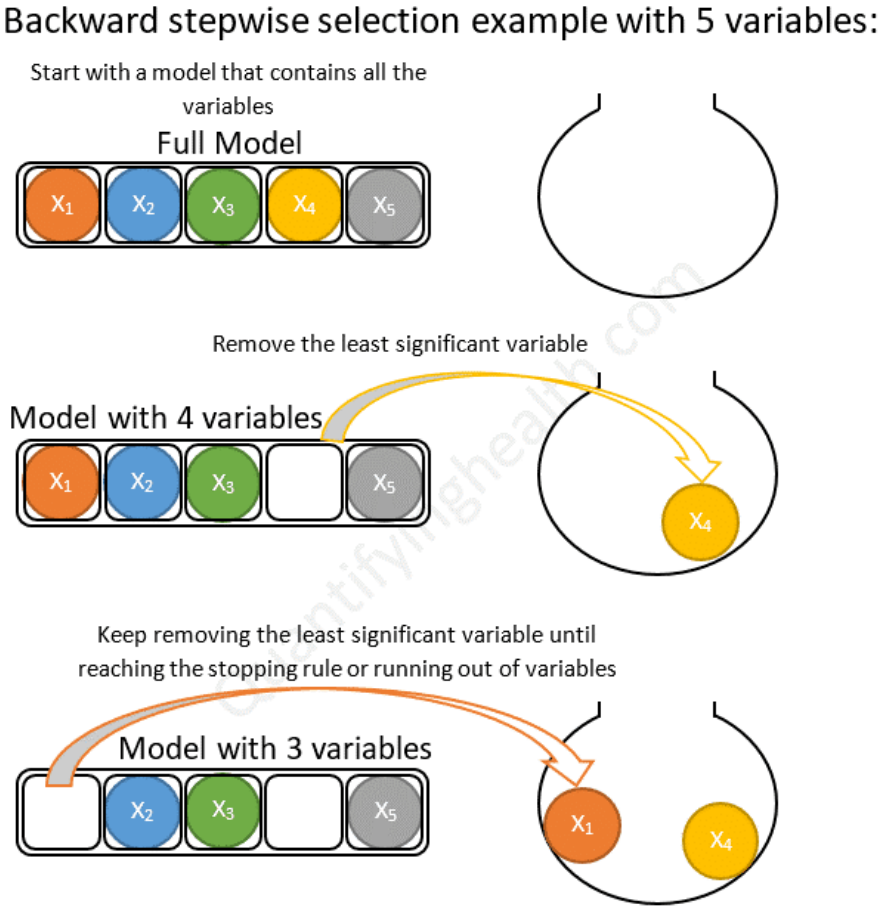


Figure 16

Backward Stepwise Regression



Though the stepwise model may work, I used the standard MLR method and loaded the three independent variables together, as the literature review determined the variables. The continuous variable and the categorical variables were input into the SPSS GLM function.

SPSS provided the output values of R, R^2, adjusted R^2, coefficients for each independent variable. To improve the MLR model's accuracy, a backward stepwise MLR was applied to plot the adjusted R^2 values with each model. The best model has the

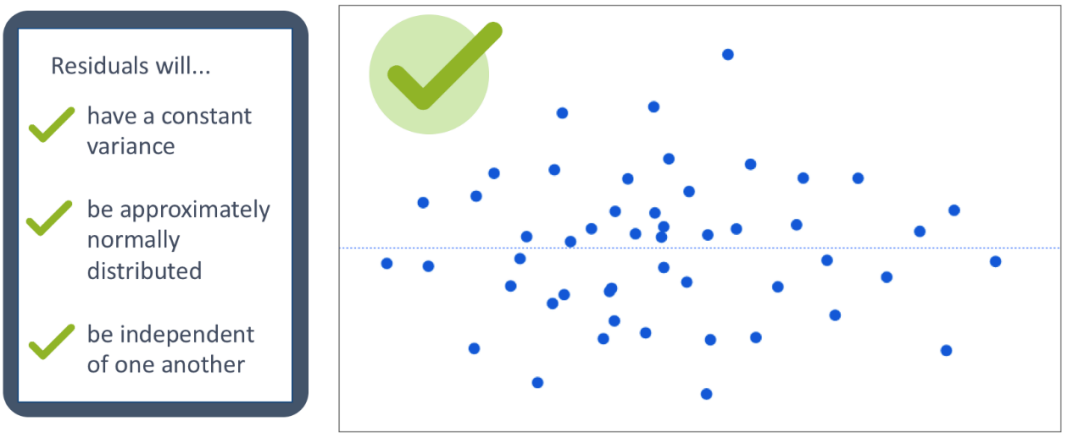
highest adjusted R^2 value. Also, *t*-statistical tests and *F*-statistical tests were performed to establish statistical significance and reject the null hypothesis. Also, I used Structural Equation Modeling (SEM), which is a combination of factor analysis and MLR. The SPSS add-on module AMOS was used for SEM analysis.

Threats to Validity

The MLR has assumptions similar to other statistical methods. One assumption is that the dependent variable should be a quantitative variable with normal distribution values. The second assumption is that the relationship between the dependent and independent variables is linear (Warner, 2013). The third assumption is that of homoscedasticity, which means that the variances of errors match across the dependent variable (Vogt & Johnson, 2016). The fourth assumption is independence. Independence assumption means each predictor variable is independent of the other independent variables (Warner, 2013). If the independent variables are highly correlated, then each independent variable's effect will be challenging to explain, while it is simpler to explain the effect of all independent variables together. Figure 17 shows regression model assumptions.

Figure 17

Regression Model Assumptions



Note. Per regression model assumptions, residuals will have a constant variance, be approximately normally distributed, and be independent of one another.

External Validity

External validity indicates the generalizability of the research. If the difference between R^2 and adjusted R^2 value is low, then the regression model's prediction is more generalizable. Generalizability is deserved to indicate less deviance from studying the population. For external validity, all assumptions for construct validity must be validated first and then verified against volatile bias, as mentioned in internal validity assumptions.

Probability sampling techniques include randomness, and a random selection is essential to ensure the selected participants are genuinely representative of the population, and there is no participant selection bias (Ellis, 2020). A stratified random sampling method was relevant with the following population groups or strata: age range, education level, gender, five zonal councils of India, and annual income range. The

sample inclusion criteria consisted of online shoppers and India's long-term residents in all the five zonal councils of India.

I used recalibration to further reduce selection bias by analyzing sampled groups per strata. Recalibration reduces selection bias within the sampled study. Because the participants were selected at random, the external validity threat of aptitude treatment was reduced. Aptitude treatment threat refers to interactions between the characteristics of the predictor variables influencing the dependent variable. The regression model can be strengthened further by a repeated backward stepwise approach. One predictor variable with the least significance is removed from the regression equation in the backward stepwise method. After each such run, the best model will have the highest adjusted R^2 value.

Internal Validity

The predictor variables have been carefully chosen from the literature review to establish the relationship between the dependent and independent variables. In MLR, the omitted variable bias can affect the prediction from the model. A high R^2 value indicates strong statistical support to predict the dependent variable (Vogt & Johnson, 2016). Researchers may assign the null hypothesis to the independent variables' variance effect on the predictor variable (Warner, 2013). Examining R^2 in the F test can explain the outcome variable's changes to the regression model variance. The t-test on each independent variable's coefficient explains the predictor's contribution to the dependent variable's variation. If the R^2 value is small, then variable bias may indicate the need to add additional predictor variables.

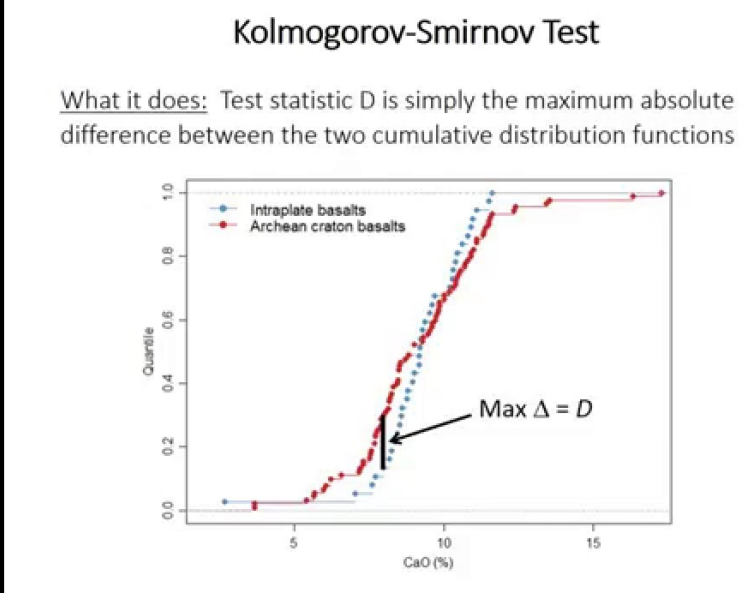
Construct Validity

Construct validity conforms to the study's theoretical intention with the operationalization to achieve the correct measurements and conclusions (Trochim, 2017). Construct validity is dependent on linearity, homoscedasticity, normality, independence, multicollinearity, and outliers. Per the independence assumption, if the independent variables are highly correlated, then each independent variable's effect will be difficult to explain. This situation is the collinearity situation that can be diagnosed with *k*-value tests, determinant, variance inflation, and condition numbers (Spanos, 2019). Balling (2008) posited that a *k*-value higher than 30 indicates collinearity. When collinearity is present, the R^2 model will not be accurate. One way to work around the collinearity issue is to build another linear regression model with the two correlating independent variables and replace one variable with the other in the original regression model.

Validating MLR assumptions requires conformational statistical tests. The K-S test can confirm that the sample data trail a normal distribution. However, the S-W test may be more accurate normality (Godina & Matias, 2018). Figure 18 shows an example result from K-S test.

Figure 18

K-S Test

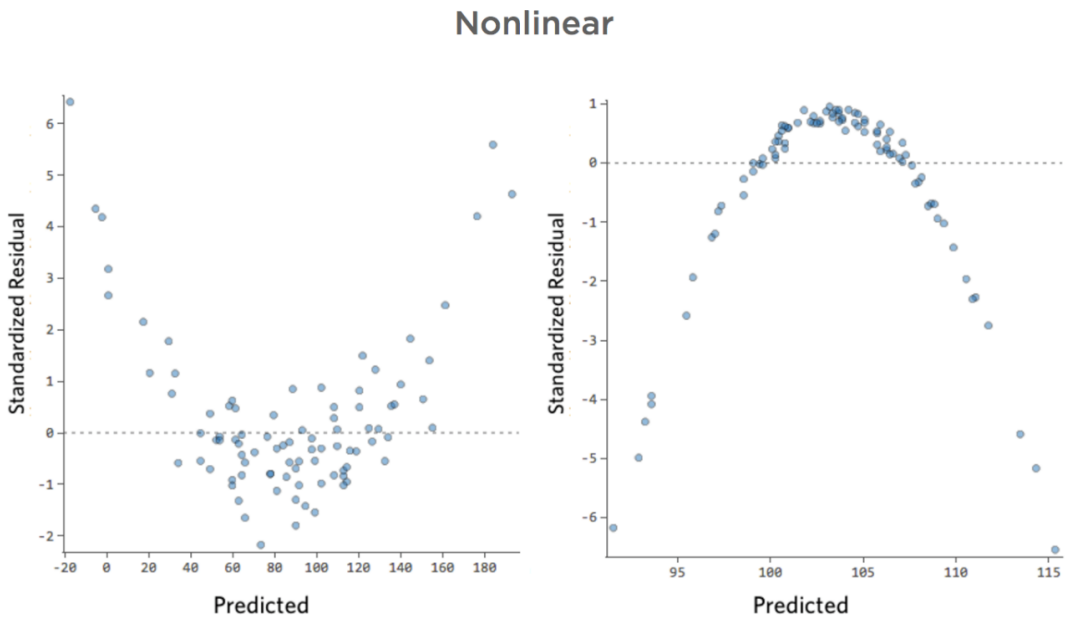


Note. An example of a K-S test. Comparing sample with a reference probability distribution.

Linearity property means that there is a linear relationship between the predictor variables and the independent variable. Researchers can identify linearity by visual interpretation of the graphs (Benjamin et al., 2019). For validating linearity, one method uses scatter plots and visually identifies linearity or the lack of linearity between the dependent variable and each independent variable. If the plot shows a curve, then the linearity assumption is violated. For fixing linearity, a nonlinear transformation such as a logarithm can be applied to the regression equation. Figure 19 shows linearity validation.

Figure 19

Linearity Validation



Note. An example of a plot indicating nonlinearity. The plot is in a curved shape.

MLR coefficient and confidence intervals calculation will be accurate if the regression model satisfies the normality assumption. Outliers can skew normality. The standard visual methods for normality detection are histograms, percent-percent (P-P) plot, quantile-quantile (Q-Q) graph, and scatter diagram (Vidović & Vorkapić, 2020). The statistical tests that help validate normality are the Chi-square, S-W, and Anderson-Darling (Vidović & Vorkapić, 2020).

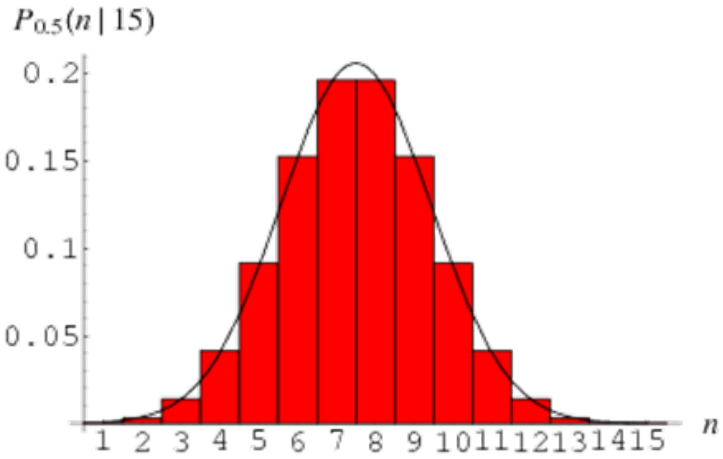
Histogram

The histogram is a simple frequency distribution plot of the observed values against the observed values' frequency of occurrence. If the curve is bell-shaped, then the

distribution is normal as shown in Figure 20. Figure 21 shows an example of a histogram with nonnormal distribution.

Figure 20

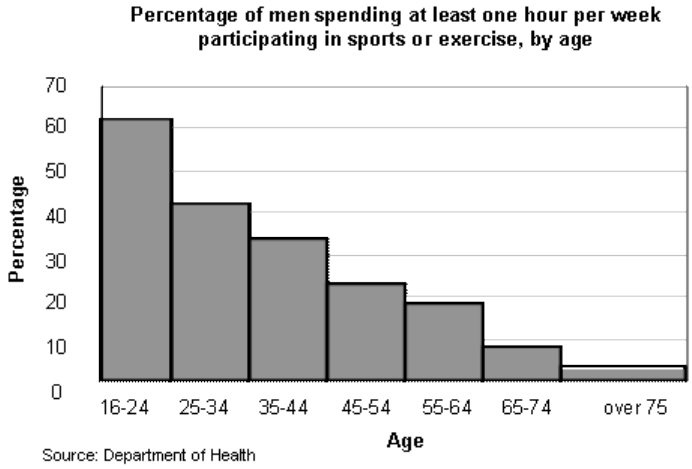
Histogram Showing Normally Distributed Data



Note. An example of a histogram showing normal distribution.

Figure 21

Histogram Showing the Data is Not Normally Distributed



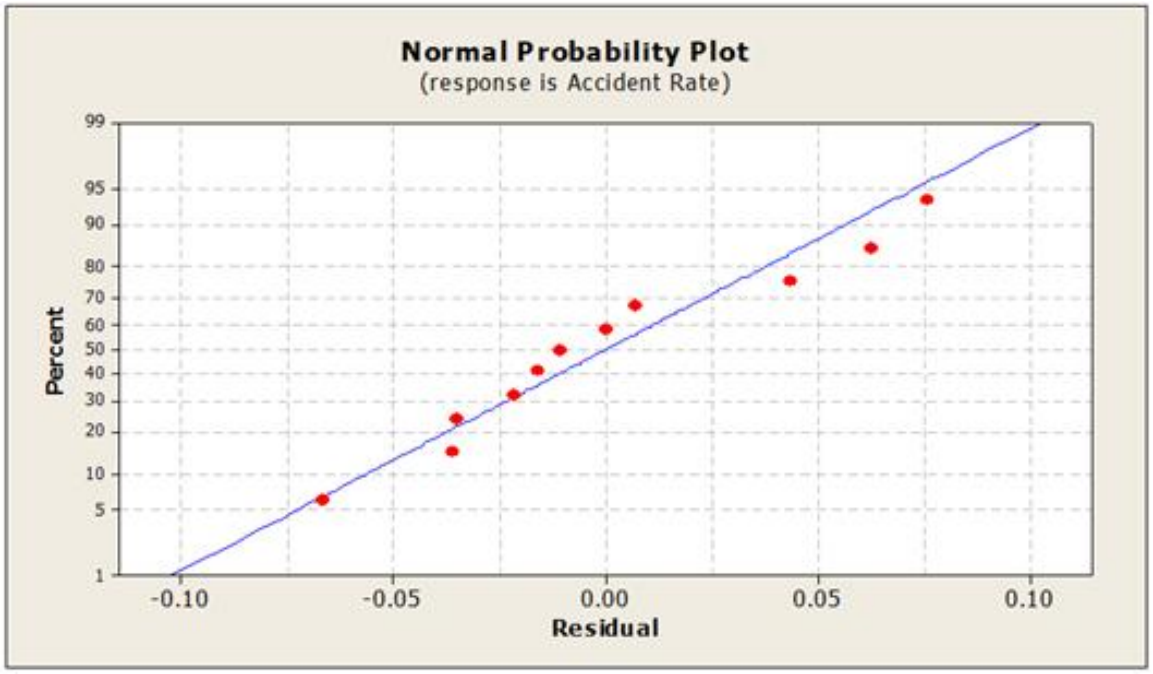
Note. An example of a histogram showing that data is not normally distributed.

Percent-Percent Plot

A percent-percent (P-P) plot has become a standard tool for validating the normality assumption. A P-P plot depicts outliers, skewness, and kurtosis by plotting two cumulative distribution functions against each other to assess the two data sets' closeness. Figure 17 shows an example of a normally distributed P-P plot and Figure 18 shows a P-P plot with nonnormal distribution. Figure 22 shows an example P-P plot with normal distribution. Figure 23 shows an example P-P plot with non-normal distribution.

Figure 22

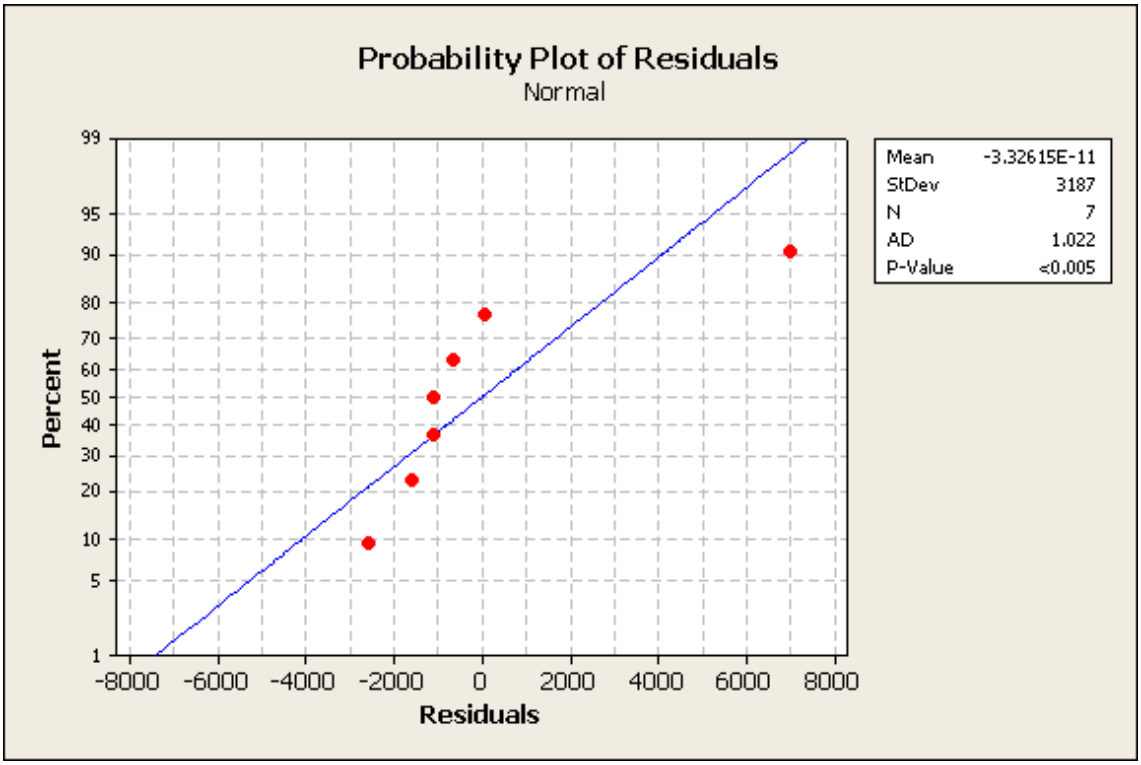
Example of a P-P Plot Showing Normal Distribution



Note. An example of a percent-percent plot showing normal distribution (Imon, 2017).

Figure 23

An Example of P-P Plot Showing Nonnormal Data



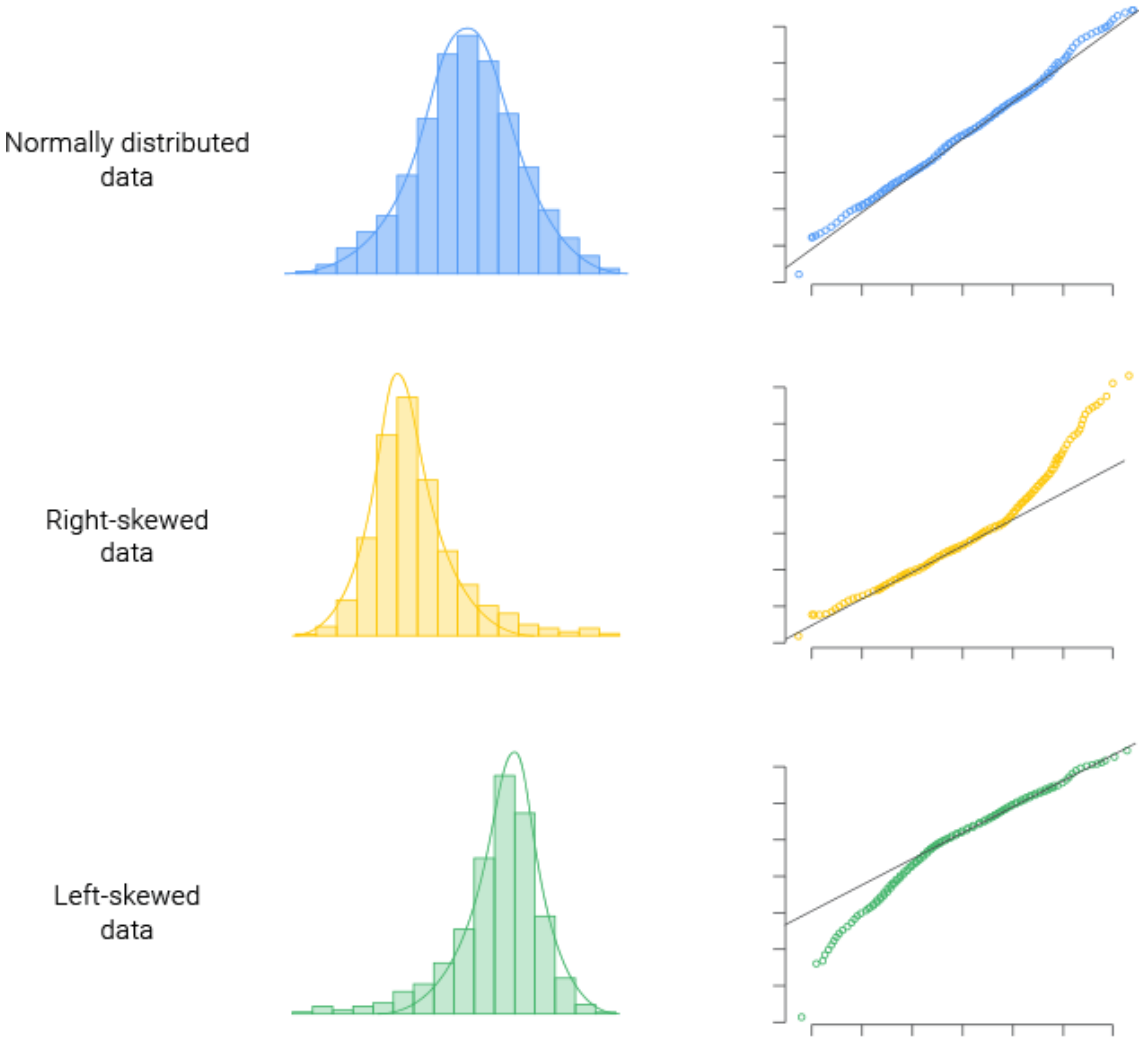
Note. An example of a percent-percent plot showing nonnormal data distribution (Imon, 2017).

Quantile Quantile Plot

QQ plot contrasts the data distribution quantiles versus quantiles of a known standard normal distribution. The normality may be more visible on a P-P plot than a Q-Q plot for comparing data distribution with a known standard normal distribution. Figure 24 shows example Q-Q plots.

Figure 24

An Example Q-Q Plot Showing Normal and Nonnormal Data



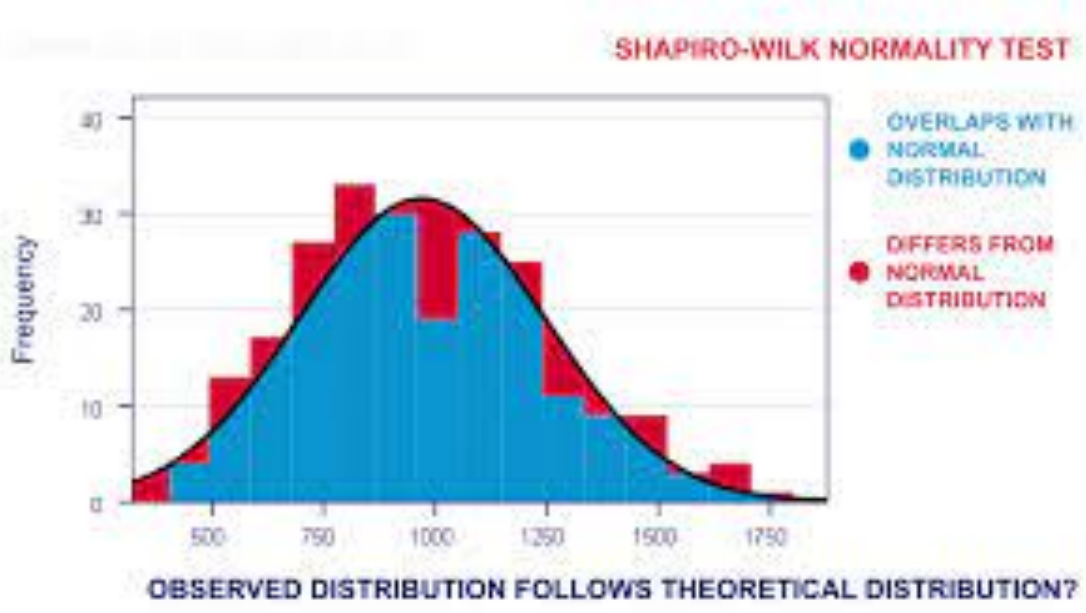
Note. An example of a Q-Q plot showing normal and nonnormal data distribution.

Shapiro-Wilk Test

The S-W test is based on correlation observed data and the associated normal scores (Shapiro, Wilk & Chen, 1968). Alternative and more recent tests are suitable for sample sizes greater than 50 (D'Agostino & Cureton, 1972). Figure 25 shows an example Shapiro-Wilk normality test.

Figure 25

An Example of Shapiro-Wilk Normality Test



Note. An example of a Shapiro-Wilk normality test showing normal and nonnormal distribution.

Relevance of Normality

Data normality needs to be assessed before statistical analysis to reduce erroneous inference. The SPSS software does provide the analytical Shapiro-Wilk test, which can be a useful test for normality. MLR requires that the normality assumption is satisfied.

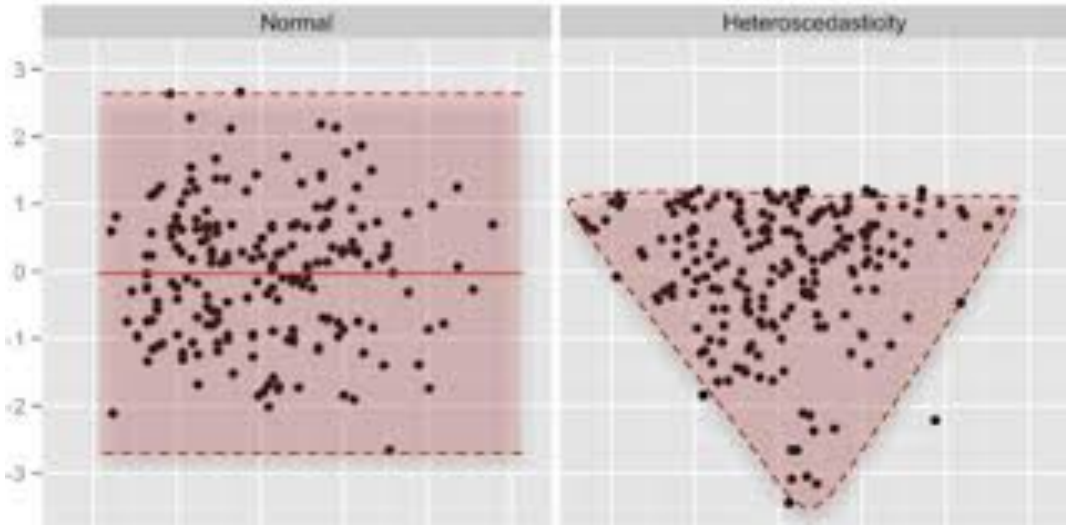
Without normality, the coefficient and confidence intervals calculation will not be correct.

Homoscedasticity

Homoscedasticity assumption means that different sample groups may have the same variance. A scatter plot of residuals versus values may be used to check for homoscedasticity. When the plot shows a funnel shape, the data may be showing heteroscedasticity. Homoscedasticity has a more significant impact on the validity of MLR results compared to the normality assumption (Yang et al., 2019). Figure 19 shows an example of homoscedasticity and heteroscedasticity. Homoscedasticity and normality are related so that homoscedasticity assumption may not be met when data for one or more of the dependent variables are not normally distributed. Figure 26 shows an example of scatter plots with homoscedasticity and heteroscedasticity.

Figure 26

An Example of Scatter Plots Showing Homoscedasticity and Heteroscedasticity



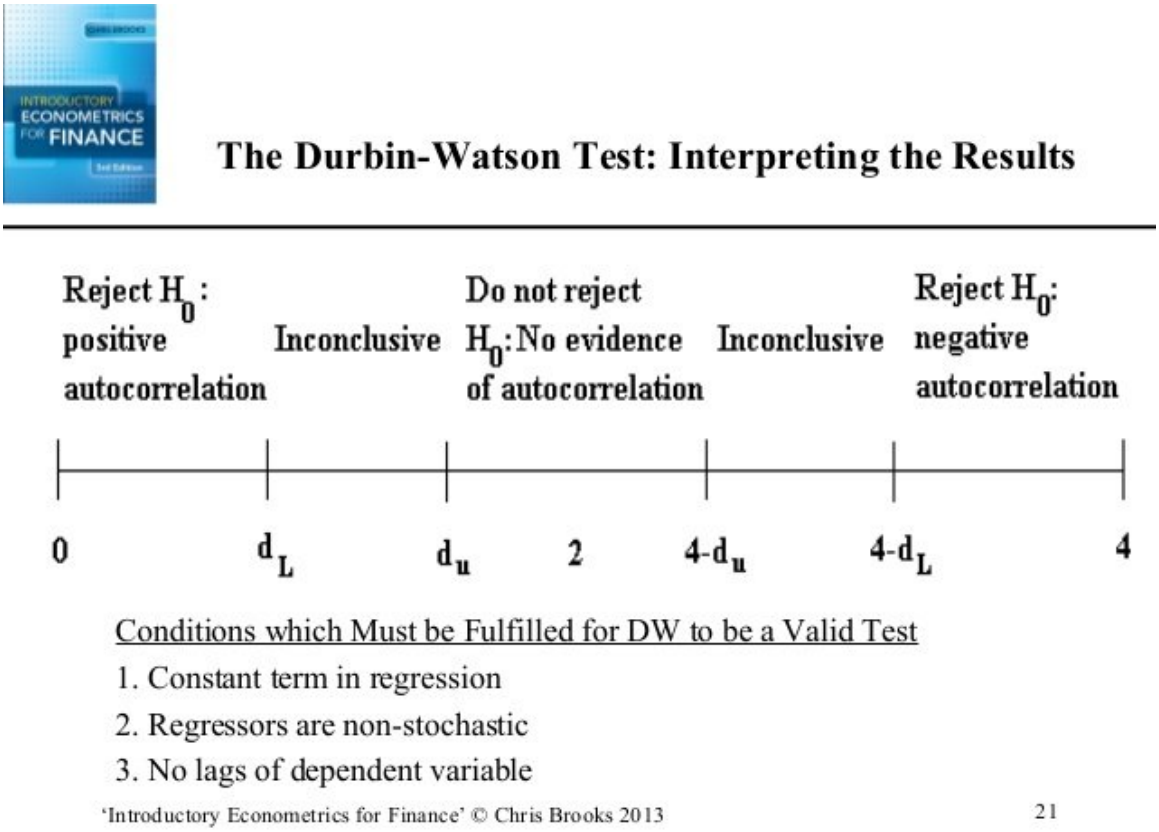
Note. An example of a scatter plot showing normal homoscedasticity and heteroscedasticity.

Independence

Independence assumption means that the predictor variables are independent of each other. Durbin-Watson test is usually applied to measure independence with a test result between zero and four. A test result value of two indicates that the variables are independent. To check independence via plotting, one needs to plot residuals against observed values, and any presence of a pattern that is not random indicates a lack of independence. Figure 27 shows an example of Durbin-Watson test.

Figure 27

An Example of Durbin-Watson Test



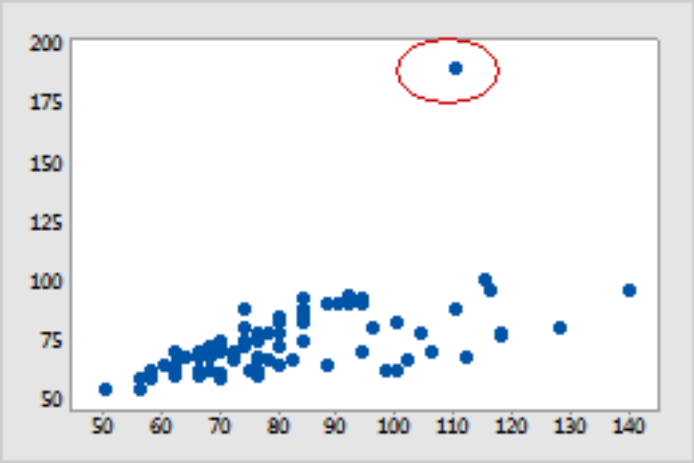
Note. An example of Durbin-Watson test interpretation.

Outliers and Multicollinearity

Outliers and multicollinearity are the other two MLR assumptions. Outliers can be visualized with scatter plots as shown in Figure 20. However, using SPSS, Cook's distance function may be more reliable to identify and remove outliers. Scholars recommend reducing outliers' effect by removing observation values with values greater than two standard deviations from the mean value. Figure 28 shows the use of scatter plots for finding outliers.

Figure 28

Visualizing Outliers With Scatter Plots



Note. An example of a scatter plot showing the outlier data point with a red circle marking.

Multicollinearity means independent variables are correlated highly with other independent variables. Two variables are found to be highly correlated if Pearson's coefficient *r* is greater than 0.9. As shown in Figure 21, multicollinearity can also be checked with Variance Inflation Factors (VIF) in SPSS software. If each of the VIF values in the coefficients table is less than 10, then the multicollinearity MLR assumption is met. In the presence of multicollinearity, replace one independent variable with another using a simple regression model between those two highly correlated independent variables. Figure 29 shows an example of multicollinearity.

Figure 29

An Example of Analyzing VIF for Multicollinearity

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	2.022	1.230		1.644	.105		
	length of stay	-.209	.518	-.048	-.404	.687	.959	1.042
	POS_sum	.011	.006	.211	1.787	.078	.959	1.042

a. Dependent Variable: Job Satisfaction

Note. An example of analyzing for multicollinearity.

Ethical Procedures

Access Agreements

I followed the ethical guidelines and approval process established by the Institutional Review Board (IRB) of Walden University. I conducted the survey and data analysis only after receiving IRB approval. I was aware of having no researcher bias during the data collection process by applying a stratified random sampling method and having no direct interviews with survey participants. I applied MLR statistical analysis to minimize my opinions on the data analysis result during data analysis.

Treatment of Human Participants

The human participants in the research were residents of India with different demographic parameters. The collected survey data excluded all personally identifiable information to maintain privacy. There was not a way to identify the collected survey information to the individual participant. The participation was optional, and the survey included approval consent from the participants. Some participants may have

discontinued the survey participation at any time. The survey participants can still contact me via email with questions or concerns.

Treatment of Data

The survey questionnaire was an online survey. The survey results were stored in the online survey tool and exported to a local computer password-protected Excel worksheet file for analysis. The survey results will only be available for the researcher to maintain confidentiality. The collected survey data excluded all personally identifiable information to maintain privacy. There was not a way to identify the collected survey information to the individual participant. After IRB approval, I stored the survey results for the period required for IRB compliance.

I used the statistical software package IBM SPSS for descriptive and inferential statistical tests. The online survey data was stored in a Microsoft Excel worksheet for initial analysis and data cleaning. The valid and filtered Excel worksheet data was used as input for the IBM SPSS tool.

Summary

In chapter 3, the research design and methodology chosen was a quantitative cross-sectional correlational research. MLR was the research analysis method to evaluate the relationship between transaction costs, customer satisfaction, and customer trust with online retailing growth in India. The survey research was conducted online with a questionnaire derived from prepublished and validated research.

A total of 1,035 members were targeted to receive the survey across genders, rural and urban citizens of India, varying education and income levels, and different states in

India. The goal was to obtain 285 responses, a response rate of 30%, by repeated email reminders to the online administered survey. For statistical analysis, I needed useful survey submissions of 285 participants with a response rate of approximately 30%.

The data analysis included a regression model that can predict the growth of online retailing in India based on the three predictors, according to the equation $G = c_0 + c_1X_1 + c_2X_2 + c_3X_3$. In chapter 4, I have added statistical data analysis details with results and conclusions.

Chapter 4: Results

The purpose of this quantitative correlational study was to evaluate the relationship between transaction costs, customer satisfaction, and customer trust in online shopping with the growth of online retailing in India. The research design included a cross-sectional survey to confirm the relationship between each predictor variable and the growth of online retailing in India. The purpose of the RQs were to examine online retailing growth in India due to transaction costs, customer satisfaction, and customer trust. Transaction cost is the cost to the customer for shopping from the online version of a store. Customer satisfaction indicates the fulfillment that customers derive from shopping online; customer trust in online shopping suggests customer confidence in the online store. The following regression-related null and alternative hypotheses anchored the RQ:

RQ1: What is the relationship between online retail transaction costs and the growth of online retailing in India?

$H1_0$: There is no relationship between online retail transaction costs and online retailing growth in India.

$H1_A$: There is a relationship between online retail transaction costs and the growth of online retailing in India.

RQ2: What is the relationship between customer trust in online shopping and the growth of online retailing in India?

$H2_0$: There is no relationship between customer trust in online shopping and the growth of online retailing in India.

$H2_A$: There is a relationship between customer trust in online shopping and the growth of online retailing in India.

RQ3: What is the relationship between customer satisfaction from online shopping and the growth of online retailing in India?

$H3_0$: There is no relationship between customer satisfaction from online shopping and online retailing growth in India.

$H3_A$: There is a relationship between customer satisfaction from online shopping and the growth of online retailing in India.

This chapter contains four sections: data collection, data treatment fidelity, study results, and summary. The data collection section describes the timeframe for data collection and actual recruitment and response rates. Then, I mention the final study details with data collection outcomes, treatment and intervention fidelity, and statistical analysis results. I conclude chapter 4 with a summary of the statistical findings.

Data Collection

The target population of my research was comprised of Indian consumers with online shopping experiences; 1,035 participants across genders, rural and urban citizens of India, varying education and income levels, and different states in India, received the email survey. The actual per zonal council strata sample size was calculated to be 57. With five strata zones, the required response was 57 multiplied by 5, which equaled 285. The survey was conducted online and received 299 valid and complete responses. The following demographic information was collected: gender, age, city in India, education level, and income range.

I reused Tandon and Kiran's (2019) survey instrument, which is an online survey questionnaire used to collect data and analyze the correlation between customer satisfaction and online shoppers in India. The survey questionnaire of Tandon and Kiran included questions relevant to measuring correlating factors such as trust-security-privacy, website design, ease of navigation, ease of ordering, product customization, performance expectancy, effort expectancy, facilitating conditions, hedonic motivation, price value, POD mode of payment, social media interactions, and customer satisfaction.

As shown in Appendix B, I mapped the questionnaire to questions related to trust-security-privacy, customer satisfaction, and price value. These categories related to the independent variables of my study. The survey invitation was emailed to the participants in November 2021. The survey invitation email mentioned the study purpose, contained the link to the online survey, stated my contact email for questions, and explained the incentive to the respondents. The collected survey results and answers were stored in a Microsoft Excel spreadsheet on my laptop for analysis. Per the calculation and the stratified sampling method, a minimum sampling size of 57 was needed for each of the sampled strata of zonal councils in India, assuming the same population across the five zonal councils.

The survey window was open from November 6 to December 17, 2021. At the close of the survey timeline, I received 299 valid and completed survey responses. As 299 responses met the minimum sample size requirement of 285, the research result should significantly represent the target population. Also, the stratified proportional random sampling method targeting the five zonal councils of India helped the research

result to represent the target population. The survey responses and percentages by the five zonal councils are shown in Table 7.

Table 7

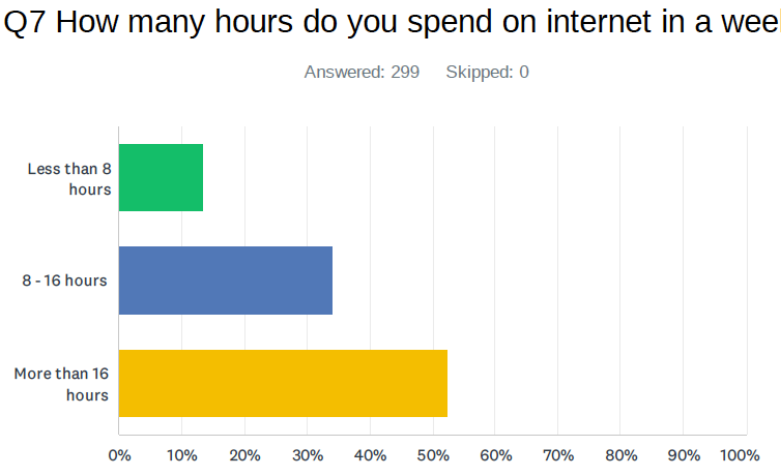
Survey Responses and Percentages by Zonal Council

Zone	Count of survey responses received	Percentage of survey responses received
Northern	57	19.06%
Central	55	18.39%
Eastern	58	19.39%
Western	68	22.74%
Southern	61	20.40%

All survey respondents mentioned that they shopped online, and more than 86% of the respondents spent more than 8 hours on the internet per week. Figure 30 shows the internet engagement of survey respondents.

Figure 30

A Chart Depicting Internet Engagement of Survey Respondents

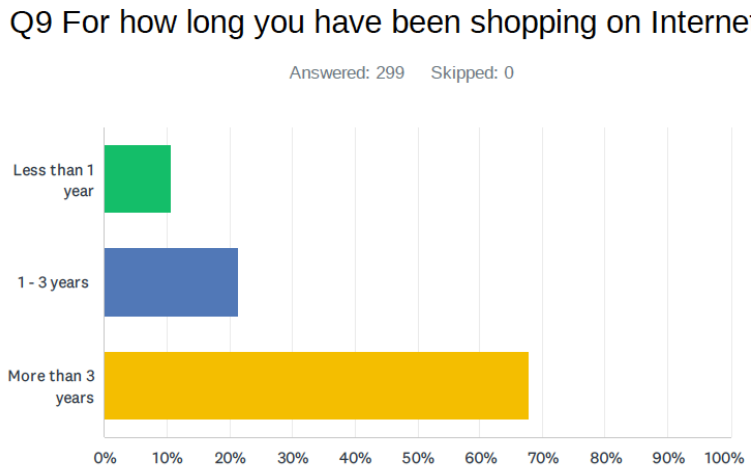


ANSWER CHOICES	RESPONSES	
Less than 8 hours	13.38%	40
8 - 16 hours	34.11%	102
More than 16 hours	52.51%	157
TOTAL		299

Of all the survey respondents, 69% had been shopping online for more than 3 years, 20% had been shopping online for 1 to 3 years, and approximately 11% had been shopping online for less than 1 year. Figure 31 shows the online shopping experience of survey respondents.

Figure 31

A Chart Showing Online Shopping Experience in Years

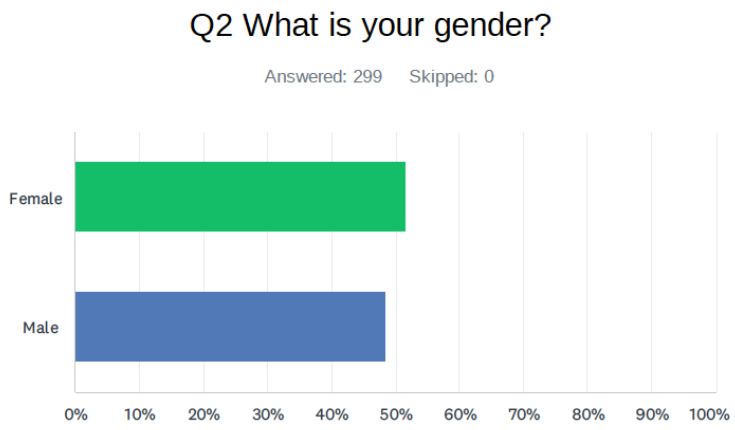


ANSWER CHOICES	RESPONSES	
Less than 1 year	10.70%	32
1 - 3 years	21.40%	64
More than 3 years	67.89%	203
TOTAL		299

Additional demographic statistics are as follows. Of all the survey respondents, 51.51% were females and 48.49% were males. Figure 32 shows the internet engagement of survey respondents.

Figure 32

A Chart of Survey Responses by Gender of Survey Respondents

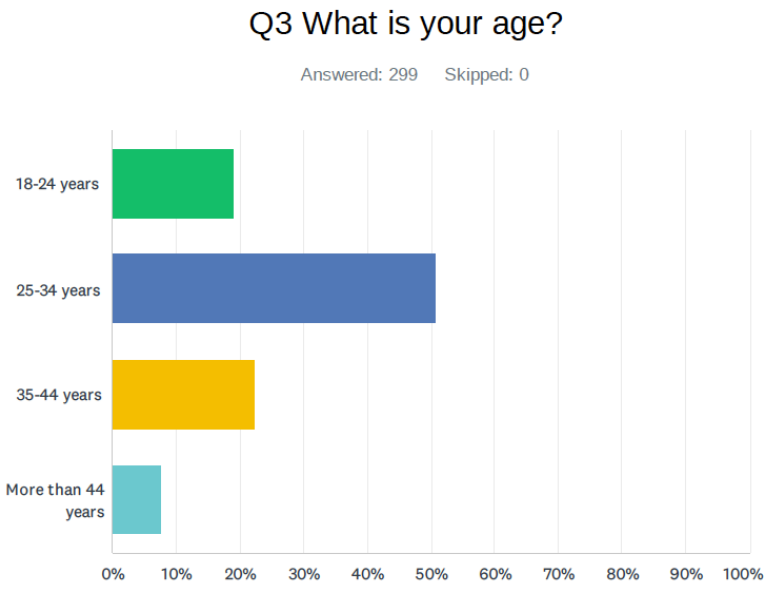


ANSWER CHOICES	RESPONSES	
Female	51.51%	154
Male	48.49%	145
TOTAL		299

Of all the survey respondents, 50.84% belonged to the 25 to 35 age group, 22.41% were in the 35 to 44 age group, and 7.69% were older than 44. Figure 33 shows the age distribution of survey respondents.

Figure 33

A Chart of Survey Responses by the Age of Survey Respondents

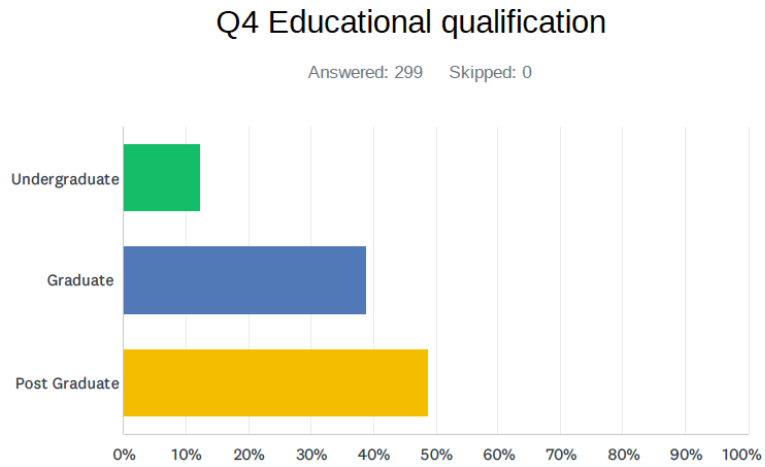


ANSWER CHOICES	RESPONSES	
18-24 years	19.06%	57
25-34 years	50.84%	152
35-44 years	22.41%	67
More than 44 years	7.69%	23
TOTAL		299

Of all the survey respondents, 49% had postgraduate educational qualifications, 39% were graduates, and 12% were undergraduates, which aligned with about 11% of respondents shopping online for less than 1 year. Figure 34 shows the educational qualification distribution of survey respondents.

Figure 34

A Chart of Survey Responses by the Educational Qualification of Survey Respondents

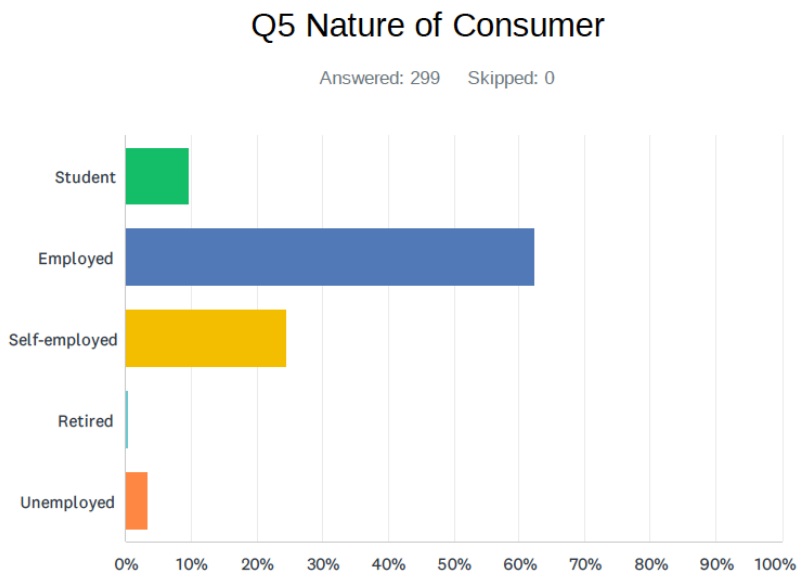


ANSWER CHOICES	RESPONSES	
Undergraduate	12.37%	37
Graduate	38.80%	116
Post Graduate	48.83%	146
TOTAL		299

Of all the survey respondents, 62% were employed, 24% were self-employed, and 10% were students. Figure 35 shows the employment type distribution of survey respondents.

Figure 35

A Chart of Survey Responses by Nature of Employment of Survey Respondents

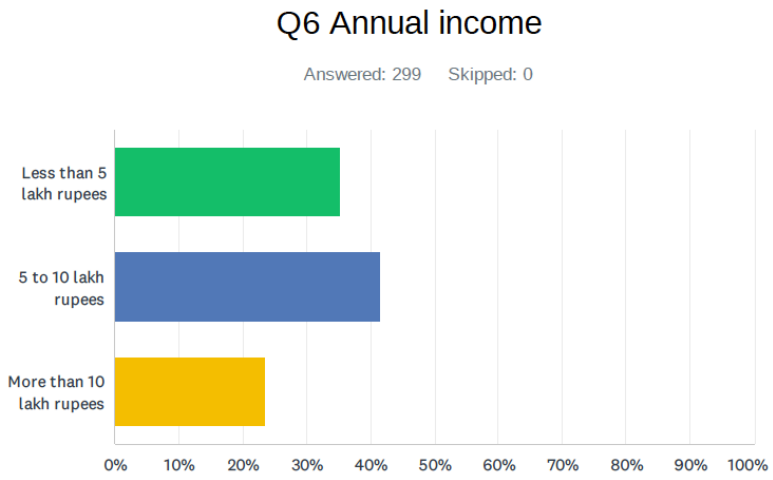


ANSWER CHOICES	RESPONSES	
Student	9.70%	29
Employed	62.21%	186
Self-employed	24.41%	73
Retired	0.33%	1
Unemployed	3.34%	10
TOTAL		299

Of all the survey respondents, 23% earned more than 10 lakh rupees per year, 42% earned more than 5 lakh rupees and less than 10 lakh rupees per year, and 35% earned less than 5 lakh rupees per year. Figure 36 shows the annual income distribution of survey respondents.

Figure 36

A Chart of Survey Responses by Annual Income of Survey Respondents

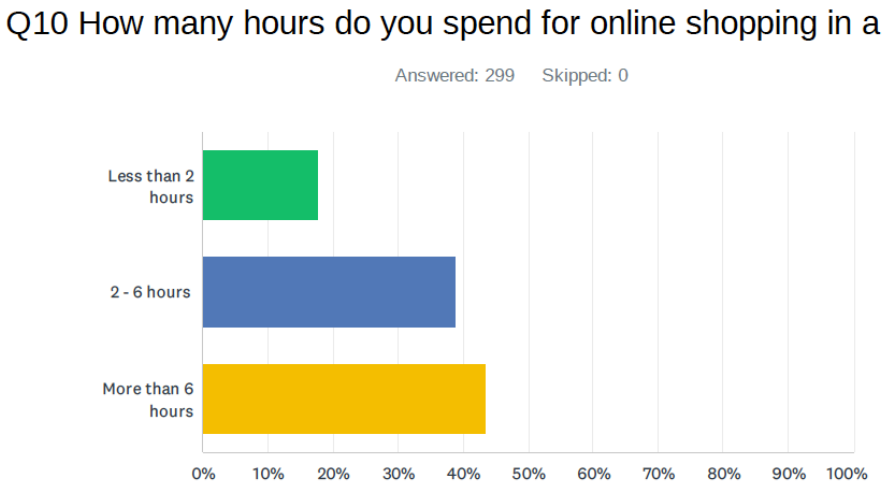


ANSWER CHOICES	RESPONSES	
Less than 5 lakh rupees	35.12%	105
5 to 10 lakh rupees	41.47%	124
More than 10 lakh rupees	23.41%	70
TOTAL		299

In addition, understanding the consumers' time spent online shopping and the number of products purchased online helps evaluate the survey sample responses to the target population. Figure 37 shows the online shopping time of survey respondents.

Figure 37

Survey Respondents Spending Time—Online Shopping

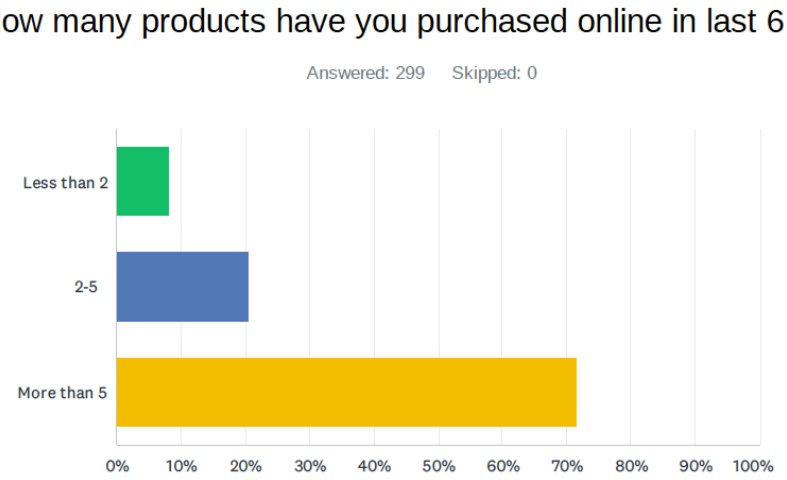


ANSWER CHOICES	RESPONSES	
Less than 2 hours	17.73%	53
2 - 6 hours	38.80%	116
More than 6 hours	43.48%	130
TOTAL		299

Of all the survey respondents, 44% spent more than six hours per month shopping online, and 39% spent two to six hours shopping online in a month. Figure 38 shows how many survey respondents purchased more than five products online in the last six months.

Figure 38

72% Purchased More Than Five Products Online in the Last Six Months



ANSWER CHOICES	RESPONSES	
Less than 2	8.03%	24
2-5	20.40%	61
More than 5	71.57%	214
TOTAL		299

Of all the survey respondents, 71% have purchased more than five products shopping online, and 20% bought more than two products with online shopping in the last 6 months.

Treatment and/or Intervention Fidelity

First, as described in chapter 3, I selected survey participants using stratified proportional sampling. Then, I sent survey invitations mentioning my Walden University email contact. I used SurveyMonkey to design the survey page, collect survey responses, and analyze response data. SurveyMonkey is an online survey software that creates and runs online surveys. I plan to share my research summary on my Web page. The response

rate for my first survey collection attempt was approximately 2%. Then, after two weeks, I received most of the responses. The survey was sent to 1,035 participants, and I received 299 completed and valid responses, for a response rate of 29%.

Study Results

I used the IBM SPSS software version 25 for statistical analysis. IBM SPSS software provided descriptive statistics, inferential and linear modeling statistics, and charting. First, I examined descriptive statistics and evaluated statistical assumptions. The valid data were first analyzed for descriptive statistics. Descriptive statistics output the mean, median, range, standard deviation, and other statistical parameters for the valid sample. For the correlational analysis, the generalized linear model function in SPSS was relevant. Based on the chosen Type-I error value, the desired confidence level is 0.95.

The study's independent variables were transaction cost, customer satisfaction, and customer's trust in online shopping. The dependent variable was the growth of online retailing in India. For the continuous interval variables—transaction cost, customer satisfaction, and customer's trust —the corresponding survey answers were measured with a 5-point Likert scale that ranges from *strongly disagree* to *strongly agree.* The *strongly disagree* value was coded as 1, and the *strongly agree* value was coded as 5. Adding the survey answer values to get the value of the composite variable will provide interval data. Also the data collected fall into a normal distribution with sufficient scale values. Table 1 shows each predictor variable along with its definition and data type.

Descriptive Statistics

Descriptive statistics output the mean, median, range, standard deviation, and other statistical parameters for the valid result set. For the three composite variables of transaction cost, customer satisfaction, and customers trust, I executed descriptive statistics in SPSS, along with skewness measurements as shown in Table 8. I also show descriptive statistics for each survey item.

Table 8

Descriptive Statistics for Composite and Independent Variables

Variable	*N*	Minimum	Maximum	Mean	Standard deviation	Kurtosis statistic	Standad error
Customer satisfaction (nine items)	291	3.22	5	4.3567	.41090	-0.509	0.285
Transaction cost (14 items)	294	3.14	5	4.3934	.47052	-0.688	0.283
Customers' trust in online shopping (eight items)	293	3	5	4.2571	.54691	-0.391	0.284

Data normality needs to be assessed before statistical analysis to reduce erroneous inference. MLR requires that the normality assumption is satisfied. Without normality, the coefficient and confidence intervals calculation will not be correct. The first step towards normalization will be to remove outliers and then apply log transformation. The Q-Q plot can be visualized for normality. In Figure 39, the Q-Q plot for

CustomerSatisfaction shows normality after removing outliers and applying logarithmic base ten transformations.

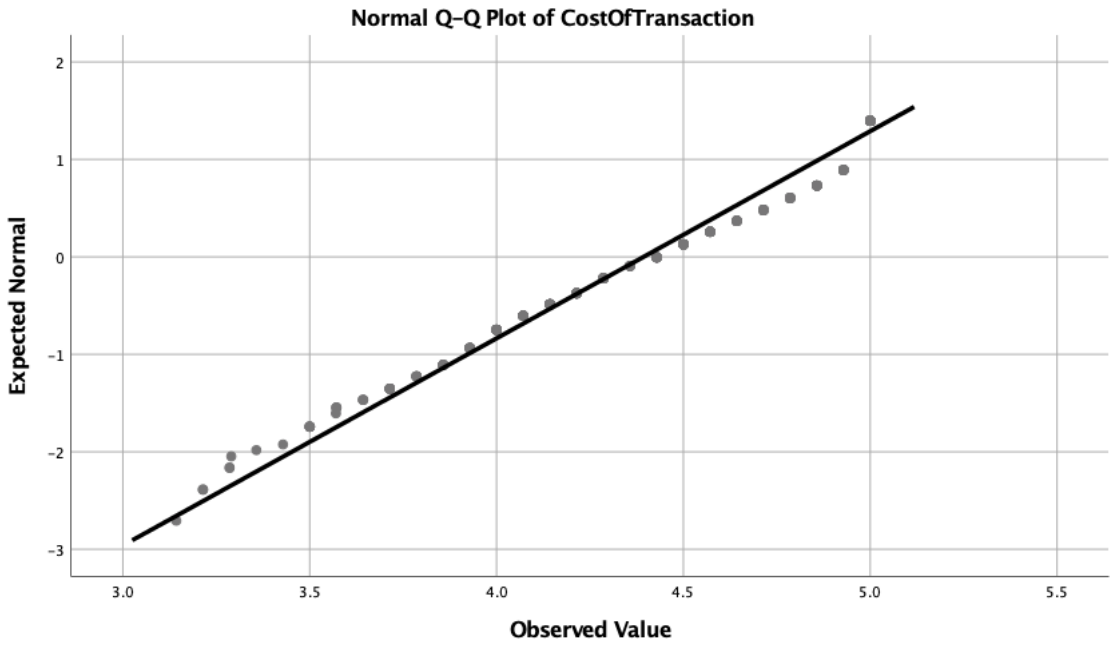
Figure 39

Q-Q Plot for CustomerSatisfaction Composite Variable Showing Normality

Figure 40, the Q-Q plot for transaction cost, shows normality after removing outliers and applying logarithmic base ten transformations.

Figure 40

Q-Q Plot for TransactionCost Composite Variable Showing Normality



After applying transformations, the data were within the suggested normality criteria for all three independent variables. In Figure 41, the Q-Q plot for Customer's Trust in online shopping shows normality after removing outliers and applying logarithmic base ten transformations.

Figure 41

Q-Q Plot for Customers' Trust Composite Variable Showing Normality

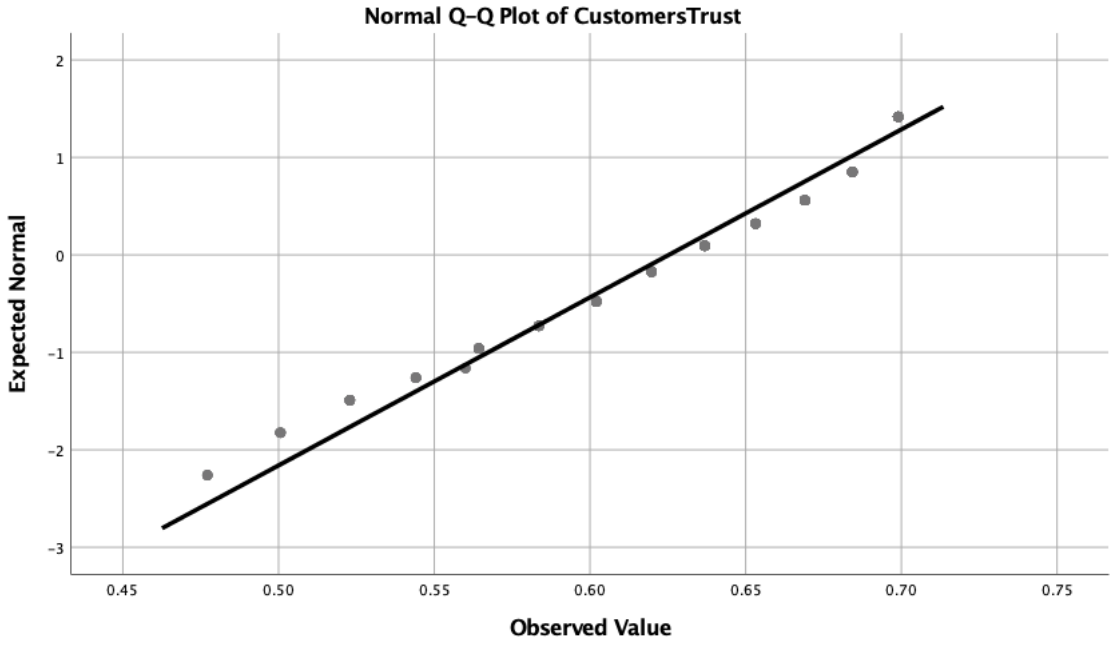


Table 9

Descriptive Statistics of Survey Question Answers

Survey question#	*N*	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
q0012_0001	294	4.00	1.00	5.00	4.5340	.83678	.700
q0015_0001	294	4.00	1.00	5.00	4.2041	.80475	.648
q0016_0001	294	4.00	1.00	5.00	4.3503	.76821	.590
q0017_0001	294	4.00	1.00	5.00	4.4558	.78145	.611
q0018_0001	294	4.00	1.00	5.00	4.4286	.73434	.539
q0019_0001	294	4.00	1.00	5.00	4.3673	.76244	.581
q0020_0001	294	4.00	1.00	5.00	4.4898	.75149	.565
q0021_0001	294	4.00	1.00	5.00	4.4830	.72830	.530
q0022_0001	294	4.00	1.00	5.00	4.1293	.96895	.939
q0023_0001	294	4.00	1.00	5.00	4.2891	.86735	.752
q0026_0001	291	4.00	1.00	5.00	4.4158	.71604	.513
q0027_0001	291	4.00	1.00	5.00	4.1856	.80938	.655
q0028_0001	291	3.00	2.00	5.00	4.4124	.69111	.478
q0029_0001	291	4.00	1.00	5.00	4.1443	.89431	.800
q0030_0001	291	4.00	1.00	5.00	4.0275	.94646	.896
q0031_0001	290	4.00	1.00	5.00	4.3345	.72177	.521
q0032_0001	290	4.00	1.00	5.00	4.4034	.66498	.442
q0033_0001	290	4.00	1.00	5.00	4.3483	.75749	.574
q0034_0001	290	4.00	1.00	5.00	4.3517	.74899	.561
q0035_0001	290	3.00	2.00	5.00	4.2793	.76781	.590
q0036_0001	290	4.00	1.00	5.00	4.4517	.70053	.491
q0037_0001	290	4.00	1.00	5.00	4.4345	.72821	.530
q0038_0001	290	3.00	2.00	5.00	4.4034	.65976	.435
q0039_0001	290	4.00	1.00	5.00	4.3931	.67374	.454
q0040_0001	287	4.00	1.00	5.00	4.3589	.72910	.532
q0041_0001	287	3.00	2.00	5.00	4.2683	.73461	.540
q0042_0001	287	4.00	1.00	5.00	4.5889	.65709	.432
q0043_0001	287	3.00	2.00	5.00	4.5296	.61308	.376
q0044_0001	287	3.00	2.00	5.00	4.4843	.63598	.404
q0045_0001	287	3.00	2.00	5.00	4.3798	.71351	.509
q0046_0001	287	4.00	1.00	5.00	4.3937	.63826	.407

The critical observations from descriptive statistics of the individual survey items are as follows:

- Every survey item had one or more respondents who *strongly disagree* or *disagree* with the question. This response can be an outlier or a significant number of respondents.
- Every survey item had one or more respondents who *strongly agree* with the question.
- The mean and the standard deviation indicated more respondents who *agree* to *strongly agree* for each survey question.

I conducted ANOVA using SPSS to see a significant difference between the four age groups and customer satisfaction. There is a significant difference in the mean score of the four age groups regarding customer satisfaction. (F: 3.824, df: 3, p: 0.01). The *p*-value of 0.01 is less than 0.05. Therefore, there is a statistically significant difference between customer satisfaction and the age groups. The analysis suggests a difference in customer satisfaction perception between the surveyed age groups.

Table 10

Customer Satisfaction, Age Groups, and Descriptive Statistics

					95% Confidence Interval for mean			
	N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
18-24 years	52	38.1346	4.70306	.65220	36.8253	39.4440	27.00	45.00
25-34 years	148	39.6554	5.08260	.41779	38.8298	40.4811	9.00	45.00
35-44 years	67	41.0000	4.02643	.49191	40.0179	41.9821	27.00	45.00
More than 44 years	22	38.7273	4.70240	1.00255	36.6423	40.8122	28.00	45.00
Total	289	39.6228	4.83042	.28414	39.0636	40.1821	9.00	45.00

Per Wagner (2016), this is a one-way ANOVA to test the RQ of whether customer satisfaction is dependent on the respondent's age. The null hypothesis is that the respondents' age does not affect customer satisfaction from online shopping. The results of the one-way ANOVA are shown in Table 11. Figure 42 shows the mean plot of customer satisfaction and age groups.

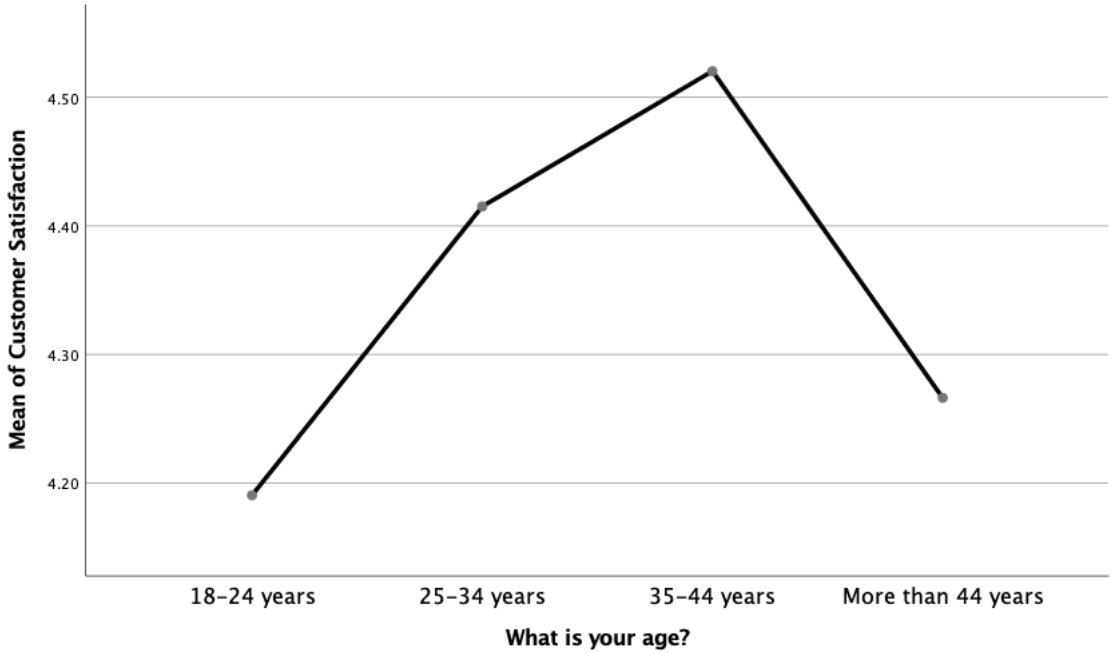
Table 11

Customer Satisfaction, Age Groups, and ANOVA

	Sum of squares	*df*	Mean square	*F*	Sig.
Between groups	260.042	3	86.681	3.824	.010
Within groups	6459.847	285	22.666		
Total	6719.889	288			

Figure 42

Mean Plot of Customer Satisfaction and Age Groups



Similarly, I conducted ANOVA using SPSS to see if there was a significant difference in gender, income, years of the online shopping experience, and customer satisfaction. For gender ANOVA, the *p*-value of 0.392 is greater than 0.05. Therefore, there is no statistically significant difference between customer satisfaction and gender. The analysis suggests no difference in customer satisfaction perception between female and male online shoppers. For annual income ANOVA, the *p*-value of 0.000 is lesser than 0.05. Therefore, there is a statistically significant difference between customer satisfaction and the annual income groups. The analysis suggests a difference in customer satisfaction between the three annual income groups. Table 42 shows ANOVA of customer satisfaction and annual income with p-value 0.000.

Table 12

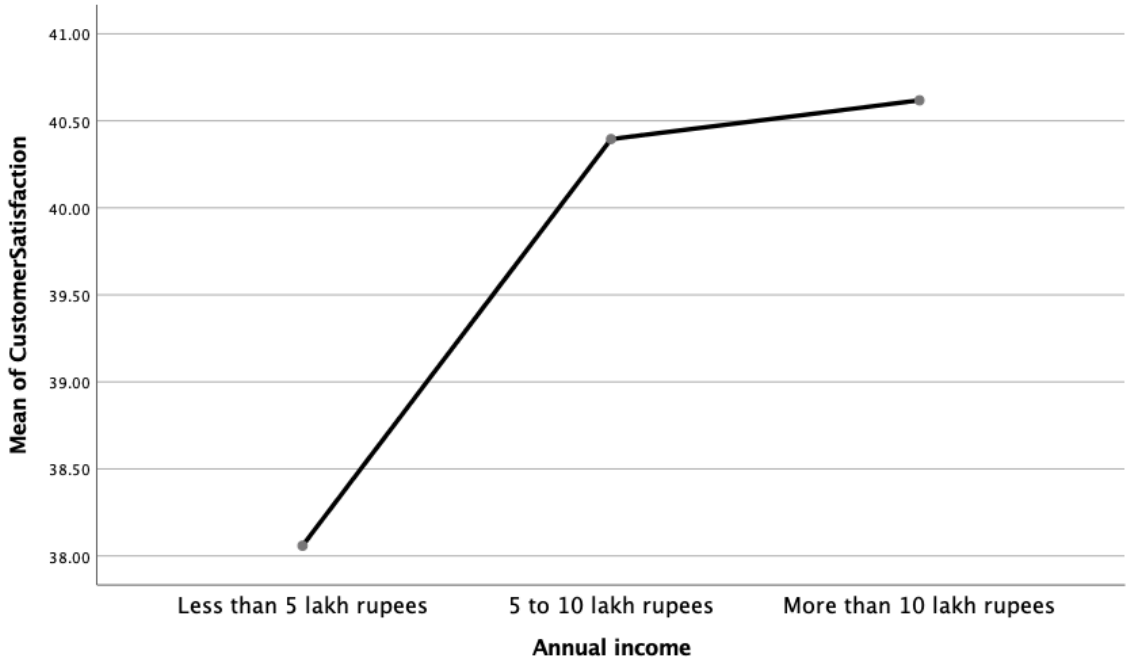
Customer Satisfaction, Annual Income, and ANOVA With p-Value 0.000

Groups	Sum of squares	*df*	Mean square	*F*	Sig.
Between groups	387.746	2	193.873	8.757	.000
Within groups	6332.143	286	22.140		
Total	6719.889	288			

The annual income groups are less than 5 lakh rupees, 5–10 lakh rupees, and more than 10 lakh rupees. Figure 43 plots customer satisfaction with annual income distribution.

Figure 43

Shoppers Earning More Than Five Lakh Rupees Had Greater Customer Satisfaction



There is a statistically significant difference between customer satisfaction and the number of years of online shopping. As shown in Table 13, shoppers for more than 3 years had a higher customer satisfaction measure than those with less than 3 years of

online shopping experience. Figure 44 shows a plot of customer satisfaction against the number of years of online shopping experience.

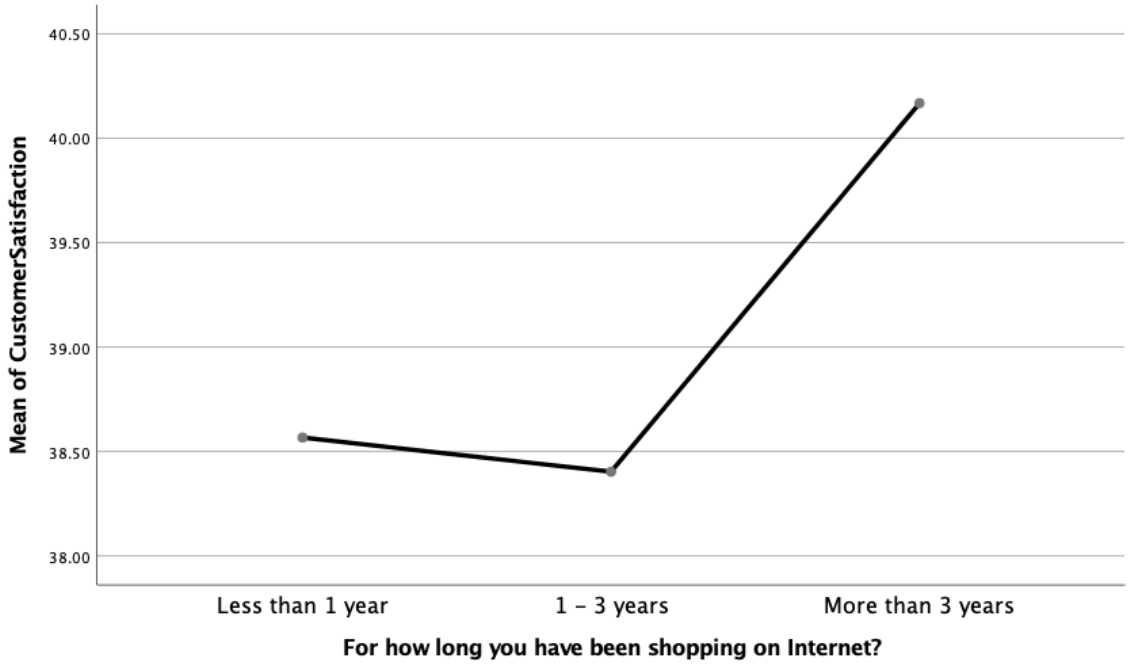
Table 13

Customer Satisfaction, Years of Online Shopping, and ANOVA With p-Value of .019

Groups	Sum of squares	*df*	Mean square	*F*	Sig.
Between groups	184.131	2	92.066	4.029	.019
Within groups	6535.758	286	22.852		
Total	6719.889	288			

Figure 44

Shoppers Shopping Online for More Than 3 Years Had Greater Customer Satisfaction



I conducted ANOVA using SPSS to see if there was a significant difference in the four age groups and customers' trust in online shopping. There was no significant difference in the mean score of the four age groups regarding customers' trust in online

shopping. (F: 2.606, df: 3, p .0.052). The *p*-value of 0.052 is greater than 0.05. Therefore, there was no statistically significant difference between the customers trust in online shopping and the age groups.

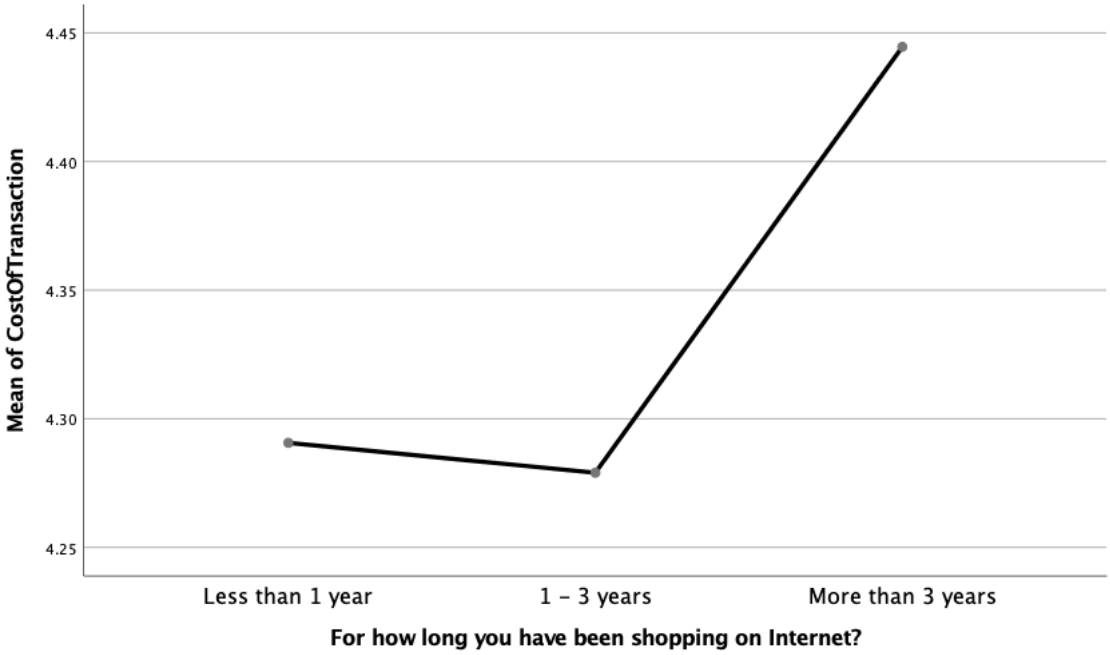
Similarly, I conducted ANOVA using SPSS to see if there was a significant difference in gender, income, years of online shopping experience, and customers' trust in online shopping. For gender ANOVA, the *p*-value of 0.422 was greater than 0.05. Therefore, there was no statistically significant difference between customers' trust and gender. The analysis suggests that there was no difference in customer satisfaction perception between female and male online shoppers. For annual income ANOVA, the *p*-value of 0.000 is lesser than 0.05. Therefore, there was a statistically significant difference between the customers' trust and the annual income groups. The analysis suggests a difference in customers' trust between the three annual income groups.

I conducted ANOVA using SPSS to see if there was a significant difference in the four age groups and transaction cost. The *p*-value of 0.007 is lesser than 0.05. Therefore, there was a statistically significant difference between the transaction cost and the age groups. Similarly, I conducted ANOVA using SPSS to see if there was a significant difference in gender, income, years of online shopping experience, and transaction cost. For gender ANOVA, the *p*-value of 0.416 is greater than 0.05. Therefore, there is no statistically significant difference between the transaction cost and gender. The analysis suggested that there was no difference in transaction cost perception between female and male online shoppers. For annual income ANOVA, the *p*-value of 0.000 is lesser than 0.05. Therefore, there was a statistically significant difference between the transaction

cost and the annual income groups. The analysis suggested a difference in transaction cost perception between the three annual income groups. There was a statistically significant difference between the transaction cost and the years of online shopping. The transaction cost in online shopping was perceived as lesser in groups who have been shopping online for more than three years. Figure 45 shows a plot of transaction cost against the number of years of online shopping experience.

Figure 45

Shoppers Shopping Online for More Than 3 Years See Online Transaction Cost as Beneficial



The key observations from descriptive demographic analyses are as follows:

- There was a statistically significant relationship between customer satisfaction and the age groups. The customer satisfaction is lower for the 18–24 age group and greater for over age 44.

- There was no significant difference in the mean score of the four age groups regarding customers' trust in online shopping.
- There was a statistically significant relationship between the transaction cost and the age groups.
- There was no significant difference between customer satisfaction, transaction cost, customers' trust in online shopping, and gender.
- There was a statistically significant relationship between customer satisfaction and the number of years of online shopping. Shoppers with more than three years of online shopping experience had a higher customer satisfaction measure than those with less than three years of online shopping experience.
- There was a statistically significant relationship between the transaction cost and the years of online shopping. Shoppers shopping online for more than three years perceived transaction costs are better with online shopping than those with less than three years of online shopping experience.
- There was a statistically significant relationship between customer satisfaction, transaction cost, customers' trust in online shopping, and the annual income groups. The mean plots are similar in that income groups greater than five lakh rupees have higher customer satisfaction, perceive better transaction costs with online shopping, and have higher trust in online shopping.

The descriptive analysis indicated that Indians have positively perceived online shopping. From descriptive analysis, the frequency of online shopping is comparatively

low for some demographics. Online retailers may use this study's results to focus their business plans to retain existing customers and attract new customers. Also, small businesses may plan to invest in online shopping to attract population segments they may be losing to retailers with better online shopping experiences. The positive conclusion for small businesses with no online shopping experience is that a clear demographic segment population is not very satisfied with online shopping.

Survey Instrument Reliability and Validity Assessment

As mentioned in chapter 3, I used an existing research instrument, which was already evaluated for instrument reliability and validity. It was still necessary to check for reliability and validity. Cronbach's alpha is a standard reliability measure. For a reliable variable, the overall alpha should have a value greater than 0.70 (Field, 2013). The Kaiser-Meyer-Oklin (KMO) and Bartlett analyses were conducted for structural validity (Korkmaz et al., 2018). The scale's reliability as a whole and concerning factors were measured to be high at .934 via Cronbach alpha reliability coefficients (Korkmaz et al., 2018). After displaying the results in numerous tables and plots, the reliability of the 5-point Likert scale and the internal consistency were concluded. The study results stood alone, with multiple tables explaining validity and reliability measures. Table 14 shows reliability test output.

Table 14

Reliability Tests

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		**.732**
Bartlett's Test of Sphericity	Approx. Chi-Square	797.872

	df	3
	Sig.	.000

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.934	.937	3

The KMO value of 0.732 indicated that the dataset is valid for a principal component analysis (PCA). Bartlett's test of sphericity shows statistical significance with a value of 0.000, which means the correlation matrix is not an identity matrix and PCA is relevant (Field, 2013). PCA indicated the construct validity of the survey instrument. There were only three independent variables, and the goal of PCA is not to reduce the number of predictor variables. I did a PCA to determine whether all three independent variables were principal components for data analysis. Table 15 shows principal component analysis of independent variables.

Table 15

Principal Component Analysis of Independent Variables

Communalities	Initial	Extraction
Transaction cost	1.000	.930
Customers trust in online shopping	1.000	.873
Customer satisfaction	1.000	.865

Extraction method: Principal component analysis.

From the Communalities extraction values, I determined that all three independent variables are principal elements with extraction values > 0.3 (UCLA, 2015).

Also, the correlation matrix indicated that no correlation among variables was more significant than 0.9. Table 16 shows reliability statistics for the independent variables and their survey items.

Table 16

Reliability Statistics for the Independent Variables and Their Corresponding Survey Items

Variable	*N* of Items	Cronbach's Alpha	Corresponding survey items	Cronbach's Alpha if item deleted
Customer satisfaction (X1)	7	.892	Q26: Shopping online is an exciting experience. CS1	.879
			Q28: I am satisfied with the Cash on Delivery (COD) mode of online retailers. CS2	.904
			Q40: I am satisfied with product range offered by online retailers. CS3	.876
			Q41: I am satisfied with the quality of products offered online. CS4	.882
			Q44: Online shopping is a satisfying experience as it offers customized product at my convenience. CS5	.873
			Q45: Products purchased online have measured up to my expectations. CS6	.878
			Q46: I am satisfied with the way online retailers carry out transactions. CS7	.875

continued

Variable	*N* of Items	Cronbach's Alpha	Corresponding survey items	Cronbach's Alpha if item deleted
Transaction cost (X2)	14	.928	Q12: It was easy for me to learn Internet shopping. TC1.	.925
			Q16: Information provided by online retailers help me to purchase products. TC2	.922
			Q19: Process of transaction on the Web is convenient. TC3	.921
			Q20: It is easy to place orders online. TC4	.923
			Q21: It is easy to track orders placed online. TC5	.923
			Q22: It is easy to modify orders placed online. TC6	.923
			Q23: It is easy to cancel orders placed online. TC7	.925
			Q37: Online discounts and promotions offered are often attractive. TC8	.924
			Q31: Online shopping enables me to accomplish shopping more quickly than traditional stores. TC9	.925
			Q32: Online shopping helps me to find product information within the shortest time frame. TC10	.922
			Q33: Shopping online takes less time from search of products to transaction. TC11	.925
			Q36: While shopping on Internet I can find some products that are not easily available in physical stores. TC12	.927
			Q38: Detailed order submission helps in purchasing. TC13	.924
			Q39: Online shopping facilitates comparative analysis of similar products. TC14	.923

continued

Variable	*N* of Items	Cronbach's Alpha	Corresponding survey items	Cronbach's Alpha if item deleted
Customers' trust in online shopping (X3)	6	.875	Q15: Online retailers provide ample information. CT1	.857
			Q17: Successful initial purchasing builds confidence for further purchasing. CT2	.870
			Q18: The language used by online retailers is easy to understand. CT3	.862
			Q27: The websites have adequate security measures. CT4	.864
			Q29: I feel safe while using my credit card/debit card on the websites. CT5	.856
			Q30: I trust that the Websites will not give my personal details to other websites without my permission. CT6	.862

The Cronbach's alpha is above 0.7 for all the three independent variables, which is a measure of reliability. Most survey items must remain in the analysis to retain the reliability of the three independent variables: X1=CustomerSatisfaction, X2=TransactionCost, and X3=CustomersTrust. Only one survey item related to the cash on delivery (question# 28), if deleted, increases the reliability of *CustomerSatisfaction* with the increased Cronbach's alpha of .904.

The following modified null hypotheses support the RQs:

RQ1: What is the relationship between online retail transaction costs and the growth of online retailing in India?

$H1_0$: X_2 = online retail transaction costs were not a significant predictor of Y = online retailing growth in India; mathematically, $b_2 = 0$ in the resulting regression model.

$H1_A$: There was a relationship between online retail transaction costs and the growth of online retailing in India.

RQ2: What is the relationship between customer trust in online shopping and the growth of online retailing in India?

$H2_0$: X_3 = customer trust in online shopping was not a significant predictor of Y = growth of online retailing in India; mathematically, $b_3 = 0$ in the resulting regression model.

$H2_A$: There was a relationship between customer trust in online shopping and the growth of online retailing in India.

RQ3: What is the relationship between customer satisfaction from online shopping and the growth of online retailing in India?

$H3_0$: X_1 = customer satisfaction from online shopping was not a significant predictor of Y = online retailing growth in India; mathematically, $b_1 = 0$ in the resulting regression model.

$H3_A$: There was a relationship between customer satisfaction from online shopping and the growth of online retailing in India.

The linear regression model $Y = b_0 + b_1 X_1 + b_2 X_2 + b_3 X_3$ has no significant fit.

The standard and the stepwise regression are common approaches for determining the best estimated predictor variables. In the standard or contemporary approach,

researchers use a literature review to include all the independent variables in one step. In the stepwise method, researchers use statistically significant *t*-values to determine whether an independent variable must be included in the regression equation (Vogt & Johnson, 2016). The stepwise model may be the forward stepwise model or the backward stepwise model. A forward stepwise model begins with a model with no variables selected. Then, the model starts including the most significant variables one after another until all the variables are included or if the stopping criterion is met. A backward stepwise model begins by including all variables in the model. Then, the MLR starts removing the least significant variables one after another.

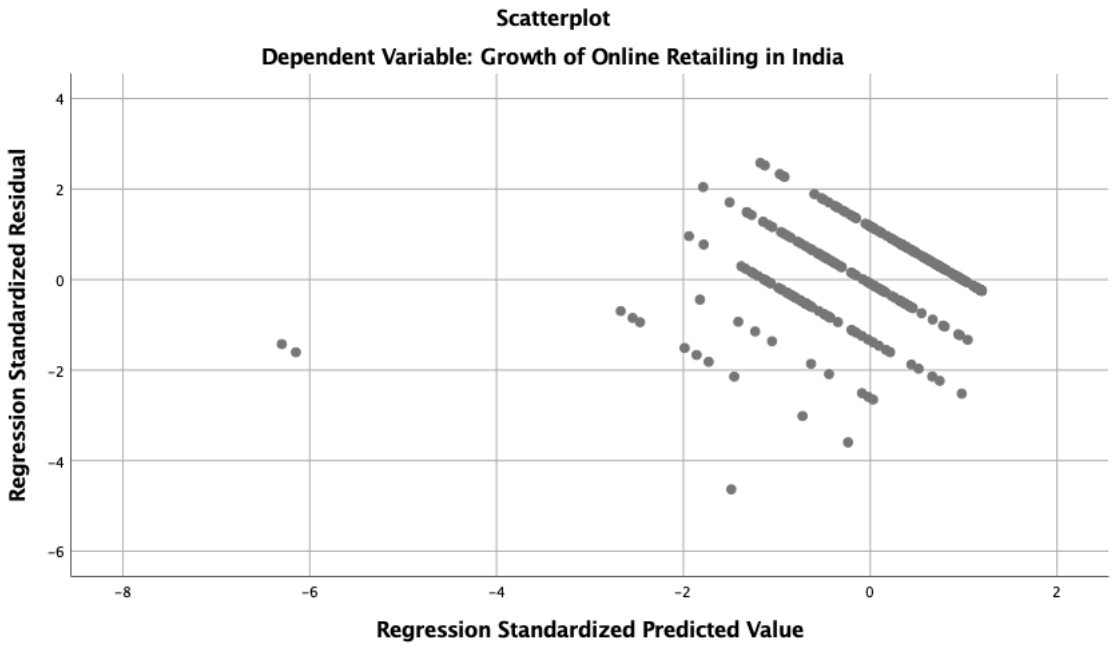
Though the stepwise model may work, I plan to use the standard MLR method and load the three independent variables together as the literature review determines the variables. The continuous variable and the categorical variables will be input into the SPSS GLM function. SPSS provides the output values of R, R^2, adjusted R^2, and coefficients for each independent variable. To improve the MLR model's accuracy, a backward stepwise MLR can then be applied to plot the adjusted R^2 values with each model. The best model will have the highest adjusted R^2 value. Also, *t*-statistical and *F*-statistical tests will be performed to establish statistical significance and reject the null hypothesis.

I used a scatterplot of standardized predicted values versus standardized residual values to test for homoscedasticity and linearity of the regression model. Homoscedasticity in a model means that the error is constant along with the values of the dependent variable. The regression scatterplot does not show any funnel shape or curve.

The regression model meets the homoscedasticity and linearity assumptions. Figure 46 shows the scatterplot of regression predicted values versus the regression standardized residual.

Figure 46

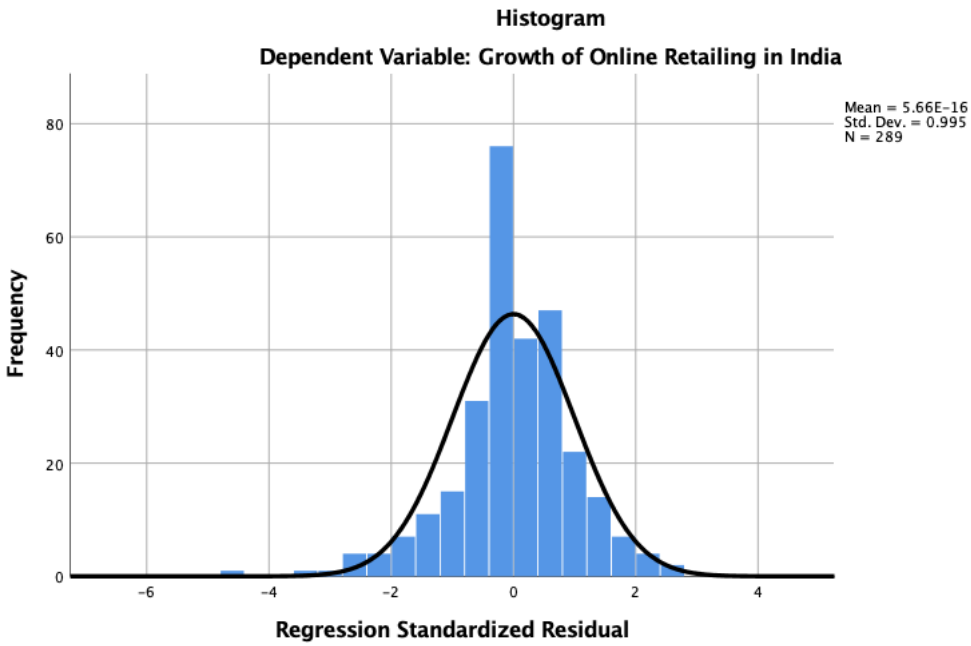
Scatterplot of Regression Standardized Predicted Value Versus the Regression Standardized Residual



I used the histogram and P-P plot to test for normality of the regression model. The histogram in Figure 47 shows a symmetric bell shape.

Figure 47

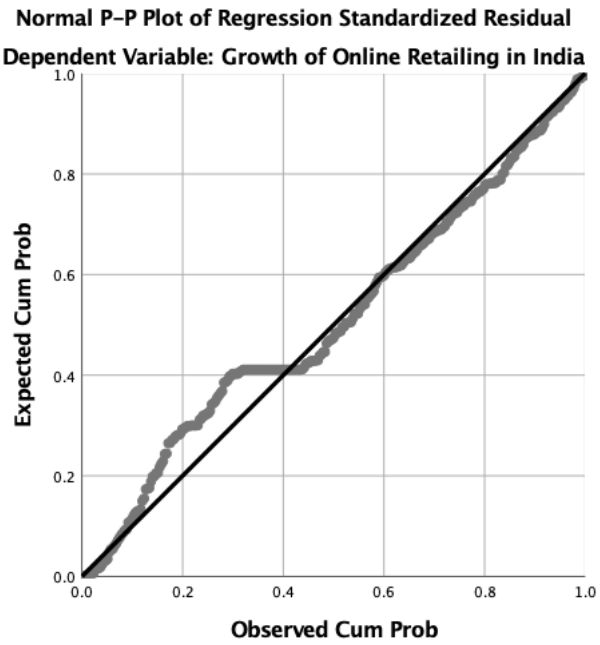
Histogram of Regression Standarized Residual Versus Frequency



From the P-P plot in Figure 48, the degree of the residual values coincides with the expected values for the most part except for some outliers.

Figure 48

Normal P-P Plot of Regression Standardized Residual Value



I used the Durbin-Watson statistic to test the residual independence. If the residuals are independent, the value of the Durbin-Watson statistic should be close to two (Field, 2013). The value of the regression model is 1.919, which is very close to two, indicating the residual independence is met. Multicollinearity assumption for linear regression was verified with tolerance and variance inflation factor values within acceptable ranges.

Statistical Analysis Findings

In addition to verifying the linear regression model assumptions, it is essential to exclude outliers before statistical analysis. Scatterplots help identify outliers for each independent variable plotted against the dependent variable. No major outlier adjustments were needed. Figure 49 shows the scatterplot of regression model variables.

Figure 49

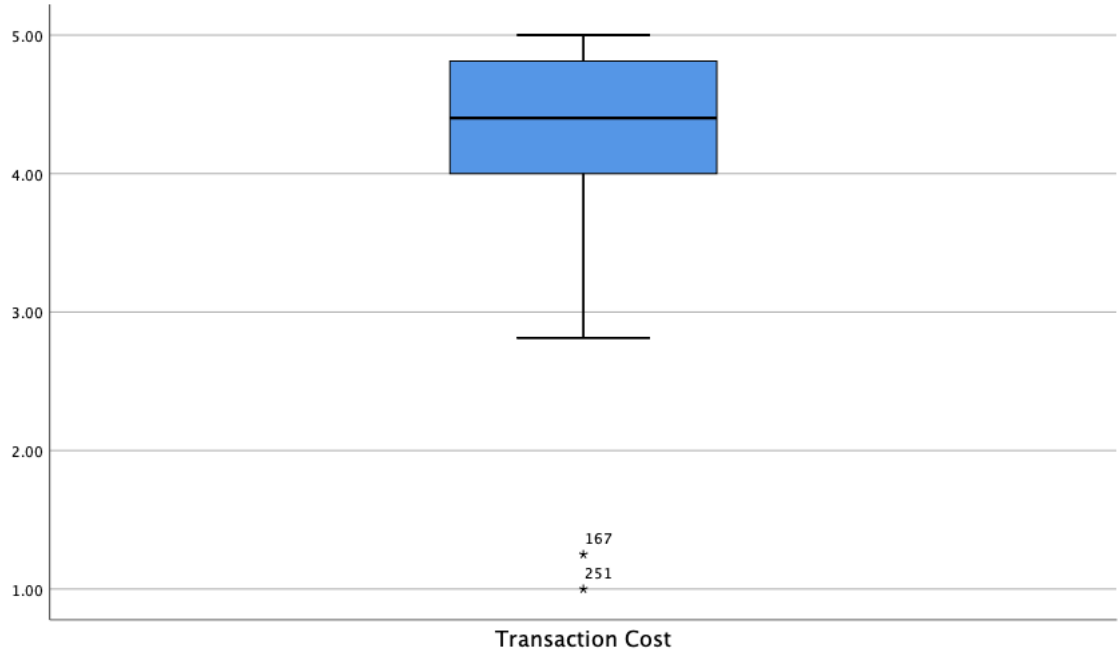
Scatterplost of the Regression Model Variables

continued

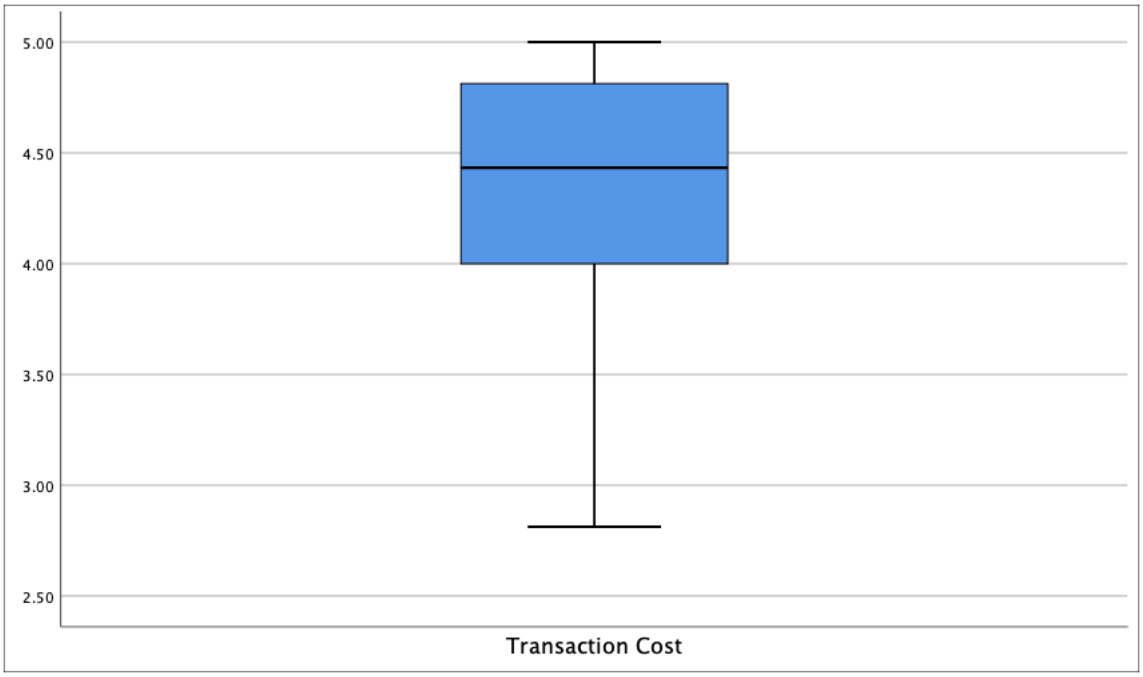
I will identify and remove outliers to further strengthen the regression model. I removed two outlier entries, as shown in Figure 50.

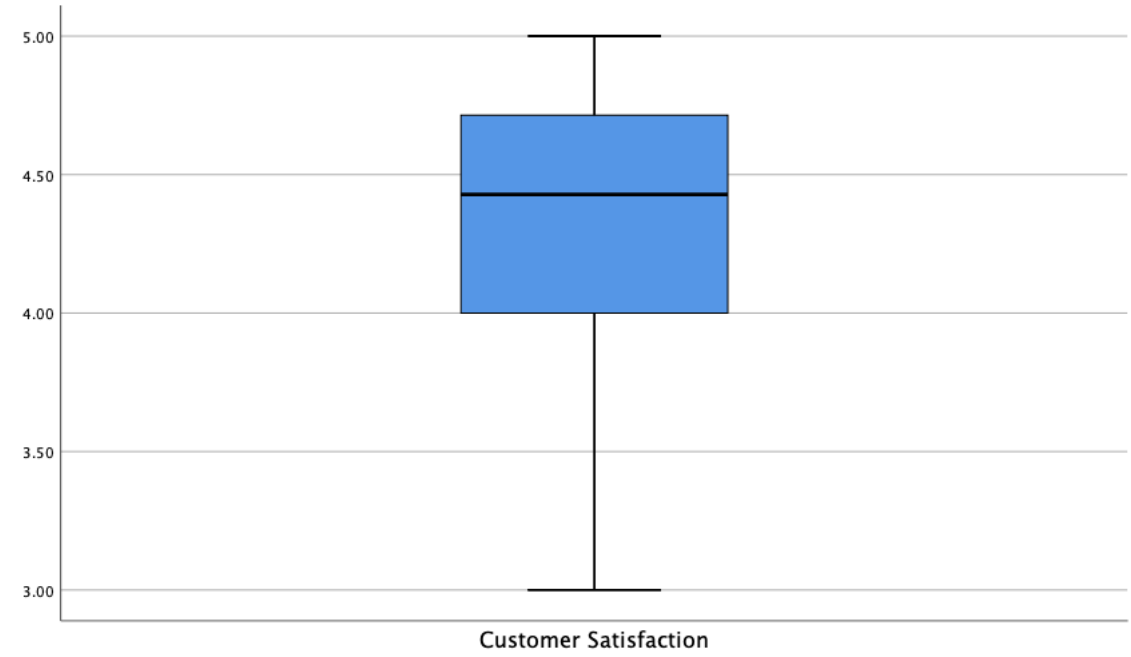
Figure 50

Outlier Boxplots



After clearing the two outlier entries, the boxplots for the two independent variables look normal.





To answer the RQs and to test the corresponding hypotheses, I conducted linear regression analysis. Table 17 shows the regression model summary. The results of the regression analysis are as follows:

Table 17

Model Summary[b]

R	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	*R* Square Change	*F* Change	*df*1	*df*2	Sig. F Change	Durbin-Watson
.768[a]	.589	.585	.39568	.589	136.331	3	285	.000	1.919

a. Predictors: (Constant), customers trust in online shopping, customer satisfaction, transaction cost

b. Dependent Variable: Growth of Online Retailing in India

From the Adjusted *R* Square value of .585, 58.5% of the growth of online retailing in India can be explained by the three independent variables of customer satisfaction, transaction cost, and the customers' trust in online shopping. Table 18 shows ANOVA results.

Table 18

ANOVA[a]

	Model	Sum of squares	*df*	Mean square	*F*	Sig.
1	Regression	64.033	3	21.344	136.331	.000[b]
	Residual	44.621	285	.157		
	Total	108.654	288			

a. Dependent Variable: Growth of Online Retailing in India

b. Predictors: (Constant), customers trust in online shopping, customer satisfaction, transaction cost

The ANOVA indicated the overall statistical significance of the regression model. The predictors are customer satisfaction, transaction cost, and the customers' trust in

online shopping. The growth of online retailing in India is the dependent variable. The strength and the direction are represented by covariance values (Frankfort-Nachmias & Leon-Guerrero, 2018). Table 19 shows coefficients.

Table 19

Coefficients[a]

Variables	Unstandardized coefficients		Standardized coefficients			95% Confidence Interval for *B*
	B	Std. Error	Beta	*t*	Sig.	Lower Bound
(Constant)	.683	.193		3.548	.000	.304
Transaction cost	.284	.105	.259	2.714	.007	.078
Customer satisfaction	.647	.084	.577	7.713	.000	.482
Customers trust in online shopping	-.050	.075	-.052	-.677	.499	-.197

Table 19 displayed the regression equation and statistical significance (Wagner, 2016). The regression equation is $Y = 0.683 + 0.647X^1 + 0.284X^2 - .05X^3$, where Y is the growth of online retailing in India, X^1 is customer satisfaction, X^2 is transaction cost, and X^3 is customers trust in online shopping.

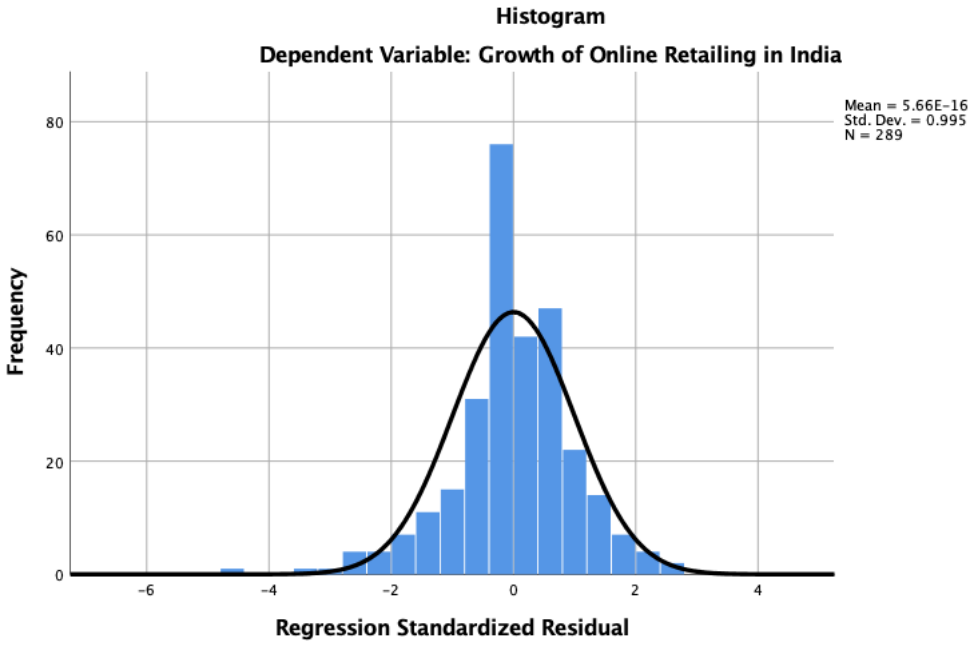
For customer satisfaction, the *p*-value of 0.000 is lesser than the alpha value of 0.05; the regression model is statistically significant. Therefore, reject the null hypothesis that customer satisfaction is not a significant predictor of Y = growth of

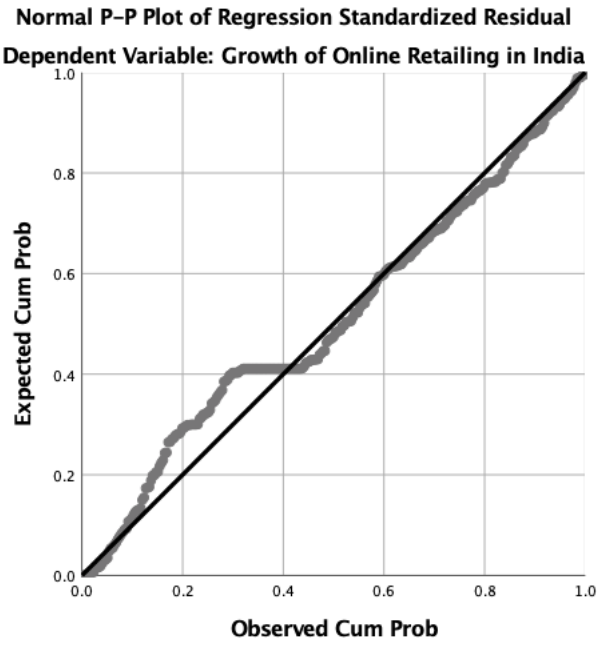
online retailing in India and accept the alternate hypotheses that there is a relationship between customer satisfaction and the growth of online retail in India.

For transaction cost, the *p*-value of 0.007 is lesser than the alpha value of 0.05; the regression model is statistically significant. Therefore, reject the null hypothesis that transaction cost is not a significant predictor of Y = growth of online retailing in India and accept the alternate hypotheses that there is a relationship between transaction cost and the growth of online retailing in India. For customers trust in online shopping, the *p*-value of 0.499 is greater than the alpha value of 0.05, and therefore, the regression model is not statistically significant. Therefore, accept the null hypothesis that customers' trust in online shopping is not a significant predictor of Y = growth of online retailing in India. Figure 51 shows histogram and P-P plots.

Figure 51

Histogram and P-P Plots





To improve the MLR model's accuracy, a backward stepwise MLR can then be applied to plot the adjusted R^2 values with each model. The best model will have the highest adjusted R^2 value. I accepted the null hypothesis that customers' trust in online shopping is not a significant predictor of Y = growth of online retailing in India. I removed the *Customers' Trust in Online Shopping* independent variable to analyze the linear regression model with the two variables: transaction cost and customer satisfaction. Table 20 shows the regression model summary. Table 21 shows ANOVA output.

Table 20

Model Summary[b]

R	*R* Square	Adjusted *R* Square	Std. Error of the estimate	*R* Square change	*F* Change	*df*1	*df*2	Sig. *F* change	Durbin-Watson
.767[a]	.589	.586	.39531	.589	204.655	2	286	.000	1.921

c. Predictors: (Constant), Customers Trust in Online Shopping, customer satisfaction, transaction cost

d. Dependent Variable: Growth of Online Retailing in India

Table 21

ANOVA[a]

Model		Sum of squares	*df*	Mean square	*F*	Sig.
1	Regression	63.962	2	31.981	204.655	.000[b]
	Residual	44.692	286	.156		
	Total	108.654	288			

b. Predictors: (Constant), Customers Trust in online shopping, customer satisfaction, transaction cost

c. Dependent Variable: Growth of Online Retailing in India

The ANOVA shows that the regression model is statistically significant with a *p*-value of .000. Table 22 shows coefficients.

Table 22

Coefficients[a]

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	63.962	2	31.981	204.655	.000[b]
	Residual	44.692	286	.156		
	Total	108.654	288			

Table 22 displayed the regression equation and statistical significance (Wagner, 2016). The regression equation is: $Y = 0.692 + 0.641X^1 + 0.240X^2$, where Y is the growth of online retailing in India, X^1 is customer satisfaction, and X^2 is transaction cost. For customer satisfaction, the *p*-value of 0.000 is lesser than the alpha value of 0.05. The regression model is statistically significant. Therefore, I will continue to reject the null hypothesis that customer satisfaction is not a significant predictor of Y = growth of online retailing in India, and accept the alternate hypotheses that there is a relationship between customer satisfaction and the growth of online retailing in India. For transaction cost, the *p*-value of 0.004 is lesser than the alpha value of 0.05. Therefore, I will continue to reject the null hypothesis that transaction cost is not a significant predictor of Y = growth of online retailing in India and accept the alternate hypotheses that there is a relationship between transaction cost and the growth of online retailing in India.

From the R^2 value of .589, 58.9% of the growth of online retailing in India can be explained by the two independent variables of customer satisfaction and transaction cost.

There was not much change in the R^2 value, which is between .585 with three independent variables and .589 with two independent variables.

Structural Equation Model Analysis

If the R^2 value is 0.3 to 0.5, this value is generally considered a weak effect size (Moore & Notz , 1979). If the R^2 value is 0.5 to 0.7, this value is generally considered a moderate effect size, as with this regression model (Moore & Notz, 1979). Many other mediators and covariances may further help validate the model from the literature review. The structural equation modeling (SEM) will strengthen and support the data analysis. I used SmartPLS 3.0 for SEM, and focused on factor confirmation of measurement items. Confirmatory factor analysis helped assess the reliability and validity of the predictor variables. The analysis confirms reliability with Cronbach's alpha and composite reliability measures greater than 0.7. Convergent validity is confirmed with AVE variance extracted values greater than 0.5. Discriminant validity is confirmed by calculating the square root of AVE and comparing it with correlation values as per Table 24. Path analysis with SEM was not required as the regression model results were significant enough to validate the hypotheses. The findings were summarized in figure 52.

Figure 52

Research Framework Derived From the Literature Review With Factor Loadings

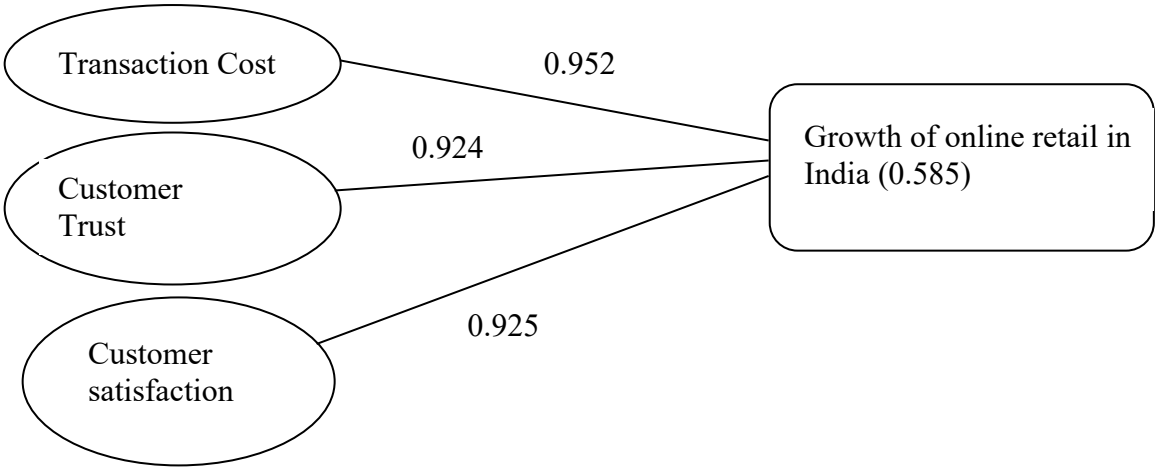


Table 23 shows the results from hypothesis testing.

Table 23

Hypotheses Testing

Hypothesis	Relationship	Coefficient	*t*-value	Sig.	Supported
$H1_A$ - Transaction cost	There is a relationship between transaction cost and the growth of online retailing in India.	.284	2.714	**.007**	**Yes**
$H3_A$ - Customer satisfaction	There is a relationship between customer satisfaction and the growth of online retailing in India.	.647	7.713	**.000**	**Yes**
$H2_A$ - Customers trust	There is a relationship between customers trust in online shopping and the growth of online retailing in India.	-.050	-.677	**.499**	**No**

Research Findings

The outcome of the regression model and PLS analysis for each hypothesis was summarized in Table 22. The outcome was tested using significance values, *t*-values, and coefficients.

Hypothesis 1 Transaction Cost > Growth of Online Retailing in India

For customer satisfaction, the significance value of 0.000 is lesser than the alpha value of 0.05. The regression model is statistically significant. The *t*-value indicates that the confidence interval is greater than 99%. There is a relationship between transaction cost and the growth of online retailing in India. Chintagunta et al. (2012) defined *e-commerce transaction costs* as travel time, transportation cost, shopping time, quality inspection, and other convenience expenses.

Hypothesis 2 Customers Trust in Online Shopping > Growth of Online Retailing in India

For customers' trust in online shopping, the *p*-value of 0.499 is greater than the alpha value of 0.05, the regression model is not statistically significant, and I accepted the null hypothesis. There is no relationship between customers' trust in online shopping and the growth of online retailing in India.

Hypothesis 3 Customer Satisfaction > Growth of Online Retailing in India

For customer satisfaction, the significance value of 0.007 is lesser than the alpha value of 0.05. The regression model is statistically significant. The *t*-value is greater than 1.96, and the confidence interval is greater than 99%. There is a relationship between customer satisfaction and the growth of online retailing in India. Customer satisfaction is

measured from postpurchase product evaluation, usually a gap between product or service perception and product or service expectation (Xu et al., 2018). Further, Tandon (2016) defined how customer satisfaction improved online retailing due to perceived usability.

Summary

I began chapter 4 by describing the timeframe for data collection and actual recruitment and response rates. Then, I mentioned the final study details with data collection outcomes, treatment and intervention fidelity, and statistical analysis results. I conclude chapter 4 with a summary of the statistical findings. The target population of my research was comprised of 1,035 Indian consumers with online shopping experiences across genders, rural and urban citizens of India, varying education and income levels, and different states in India who received the email survey. The survey was conducted online and I received 299 valid and complete responses, which is a sufficient number of responses.

I described the demographical distribution of the 299 responses concerning 5 zonal councils of India, hours spent on the internet per week, shopping experience in years, age group and gender, educational qualification, and annual income group. Descriptive statistics, histogram charts, and other tables were included to show survey item data and the computed composite variables. Though the reused survey instrument was already validated, I showed that the survey results were valid and reliable. I confirmed the normality, linearity, independence, convergent validity, discriminant validity, composite reliability, and homoscedasticity using various statistical and charting

techniques. That included Durbin-Watson, Q-Q plot, P-P plot, histogram, scatterplots, and boxplots. The Kaiser-Meyer-Oklin (KMO) and Bartlett analyses were conducted for structural validity (Korkmaz et al., 2018). The reliability of the scale as a whole and concerning factors were measured to be high at .934 via Cronbach alpha reliability coefficients (Korkmaz et al., 2018). After displaying the results in numerous tables and plots, the reliability of the 5-point Likert scale and the internal consistency were concluded.

Descriptive statistics output the mean, median, range, standard deviation, and other statistical parameters for the valid result set. For the three composite variables of transaction cost, customer satisfaction, and customers trust, I executed descriptive statistics in SPSS, along with skewness measurements. I also conducted ANOVA using SPSS to see if there was a significant difference in gender, income, age group, educational qualification, years of online shopping experience, and customer satisfaction.

The regression analysis indicated that customer satisfaction and transaction cost are significant predictors for the growth of online retail in India. These two factors can explain 59% of the variance in the growth of online retail in India. Customers' trust in online shopping is not a significant predictor of the growth of online retail in India. Table 22 displayed the regression equation and statistical significance (Wagner, 2016). The regression equation is: $Y = 0.683 + 0.647X^1 + 0.284X^2 - .05X^3$, where Y is the growth of online retailing in India, X^1 is customer satisfaction, X^2 is transaction cost, and X^3 is customers trust in online shopping.

For customer satisfaction, the *p*-value of 0.000 is lesser than the alpha value of 0.05, and the regression model is statistically significant. Therefore, reject the null hypothesis that customer satisfaction is not a significant predictor of Y = growth of online retailing in India and accept the alternate hypotheses that there is a relationship between customer satisfaction and the growth of online retailing in India. For transaction cost, the *p*-value of 0.007 is lesser than the alpha value of 0.05, and the regression model is statistically significant. Therefore, reject the null hypothesis that transaction cost is not a significant predictor of Y = growth of online retailing in India and accept the alternate hypotheses that there is a relationship between transaction cost and the growth of online retailing in India. For customers' trust in online shopping, the *p*-value of 0.499 is greater than the alpha value of 0.05, and therefore the regression model is not statistically significant. Therefore, accept the null hypothesis that customers' trust in online shopping is not a significant predictor of Y = growth of online retailing in India.

The social implication is that online shopping in India will grow as customer satisfaction improves and the transaction cost is perceived as better. The trust and risks of shopping online do not limit online shopping growth in India. While customers of some age ranges and lower-income groups have lower customer satisfaction, small business owners with no online shopping support can implement measures to retain and attract those age ranges and income population who are not yet satisfied with online shopping. Additionally, customer groups with lower annual income have lower customer satisfaction and perception of the transaction cost. Small business owners with

no online shopping support can implement measures to attract and retain those demographic groups.

Chapter 5: Discussion, Conclusions, and Recommendations

ISM refers to technology-based tools and processes to manage information used in businesses and organizations. The ISM analyzes e-commerce data to influence e-commerce growth. The general management problem is that India's small-scale industry sector has reduced growth due to intense competition from large- and medium-sized domestic and multinational online retail companies (Sankaran, 2015). The specific management problem is that online retailing's growth, due to lower online transaction costs and favorable online customer satisfaction scores, has hurt small businesses' success without an established online presence (Schaper, 2015). There is a need to understand the development of online retailing in India. The purpose of this study was to evaluate the relationship between transaction costs, customer satisfaction, and customer trust in online shopping with the growth of online retailing in India.

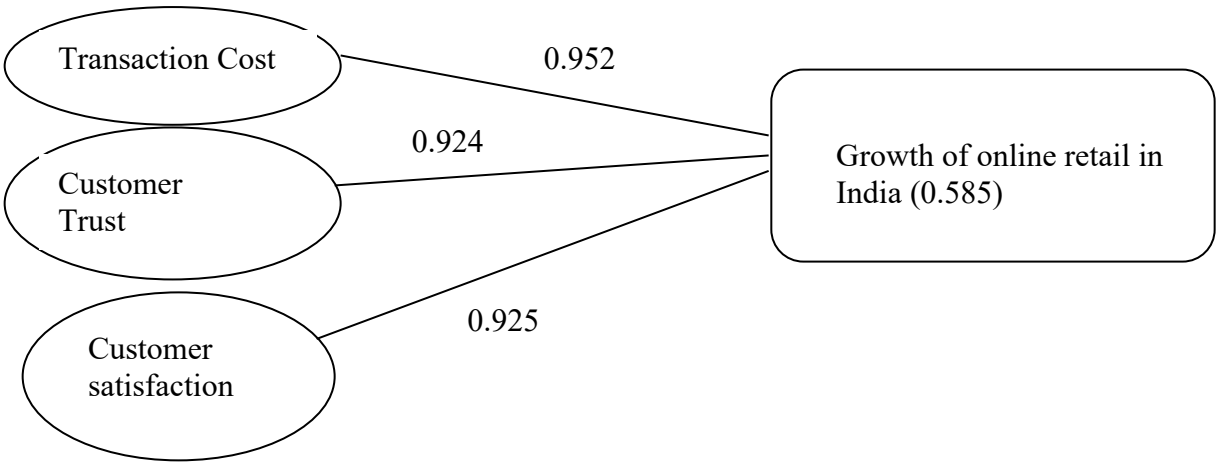
I reused Tandon and Kiran's (2019) survey instrument. The survey window was open from November 6th to November 17th, 2021. At the close of the survey timeline, I received 299 valid and completed survey responses. The stratified proportional random sampling method targeting the five zonal councils of India helped to represent the target population. The key findings concluded that customer satisfaction and transaction cost have a statistically significant relationship with the growth of online retailing in India. The predictability seemed moderately high, with an adjusted *R* squared value of 0.589. The customers' trust in online shopping was not statistically significant with the growth of online retail in India.

Interpretation of Findings

Due to the TPB and UTAUT2's strong theoretical influence to determine the critical factors affecting an individual's behavior and purchase intention towards online retail shopping, I applied the TPB and UTAUT2 as the foundational theory for the research hypothesis. Compared to other behavioral or technology adoption theories, with TPB, one can explain online retailing adoption at an individual level. The research framework and findings are as follows. Figure 53 shows SEM relationships using the partial least squares algorithm.

Figure 53

SEM Relationships Between Variables Using the PLS Algorithm



Note. A figure showing the research framework with factor loading values.

Research Findings

The key observations from descriptive demographic analyses are as follows. First, there was a relationship between customer satisfaction and age groups. The customer satisfaction was lower for the age groups 18 to 24 years and lower for customers over 44

years. Second, there was a statistically significant relationship between the transaction cost and the age groups. Third, there was no significant difference between customer satisfaction, transaction cost, customers' trust in online shopping, and gender. Fourth, there was a statistically significant relationship between customer satisfaction and the number of years of online shopping. Shoppers with more than 3 years of online shopping experience had a higher customer satisfaction measure than those with less than 3 years of online shopping experience. Fifth, there was a statistically significant relationship between the transaction cost and the years of online shopping. Shoppers shopping online for more than 3 years perceived transaction costs as better with online shopping than those with less than 3 years of online shopping experience. Finally, there was a statistically significant relationship between customer satisfaction, transaction cost, customers' trust in online shopping, and the annual income groups. Customers with income groups greater than five lakh rupees had higher customer satisfaction, perceived better transaction costs with online shopping, and had higher trust in online shopping.

The outcome of the regression model and PLS analysis for each hypothesis was summarized in Table 22. The outcome was tested using significance values, *t* values, and coefficients. The study confirmed that the significant factors affecting the growth of online retail in India are customer satisfaction and transaction cost. The conclusion is similar to Seetharaman et al.'s (2017) study with information about some factors affecting online retailing growth in the United Arab Emirates. Chintagunta et al. (2012) defined e-commerce transaction costs as travel time, transportation, shopping time, quality inspection, and other convenience expenses. Kaur (2013) examined the benefits

and costs of electronic banking compared to paper banking. The researcher concluded that electronic banking was beneficial from a transaction cost perspective. The conclusion of Kaur's study applied to e-commerce banking and transaction cost evaluations and evaluated how online transactions were affected by cost, value, and return. Recent research studies have called transaction cost out to influence online sales such as in banking, education, retail, and travel. Dijesh and Babu (2016) recently examined how e-commerce businesses may reduce transaction costs and improve overall business processes. Dijesh and Babu mentioned that offline transactions had to include the number of transactions as a factor, unlike online transactions.

Not all factors mentioned in some studies were confirmed as I concluded that customers' trust in online shopping is not a predictor of the growth of online shopping in India. The previous studies concluded that customer trust in online shopping had a significant relationship with the growth of online retailing. Sim et al. (2018) determined that online shopping customer's trust in the vendor is an essential factor. Ofori et al. (2018) studied C2C online shopping using the UTAUT and the initial trust model theoretical frameworks to understand how customers' trust in online shopping was related to online retailing growth in Ghana, Africa. The hypotheses evaluation is summarized as follows.

Hypothesis 1: Transaction Cost -> Growth of Online Retailing in India

For transaction cost, the significance value of 0.007 was lesser than the alpha value of 0.05, and the regression model was statistically significant. The *t* value indicated that the confidence interval was greater than 99%. There is a relationship between

transaction cost and the growth of online retailing in India. Chintagunta et al. (2012) defined e-commerce transaction costs like travel time, transportation cost, shopping time, quality inspection, and other convenience expenses. Hwang and Lee (2016) explored how EDI affects the competitiveness of a firm's SCM to show the mediating effect between environmental uncertainty, behavioral uncertainty, and transaction cost.

Hypothesis 2: Customers Trust in Online Shopping -> Growth of Online Retailing in India

For customers' trust in online shopping, the *p*-value of 0.499 was greater than the alpha value of 0.05, and the regression model was not statistically significant; therefore, I accepted the null hypothesis. There was no relationship between customers' trust in online shopping and the growth of online retailing in India. However, Rajaretnam and Sheth (2018) concluded that trust was essential in converting a user to an online buyer. Jaiswal et al. (2018) explored how customer trust affects customer retention with a quantitative study to improve customer retention for India's online businesses based on how the customer was acquired and the length of customer engagement.

Hypothesis 3: Customer Satisfaction -> Growth of Online Retailing in India

For customer satisfaction, the significance value of 0.000 was lesser than the alpha value of 0.05, and the regression model was statistically significant. The *t* value was greater than 1.96, and the confidence interval was greater than 99%. There was a relationship between customer satisfaction and the growth of online retailing in India. Customer satisfaction is measured from postpurchase product evaluation, usually a gap between product or service perception and product or service expectation (Xu et al.,

2018)**.** Further, Tandon (2016) defined how customer satisfaction improved online retailing due to perceived usability. There is a direct positive relationship between e-satisfaction, e-loyalty, and e-service quality with e-commerce spending (Nisar & Prabhakar, 2017). Nisar and Prabhakar (2017) also mentioned that e-commerce faces challenges from offline retailing as the consumers could not feel and try the products; therefore, they bought products they did not intend to purchase.

Though customer satisfaction and transaction cost explain the variance in the growth of online retail in India, the factors vary in how much they affect the outcome variable. The regression equation is $Y = 0.683 + 0.647X^1 + 0.284X^2 - .05X^3$, where Y is the growth of online retailing in India, X^1 is customer satisfaction, X^2 is transaction cost, and X^3 is customers' trust in online shopping. After removing the insignificant variable customers' trust in online shopping, the regression equation is $Y = 0.692 + 0.641X^1 + 0.24X^2$. Table 24 displays the regression equation and statistical significance.

Table 24

Coefficients[a]

	Unstandardized coefficients		Standardized coefficients			95% Confidence Interval for *B*	
	B	Std. Error	Beta	*t*	Sig.	Lower Bound	Upper Bound
(Constant)	.692	.192		3.604	.000	.314	1.070
Transaction cost	.240	.081	.218	2.943	.004	.079	.400
Customer satisfaction	.641	.083	.571	7.693	.000	.477	.805

Table 24 displays the regression equation and statistical significance. The regression equation is $Y = 0.692 + 0.641X^1 + 0.240X^2$, where Y is the growth of online retailing in India, X^1 is customer satisfaction, and X^2 is transaction cost. For customer satisfaction, the *p*-value of 0.000 was lesser than the alpha value of 0.05, and the regression model was statistically significant. Therefore, I rejected the null hypothesis that customer satisfaction is not a significant predictor of Y = growth of online retailing in India and accepted the alternate hypothesis that there is a relationship between customer satisfaction and the growth of online retailing in India. For transaction cost, the *p*-value of 0.004 was lesser than the alpha value of 0.05, and the regression model was statistically significant. Therefore, I rejected the null hypothesis that transaction cost is not a significant predictor of Y = growth of online retailing in India and accepted the alternate hypothesis that there is a relationship between transaction cost and the growth of online retailing in India. Table 25 shows the regression model summary.

Table 25

Model Summary

R	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	*R* Square Change	*F* Change	*df*1	*df*2	Sig. *F* Change	Durbin-Watson
.767[a]	.589	.586	.39531	.589	204.655	2	286	.000	1.921

a. Predictors: (Constant), Customers Trust in Online Shopping, customer satisfaction, transaction cost

b. Dependent Variable: Growth of Online Retailing in India

The *t*-values are greater than 1.96. From the R^2 value of .589, a moderately significant 58.9% of the growth of online retailing in India can be explained by the two independent variables of customer satisfaction and transaction cost. The R^2 value has not changed much between .585 with three independent variables and .589 with two independent variables. Table 26 shows hypothesis testing results.

Table 26

Hypotheses Testing

Hypothesis	Relationship	Coefficient	*t*-value	Sig.	Supported
$H1_A$ - Transaction cost	There is a relationship between transaction cost and the growth of online retailing in India	.284	2.714	**.007**	**Yes**
$H3_A$ - Customer satisfaction	There is a relationship between customer satisfaction and the growth of online retailing in India	.647	7.713	**.000**	**Yes**
$H2_A$ - Customers trust	There is a relationship between customers trust in	-.050	-.677	**.499**	**No**

online shopping and the growth of online retailing in India

Limitations of the Study

The limitations were aligned with the limitations called out in chapter 1. Researchers connect study assumptions with theories, observations, instruments, and analysis (Simon, 2011). The research hypotheses indicated an outcome variable and three predictor variables. The study confirmed that the significant factors affecting 59% of the variance in the growth of online retail in India were customer satisfaction and transaction cost. Customers' trust in online shopping was not found to be a significant factor. Variable bias may exist due to missing other critical factors, which explain the remaining 40% of the variance in the growth of online retail in India. The literature review helped with choosing the predictor variables.

The survey response rate was as expected. The response rate was low in the first week of the survey window. Using an existing survey instrument increased the validity and reliability of the survey instrument selected. The survey sample size can be larger than the minimum required participation for accurate statistical analysis and detection. As the survey focused on a weighted number of participants across all the zonal councils of India, the study results can be generalized across India. The study does not attempt to generalize the findings to other developing countries.

As the technology, consumer needs, and acceptance of online retail are changing rapidly, researchers referring to my study in the future may obtain different results. However, statistical studies, theoretical frameworks, and literature reviews will be valid information concerning online retail adoption. Adopting the factors from the TPB theory helped increase the reliability of the study framework and results.

Recommendations

Future studies can increase the sample size and boost samples with structural equation modeling analysis. Though customer satisfaction and transaction cost explain the variance in the growth of online retail in India, the factors varied in how much they affected the outcome variable. Boosting by 500 terms may strengthen the regression model further and strongly indicate the effect of each predictor variable. Also, the hypotheses can include more predictor variables. The literature review revealed additional variables such as culture and government regulation studied in UAE. Due to time and resource constraints, I did not include all the factors shown in the literature review. A moderately significant 58.9% growth of online retailing in India can be explained by the two independent variables of customer satisfaction and transaction cost. Therefore, 41% of the variance of online retail growth in India could not be explained by the study's model. Future research may consider other external moderating factors.

Demographic understanding can be enhanced by analyzing per zone or state-wise data. Rural versus urban location studies will also be beneficial. Increasing sample size can help with researching per zone or state-wise. My study can be used as a baseline to study the growth of different online shopping categories such as grocery, clothing, toys,

books, and electronics. Other scholars may conduct similar studies using the same survey instrument but with different demographics, countries, and online shopping categories to enhance generalization.

Future studies may survey at least twice with a gap of two to three months between surveys. Such interval surveys may provide richer comparison responses. As the technology, consumer needs, and acceptance of online retail are changing rapidly, researchers referring to my study in the future may get different results. Therefore, the survey and analysis may be repeated as major technology adoption milestones are reached or newer consumer needs arise.

Implications

From descriptive analysis, online shopping frequency is comparatively low for some demographics. Online retailers may use this study's results to focus their business plans to retain existing customers and attract new customers. Also, small businesses may plan to invest in online shopping to attract population segments they may be losing to retailers with better online shopping experiences. The positive conclusion for small businesses with no online shopping experience is that a clear demographic segment population is not very satisfied with online shopping.

The social implication is that online shopping in India will grow as customer satisfaction improves and the transaction cost is better. The trust in online shopping does not limit online shopping growth in India. While customers of some age ranges and lower-income groups have lower customer satisfaction, small business owners with no online shopping support can implement measures to retain and attract those age range and

income population who are not yet satisfied with online shopping. For example, Narasimha (2017) explained how the Dharavi cotton industry markets helped compete with the e-commerce markets by providing a Dharavi public market. Also, customer groups with lower annual income have lower customer satisfaction and perception of the transaction cost. As an important positive social change implication, with growing mobile technology adoption, small business owners can better compete by providing an online portal experience for their customers. With some online shopping support, small business owners can implement measures to retain and attract specific demographic groups.

Under theoretical implication, I confirmed that the behavioral and technological adoption factors were significant to predict the growth of online retailing in India. It aligned with other literature such as Tandon (2016). However, Rajaretnam and Sheth (2018) concluded that trust was essential in converting users to online buyers. Jaiswal et al. (2018) explored how customer trust affects customer retention with a quantitative study to improve customer retention for India's online businesses based on how the customer was acquired and the length of customer engagement. Not all factors mentioned in some studies were confirmed as my research concludes that customers' trust in online shopping is not a predictor of the growth of online shopping in India.

The study included an under-researched area of how the factors transaction cost, customer satisfaction, and customer trust may relate to India's online retailing growth. The study result may help fill the knowledge gap of creating a predictive approach to analyzing the online retailing growth and using the system to help small business owners prepare for the competition from online retail.

From the literature review, the previous research had not empirically verified the relationship between transaction costs, customer satisfaction, and customer trust in online shopping with the growth of online retailing in India. Some existing research in other developing countries analyzed the factors affecting the growth of online retailing in those countries. The focus of some recent studies was on individual factors affecting online purchase intention in specific settings. I had not found an existing recent study that applied MLR analysis and behavior-based analysis to understand how online retail may be growing in India, and the relationship between transaction costs, customer satisfaction, and customer trust in online shopping with the growth of online retailing in India.

The empirical phenomenon is confirmed for the two factors that showed a statistically significant relationship with online retailing growth in India. The key findings concluded that customer satisfaction and transaction cost have a statistically significant relationship with the growth of online retailing in India. The predictability seemed moderately high, with an adjusted R squared value of 0.589. The customers' trust in online shopping was not statistically significant with the growth of online retail in India. Future studies can include more factors that were excluded from my research.

Conclusions

The purpose of my research study was to evaluate the relationship between transaction costs, customer satisfaction, and customer trust in online shopping with the growth of online retailing in India. I collected data using a validated survey instrument. I completed a comprehensive data analysis with validity, normality, and reliability confirmations. The study confirmed that the significant factors affecting 59% of the

variance in the growth of online retail in India were customer satisfaction and transaction cost. Customers' trust in online shopping was not found to be a significant factor. Variable bias may exist due to missing other critical factors which explain the remaining 40% of the variance in the growth of online retail in India. The literature review did help with choosing the predictor variables.

The regression equation is: $Y = 0.683 + 0.647X^1 + 0.284X^2 - .05X^3$, where Y is the growth of online retailing in India, X^1 is customer satisfaction, X^2 is transaction cost, and X^3 is customers' trust in online shopping. After removing the insignificant variable customers' trust in online shopping, the regression equation is: $Y = 0.692 + 0.641X^1 + 0.24X^2$. From the adjusted R^2 value of .589, a moderately significant 58.9% of the growth of online retailing in India can be explained by the two independent variables of customer satisfaction and transaction cost.

The study confirms that the significant factors affecting the growth of online retail in India are customer satisfaction and transaction cost. The conclusion is similar to previous research studies under different research settings. Not all factors mentioned in some studies were confirmed as my study concludes that customers trust in online shopping is not a predictor of the growth of online shopping in India. The previous studies concluded that customer trust in online shopping had a significant relationship with the growth of online retailing.

Future studies can increase the sample size and use boosting samples with structural equation modeling analysis. Boosting by 500 terms may strengthen the regression model further and strongly indicate the effect of each predictor variable. The

survey sample size can be larger than the minimum required participation for accurate statistical analysis and detection. The study did not attempt to generalize the findings to other developing countries.

Though customer satisfaction and transaction cost explain the variance in the growth of online retail in India, the factors varied in how much they affected the outcome variable. Also, more predictor variables can be included in the hypotheses. The literature review showed additional variables such as culture and government regulation studied in different settings and countries.

The social implication is that online shopping in India may grow as customer satisfaction improves and the transaction cost is better. The trust in online shopping do not limit online shopping growth in India. Online retailers may use this study's results to focus their business plans to retain existing customers and attract new customers. Also, small businesses may plan to invest in online shopping to attract population segments they may be losing to retailers with better online shopping experiences. The positive conclusion for small businesses with no online shopping experience is that a clear demographic segment population may not be very satisfied with online shopping.

Finally, my research study filled the academic research gap in the current empirical understanding of how factors such as customer satisfaction, transaction cost, and customer's trust in online shopping affected the online retailing growth in India. The study may provide insights into some demographic consumers in India that do not prefer online shopping.

References

Agag, G. (2019). E-commerce ethics and its impact on buyer repurchase intentions and loyalty: An empirical study of small and medium Egyptian businesses. *Journal of Business Ethics, 154*(2), 389–410. https://doi.org/10.1007/s10551-017-3452-3

Agarwal, H., & Dixit, S. (2017). The encumbered growth of e-commerce in India: Can we help. *Aweshkar Research Journal, 23*(2), 114–132. https://scholar.google.co.in/citations?view_op=view_citation&hl=en&user=rUMW_qgAAAAJ&citation_for_view=rUMW_qgAAAAJ:LkGwnXOMwfcC

Akram, S. M. (2018). Drivers and barriers to online shopping in a newly digitalized society. *TEM Journal, 7*(1), 118–127. https://doi.org/10.18421/TEM71-14

Akroush, M. N., & Al-Debei, M. M. (2015). An integrated model of factors affecting consumer attitudes towards online shopping. *Business Process Management Journal, 21*(6), 1353–1376. https://doi.org/10.1108/bpmj-02-2015-0022

Albugami, M., & Bellaaj, M. (2014). The continued use of internet banking: Combining UTAUT2 theory and service quality model. *Journal of Global Management Research, 10*(1), 11–28. https://www.researchgate.net/publication/325103154_The_continued_use_of_Internet_banking_Combining_UTAUT2_theory_and_service_quality_model

Andrei, T. L. (2020). Perceived barriers to E-commerce in Romania - a consumers perspective. *Annals of the University of Oradea, Economic Science Series, 29*, 597-607. https://doaj.org/article/0d81b73f09b6482080e293b0c814770f

Arora, N., & Rahul, M. (2017). The impact of trust on online shopping attitude among

women shoppers in India. *International Journal of Technology Transfer and Commercialisation, 15*(3), 360-381. https://doi.org/10.1504/IJTTC.2017.088733

Arora, S., & Budree, A. (2016). *Basket loyalty tussle amongst Indian online retailers*. 2016 International Conference on Information Technology (InCITe), 12–16. https://doi.org/10.1109/INCITE.2016.7857580

Asastani, H. L., Kusumawardhana, V. H., & Warnars, H. L. (2018). *Factors affecting the usage of mobile commerce using technology acceptance model (TAM) and unified theory of acceptance and use of technology (UTAUT).* Indonesian Association for Pattern Recognition International Conference (INAPR), 322–328. https://doi.org/10.1109/inapr.2018.8627003

Attaran, M., & Woods, J. (2018). Cloud computing technology: A viable option for small and medium-sized businesses. *Journal of Strategic Innovation & Sustainability, 13*(2), 94-106. https://doi.org/10.33423/jsis.v13i2.609

Attri, R., Maheshwari, S., & Sharma, V. (2017). Customer purchase behavior for smartphone brands. *IUP Journal of Brand Management, 14*(2), 23–37. https://www.proquest.com/openview/e95e54424aabad845339d490401a0cbd/1?pq-origsite=gscholar&cbl=2029986

Babbie, E. R. (2016). *The basics of social research* (Vol. 7). Cengage Learning.

Bagci, K., & Celik, E. H. (2018). Examination of factors affecting continuance intention to use web-based distance learning system via structural equation modelling. *Eurasian Journal of Educational Research*(78), 43–65. https://doi.org/10.14689/ejer.2018.78.3

Balling, L. (2008). *A brief introduction to regression designs and mixed-effects modelling by a recent convert*. https://pure.au.dk/ws/files/14325917/Balling_CSL.pdf

Bao, H., Li,, B., Shen, J., & Hou, F. (2016). Repurchase intention in the Chinese e-marketplace: Roles of interactivity, trust and perceived effectiveness of e-commerce institutional mechanisms. *Industrial Management & Data Systems, 116*(8), 1759–1778. https://doi.org/10.1108/imds-07-2015-0296

Baptista, G., & Oliviera, T. (2015). Understanding mobile banking: The unified theory of acceptance and use of technology combined with cultural moderators. *Computers in Human Behavior*, *50(1),* 418–430. https://doi.org/10.1016/j.chb.2015.04.024

Benitez, J., Henseler, J., Castillo, A., & Schuberth, F. (2020). How to perform and report an impactful analysis using partial least squares: Guidelines for confirmatory and explanatory IS research. *Information & Management, 57*(2), Article 103168. https://doi.org/10.1016/j.im.2019.05.003

Benjamin, A. S., Griffin, M. L., & Douglas, J. A. (2019). A nonparametric technique for analysis of state-trace functions. *Journal of Mathematical Psychology, 90*, 88–99. https://doi.org/10.1016/j.jmp.2019.03.006

Berlilana, Hariguna, T., & Nurfaizah. (2017). Understanding of public behavioral intent to use e-government service: An extended of unified theory of acceptance use of technology and information system quality. *Information Systems International Conference, 124*, 585–592. https://doi.org/10.1016/j.procs.2017.12.193

Bhasin, M. L. (2016). Challenge of guarding online privacy: Role of privacy seals, government regulations and technological solutions. *Socio-Economic Problems &*

the State, 15(2), 85–104. https://doi.org/10.1504/ijima.2008.017023

Bodla, B. S., & Verma, S. (2008). An analysis of the performance of SSIs in the era of globalization. *ICFAI Journal of Managerial Economics, 6*(3), 40–53. https://www.researchgate.net/publication/5105721_An_Analysis_of_the_Performance_of_SSIs_in_the_Era_of_Globalization

Bojang, I., Medvedev, M. A., Spasov, K. B., & Matvevnina, A. I. (2017). Determinants of trust in B2C E-commerce and their relationship with consumer online trust. *AIP Conference Proceedings, 1910*(1), 1–6. https://doi.org/10.1063/1.5013938

Boulding, K. (1956). General systems theory: The skeleton of science. *Management Science*. *2*(3), 197–208. https://doi.org/10.1287/mnsc.2.3.197

Buabeng-Andoh, C. (2018). Predicting students' intention to adopt mobile learning: A combination of theory of reasoned action and technology acceptance model. *Journal of Research in Innovative Teaching, 11*(2), 178–191. https://doi.org/10.1108/jrit-03-2017-0004

Buhmann, A., & Bronn, P. S. (2018). Applying Ajzen's theory of planned behavior to predict practitioners' intentions to measure and evaluate communication outcomes. *Corporate Communications: An International Journal, 23*(3), 377–391. https://doi.org/10.1108/ccij-11-2017-0107

Carpineto, C., & Romano, G. (2020). An Experimental study of automatic detection and measurement of counterfeit in brand search results. *ACM Transactions on the Web, 14*(2), 1–35. https://doi.org/10.1145/3378443

Chaffey, D. (2014). *Digital business and e-commerce management: Strategy,*

implementation, and practice (6th ed.). London, UK: Pearson.

Chalam, G. V., & Rao, S. K. (2014). E-commerce and its structural development in India: An analysis. *IUP Journal of Information Technology, 10*(2), 17–35. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2581371

Chandra, Y. U., & Jhonsons, M. (2019). Customer satisfaction comparison: Travel agent E-Commerce vs airlines e-ticketing in Indonesia. *International Conference on Computer, Control, Informatics and its Applications (IC3INA)*, 88–93. https://doi.org/10.1109/IC3INA48034.2019.8949579

Chatterjee, S. (2015). E-Commerce in India: A review on culture and challenges. *2015 International Conference on Soft Computing Techniques and Implementations*, 105–109. https://doi.org/10.1109/icscti.2015.7489547

Chi, T. (2018). Mobile commerce Website success: Antecedents of consumer satisfaction and purchase intention. *17*(3), 189–215. https://doi.org/10.1080/15332861.2018.1451970

Chintagunta, P. K., Chu, J., & Cebollada, J. (2012). Quantifying transaction costs in online/offline grocery channel choice. *Marketing Science, 31*(1), 96–114. https://doi.org/10.1287/mksc.1110.0678

Choudhary, S., & Dhillon, S. (2018). An empirical perspective on consumer's attitude towards online shopping. *Marketing & Management of Innovations*(4), 212–220. https://doi.org/10.21272/mmi.2018.4-19

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Cyr, D., Kindra, G. S., & Dash, S. (2008). website design, trust, satisfaction and e-loyalty: The Indian experience. *Online Information Review, 32*(6), 773–790. https://doi.org/10.1108/14684520810923935

D'Agostino, R. B., & Cureton, E. E. (1972). Test of normality against skewed alternatives. *Psychological Bulletin, 78*(4), 262-265. http://dx.doi.org/10.1037/h0033113

Damghanian, H., Zarei, A., & Siahsarani Kojuri, M. (2016). Impact of perceived security on trust, perceived risk, and acceptance of online banking in Iran. *Journal of Internet Commerce, 15*(3), 214–238. https://doi.org/10.1080/15332861.2016.1191052

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 319-340. https://doi.org/10.2307/249008

Dennis, W. J. (2016). The evolution of public policy affecting small business in the United States since Birch. *Small Enterprise Research*, 219–238. https://doi.org/10.1080/13215906.2016.1269243

Dijesh, P., & Babu, S. S. (2016). Electronic commerce process as a method to improve the product and process. *2016 International Conference on Data Mining and Advanced Computing (SAPIENCE)*, 378–381. https://doi.org/10.1109/sapience.2016.7684126

Dillman, D. A., Christian, L. M., & Smyth, J. D. (2014). *Internet, phone, mail, and mixed-mode surveys: The tailored design method.* New York, NY: Wiley.

Duffett, R. G. (2015). Facebook advertising's influence on intention-to-purchase and purchase amongst Millennials. *Internet Research, 25*(4), 498–526. https://doi.org/10.1108/intr-01-2014-0020

Eisenberg, K., & Gupta, G. (2015). Analysis of the expansion of e-commerce into India and growth opportunities for Flipkart. *Journal of International Business & Law, 14*(1), 151–186. https://scholarlycommons.law.hofstra.edu/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=1267&context=jibl

Ellis, P. (2020). Sampling in quantitative research. *Wounds UK, 16*(2), 102–103.

Elwalda, A., Lü, K., & Ali, M. (2016). Perceived derived attributes of online customer reviews. *Computers in Human Behavior, 56*, 306–319. https://www.researchgate.net/publication/287645998_Perceived_derived_attributes_of_online_customer_reviews

Escobar-Rodríguez, T., & Bonsón-Fernández, R. (2017). Analysing online purchase intention in Spain: Fashion e-commerce. *Information Systems & e-Business Management, 15*(3), 599–622. https://doi.org/10.1007/s10257-016-0319-6

Fang, Y., Qureshi, I., Sun, H., McCole, P., Ramsey, E., & Lim, K. H. (2014). Trust, satisfaction, and online repurchase intention: The moderating role of perceived effectiveness of e-commerce institutional mechanisms. *Management Information Systems Quarterly, 38*(2), 407–427. https://doi.org/10.25300/MISQ/2014/38.2.04

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses

using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods, 41*(4), 1149–1160. https://doi.org/10.3758/brm.41.4.1149

Field, A. (2013). *Discovering statistics using IBM SPSS statistics* (4th ed.). London: Sage.

Frankfort-Nachmias, C., & Leon-Guerrero, A. (2018). *Social statistics for a diverse society* (8th ed.). Thousand Oaks, CA: Sage.

Geethanjali, & Kamath, G. B. (2015). Consumers awareness with regard to online shopping: A comparative study of Mysuru and Raichur districts. *CLEAR International Journal of Research in Commerce & Management, 6*(7), 58–62. Retrieved from Business Source Complete. (Accession No. 119728530)

Gelbrich, K., Gäthke, J., & Hübner, A. (2017). Rewarding customers who keep a product: How reinforcement affects customers' product return decision in online retailing. *Psychology & Marketing, 34*(9), 853–867. https://doi.org/10.1002/mar.21027

Ghosh, S. (2016). Does mobile telephony spur growth? Evidence from Indian states. *Telecommunications Policy, 40*(10/11), 1020–1031. https://doi.org/10.1016/j.telpol.2016.05.009

Godina, R., & Matias, J. (2018). Improvement of the statistical process control through an enhanced test of normality. International Conference on Industrial Technology and Management (ICITM), 17, 17–21. https://doi.org/10.1109/ICITM.2018.8333912

Godoy, D. (2017). The digital disruption of international trade has already begun. *International Trade Forum*(3), 22–23.

Gorai, R. M. (2018). To identify the reasons that act as critical resistors for online shopping (a survey in Delhi NCR region). *Management Dynamics, 18*(1), 31–42. https://managementdynamics.researchcommons.org/cgi/viewcontent.cgi?article=1038&context=journal

Grüschow, R. M. (2018). Managing payment transaction costs at multinational online retailers. *International Journal of Electronic Commerce, 22*(1), 125–157. https://doi.org/10.1080/10864415.2018.1396127

Gu, D., Guo, J., Liang, C., Lu, W., Zhao, S., Liu, B., & Long, T. (2019). Social media-based health management systems and sustained health engagement: TPB perspective. *International Journal of Environmental Research and Public Health, 16*(9), 1495. https://doi.org/10.3390/ijerph16091495

Gurjar, O., & Bhattacharya, K. (2018). E-commerce trends in India in global perspective in light of digital India initiatives. *Global Journal of Emerging Trends in e-Business, 4*(1), 602–618. https://globalbizresearch.org/files/hk819_gjetemcp_omkar-gurjar_kunal-bhattacharya-492242.pdf

Hamilton, M. B. (2003). *Online survey response rates and times: Background and guidance for industry*. Longmont, CO. Retrieved from supersurvey.com

Hand, D. J. (2010). *Statistics.* New York, NY: Sterling Publishers.

Haryanti, T., & Subriadi, A. P. (2020). *International Journal of Electronic Commerce Studies, 11*(2), 87–105.

Heinze, G., Wallisch, C., & Dunkler, D. (2018). Variable selection: A review and

recommendations for the practicing statistician. *Biometrical Journal 60*. https://doi.org/10.1002/bimj.201700067

Hwang, K. M., & Lee, S. J. (2016). How does electronic data interchange (EDI) affect the competitiveness of a firm's supply chain management? *Journal of Marketing Thought, 3*(2), 13–19. https://doi.org/10.15577/jmt.2016.03.02.2

Jain, S., & Tomar, T. S. (2017). Measuring buyers' attitude towards online shopping: A study in a north Indian city. *NICE Journal of Business, 12*(2), 65–75.

Jaiswal, A. K., Niraj, R., Park, C. H., & Agarwal, M. K. (2018). The effect of relationship and transactional characteristics on customer retention in emerging online markets. *Journal of Business Research*, *92*, 25–35. https://doi.org/10.1016/j.jbusres.2018.07.007

Joshi, M. S. (2017). A study of online buying behavior among adults in Pune city. *SIES Journal of Management, 13*(1), 29–37.

Juyal, A. S. (2018). An empirical study on factors influencing shoppers' online buying behavior: A study in Dehradun and Haridwar districts of Uttrakhand, India. *International Journal of Online Marketing, 8*(1), 55–79. https://doi.org/10.4018/IJOM.2018010104

Kannabiran, G., & Narayan, P. C. (2005). Deploying internet banking and e-commerce: Case study of a private-sector bank in India. *Information Technology for Development, 11*(4), 363–379. https://doi.org/10.1002/itdj.20025

Kar, U., & Pal, S. (2016). Online shopping: An empirical study in Kolkata. *ASBM Journal of Management, 9*(2), 73–79.

Kaur, R. (2013). The impact of electronic banking on banking transactions: A cost-benefit analysis. *IUP Journal of Bank Management, 12*(2), 62–71. https://ssrn.com/abstract=2343550

Khanna, P., & Sampat, B. (2015). Factors influencing online shopping during Diwali festival 2014: Case study of Flipkart and Amazon.in. *Journal of International Technology & Information Management, 24*(2), 65–86. https://www.researchgate.net/publication/317184955_Factors_Influencing_Online_Shopping_During_Diwali_Festival_2014_Case_Study_of_Flipkart_and_AmazonIn

Korkmaz, Ö., Köşterelioğlu, M., & Kara, M. (2018). A validity and reliability study of the engineering and engineering education attitude scale (EEAS). *International Journal of Engineering Pedagogy, 8*(5), 44-57. https://doaj.org/article/3be094cb1a3a44cc88408d4baa34c45e

Krishna, I. M., & Chalam, G. V. (2016). E-Commerce explosion and Indian consumer: An explanatory study. *IUP Journal of Information Technology, 12*(4), 7–20.

Krishnapillai, G., Hamid, A. B., & Rashid, S. Z. (2011). Perceived barriers of supply chain management practices**:** Empirical study on Malaysian tourism firms. *Amity Global Business Review*, 203–215.

Kumar, D., & Khurana, K. (2019). A comparative study of online and offline shopping. *International Journal of Marketing & Business Communication, 8*(4), 1–6.

Kumar, D., Samalia, H. V., & Verma, P. (2017). Factors influencing cloud computing adoption by small and medium-sized enterprises (SMEs) in India. *Pacific Asia*

Journal of the Association for Information Systems, 25–48. https://doi.org/ 10.17705/1pais.09302

Kumar, N., Kanchan, U., & Gupta, A. (2017). Online shopping behaviour of customers in tier III cities of India: A study of Bareilly region. *Journal of General Management Research, 4*(2), 72–80.

Labovitz, S. (1967). Some observations on measurement and statistics. *Social Forces, 46*(2), 151–160.

Leedy, P. D. & Ormrod, J. E. (2010) *Practical research: Planning and design* (9th ed.). New York, NY: Merril.

Lepkova, N. (2009). The challenges for marketing distance education in online environment an integrated approach. *The Turkish Online Journal of Distance Education, 10*(4), 216–219.

Li, L., & Miao, Y. (2017). Innovation of e-commerce fresh agricultural products marketing based on big internet data platform. *Revista de la Facultad de Ingenieria*, 475–486.

Li, W., Mengistae, T., & Xu, L. C. (2011). Diagnosing development bottlenecks: China and India. *Oxford Bulletin of Economics & Statistics*, 722–752. https://doi.org/10.1111/j.1468-0084.2011.00676.x

Liu, S., Yu, F., Guo, F., & Xiao, L. (2019). The effects of online shopping context cues on consumers' purchase intention for cross-border e-commerce sustainability. *Sustainability, 11*(10), 2777. https://doi.org/10.3390/su11102777

Luo, H., Han, X., Wang, J., & Liu, L. (2015). The moderating effect of perceived quality

of logistics services and gender in the relationship between trust, satisfaction and repurchase intention in e-commerce. *International Conference on Service Systems and Service Management (ICSSSM)*, 1–6. https://doi.org/10.1109/ICSSSM.2015.7170197

Majdzadeh, R., Khalagi, K., Naraghi, K., & Motevalian, A. (2017). Determinants of traffic injuries in drivers and motorcyclists involved in an accident. *40*(1), 17–23. https://doi.org/10.1016/j.aap.2007.03.019

Mishra, M. (2018). For Indian online shoppers, have saying and doing parted ways? *Psychology & Marketing, 35*(1), 5–19. https://doi.org/10.1002/mar.21067

Moeini, A., Mousakhani, M., Hasanzadeh, A. R., & Farazmand, E. (2015). A website evaluation model by integration of previous evaluation models using a quantitative approach. *Journal of Information Technology Management, 6*(4), 675–700.

Moore, D. S., & Notz , W. I. (1979). *Statistics: Concepts and Controversies* (Vol. 6). W. H. Freeman and Company.

Moslehpour, M., Van Kien Pham, Wong, W.-K., & Bilgicli , I. (2018). E-Purchase intention of Taiwanese consumers: Sustainable mediation of perceived usefulness and perceived ease of use. *Sustainability, 10*(1), 234. https://doi.org/10.3390/su10010234

Murad, M., Katabi, A., Benkhadra, R., & Montori, V. (2018). External validity, generalisability, applicability and firectness: a brief primer BMJ Evid Based Med. *23*(1), 17–9. https://doi.org/10.1136/ebmed-2017-110800

Muslim, & Sandhyaduhita, P. (2016). Supporting and inhibiting factors of e-commerce adoption: Exploring the sellers' side in Indonesia. *International Conference on Advanced Computer Science and Information Systems (ICACSIS)*, 207–214. https://doi.org/ https://doi.org/10.1109/icacsis.2016.7872777

Nah, F., Tan, X., & Teh, S. H. (2004). An empirical investigation on end-users' acceptance of enterprise systems. *Information Resources Management Journal, 17*(3), 32–51. https://doi.org/10.4018/irmj.2004070103

Narasimha, A. (2017). Linking social enterprise into the e-commerce industry. *Vision (09722629), 21*(2), 225–232. https://doi.org/10.1177/0972262917701008

Nguyen, T. T., Song, K., Tsoy, Y., Kim, J. Y., Kwon, Y.-J., Kang, M., & Edberg Hansen, M. (2014). *Robust dose-response curve estimation applied to high content screening data analysis, 9(27)*. Source Code for Biology & Medicine.

Nicoletti, G., & Pryor, F. (2006). Subjective and objective measures of governmental regulations in OECD nations. *Journal of Economic Behavior & Organization, 59*(3), 433–449. https://doi.org/10.1016/j.jebo.2004.05.003

Nisar, T. M., & Prabhakar, G. (2017). What factors determine e-satisfaction and consumer spending in e-commerce retailing? *Journal of Retailing and Consumer Services*, 135–144. https://doi.org/10.1016/j.jretconser.2017.07.010

Norouzian, R. (2020). Sample size planning in quantitative l2 research: A pragmatic approach. *Studies in Second Language Acquisition, 1*(1). Cambridge University Press. https://doi.org/10.1017/S0272263120000017

Obeidat, M. S., & Young, D. W. (2017). An assessment of the recognition and use of

online shopping by digital immigrants and natives in India and China. *Journal of International Consumer Marketing, 29*(5), 293–302. https://doi.org/10.1080/08961530.2017.1391426

Ofori, K. S., Boakye, K. G., Addae, J. A., Ampong, G. O., & Adu, A. S. (2018). An Empirical Study on the adoption of consumer-to-consumer e-commerce: Integrating the UTAUT model and the initial trust model. *Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering (LNICST), 250*. https://doi.org/10.1007/978-3-319-98827-6_27

Okello-Obura, C., Minishi-Majanja,, M. K., Cloete, L., & Ikoja-Odongo, J. R. (2008). Improving information use by SMEs in northern Uganda through information and communication technologies (ICTS). *Mousaion, 26*(1), 126–149.

Orlikowski, W. J. (1992). The duality of technology: Rethinking the concept of technology in organizations. *Organization Science*, *3*(3), 398–427. https://doi.org/10.1287/orsc.3.3.398

Pandey, B. B., Barik, P., & Soni, V. (2015). Online shopping catching up fast with the trend: Chhatisgarh context. *International Journal of Research in Commerce & Management, 6*(4), 53–57.

Pandey, S., & Chawla, D. (2016). Understanding indian online clothing shopper loyalty and disloyalty: The impact of e-lifestyles and website quality. *Journal of Internet Commerce*, 332–352. https://doi.org/10.1080/15332861.2016.1237238

Pascual-Miguel, F. J., Agudo-Peregrina, Á. F., & Chaparro-Peláez, J. (2015). Influences of gender and product type on online purchasing. *Journal of Business Research ,*

68(7), 1550–1556. https://doi.org/10.1016/j.jbusres.2015.01.050

Porricelli, M. S., Yurova, Y., Abratt, R., & Bendixen, M. (2014). Antecedents of brand citizenship behavior in retailing. *Journal of Retailing and Consumer Services, 21*(5), 745–752. https://doi.org/10.1016/j.jretconser.2014.06.002

Rafiq, M., Fulford, H., & Lu, X. (2013). Building customer loyalty in online retailing: The role of relationship quality. *Journal of Marketing Management, 29*(3–4), 494–517. https://doi.org/10.1080/0267257X.2012.737356

Rajaretnam, J., & Sheth, J. N. (2018). A multi-stage model of adoption of online buying in India. *Journal of Global Marketing, 31*(2), 60–72. https://doi.org/10.1080/08911762.2017.1369609

Raman, P. (2014). Factors influencing women consumers' buying behavior towards online shopping in India. *Journal of Contemporary Management Research, 8*(2), 23–56.

Rasool, T., & Warraich, F. N. (2018). Does quality matter: A systematic review of information quality of e-government websites. *International Conference on Theory and Practice of Electronic Governance*, 433–442. https://doi.org/10.1145/3209415.3209473

Reyes-Menendez, A., Ramon Saura, J., Palos-Sanchez, P. R., & Alvarez-Garcia, J. (2018). Understanding user behavioral intention to adopt a search engine that promotes sustainable water management. *Symmetry (Basel), 10*(11). https://doi.org/10.3390/sym10110584

Roy, K. (2012). The co-existence of Kirana stores and supermarkets: A potential

possibility? *Journal of Marketing & Communication, 7*(3), 64–67.

Sachdeva, G., Narwal, M., & Kant, R. (2018). Factors affecting usage of e-commerce: A study of Haryana region. *ANWESH: International Journal of Management & Information Technology, 3*(2), 17–26.

Sandu, R., & Gide, E. (2018). Technological, organisational and environmental (TOE) factors that influence the adoption of cloud based service SMEs in India. *2018 IEEE 11th International Conference on Cloud Computing*, 866–870. https://doi.org/10.1109/cloud.2018.00123

Sankaran, U. (2015). Export performance of India's small-scale manufacturing industries under globalization. *Productivity, 56*(2), 149–158. Retrieved from Business Source Complete. (Accession No. 114086611)

Sanny, L., & Gerardo, M. (2020). Analysis of privacy perceptions towards shopping decision through shopping behavior between millennials and baby boomers in Indonesia E-commerce. *International Journal of Psychosocial Rehabilitation, 24*(1), 717–727. https://doi.org/10.37200/ijpr/v24i1/pr200175

Schaper, M. T. (2015). Invited policy paper: Competing in the online marketplace: Contemporary issues for SMEs and their regulators. *Small Enterprise Research, 22*(1), 69–78. https://doi.org/10.1080/13215906.2015.1017075

Schneier, B. (2008). How to sell security. *CIO Magazine*.

Seetharaman, A., Niranjan, I., Balaji, D., & Saravanan, A. S. (2017). A study of the moderate growth of online retailing (e-commerce) in the UAE. *Journal of Developing Areas, 51*(4), 397–412. https://doi.org/10.1353/jda.2017.0109

Shaikh, A. H., & Daddikar, P. V. (2017). Online shopping habits among B-school students and teachers: A study of Belagavi city. *International Journal of Marketing & Business Communication, 6*(3), 26–36.

Shapiro, S. S., Wilk, M. B., & Chen, H. J. (1968). A comparative study of various tests for normality. *Journal of the American Statistical Association, 63*(324), 1343. https://doi.org/10.1080/01621459.1968.10480932

Sharma, H. (2018). Technology and innovation online changes shopping habits in tier II and tier III cities. *Adhyayan: A Journal of Management Sciences*, 22–28.

Sharma, S. C. (2015). A review of the contemporary regulation and state of e-commerce sector in India. *Scholedge International Journal of Management & Development, 2*(1), 9–14.

Sim, J. J., Chia, Z. Y., Chin, Y. L., Lee, M. Q., Chiam, V. T., Wong, K. L., . . . Yeap, K. H. (2018). Trust in vendor and perceived effectiveness of e-commerce institutional mechanisms in m-commerce adoption: A revised UTAUT model. *International Conference on Control System, Computing and Engineering (ICCSCE)*. https://doi.org/10.1109/ICCSCE.2018.8684964

Simon, M. (2011). *Assumptions, limitations, and delimitations.* Seattle, WA: Dissertation Success.

Simon, M. K., & Goes, J. (2013). *Dissertation and scholarly research: Recipes for success.* Seattle, WA: Dissertation Sucess.

Singh, S. K., Marinova, D., & Singh, J. (2020). Business-to-Business E-Negotiations and influence tactics. *Journal of Marketing, 84*(2), 47–68.

https://doi.org/10.1177/0022242919899381

SivaKumar, A., & Gunasekaran, A. (2017). An empirical study on the factors affecting online shopping behavior of Millennial consumers. *Journal of Internet Commerce, 16*(3), 219–230. https://doi.org/10.1080/15332861.2017.1317150

Skemp, K. M. (2022). Cloud Computing. *Salem Press Encyclopedia of Science*, 1-2.

Suresh, A., & Rani, J. N. (2020). Consumer perception towards artificial intelligence in e-commerce with reference to Chennai City, India. *Journal of Information Technology & Economic Development, 11*(1), 1–14.

Spanos, A. (2019). Near-collinearity in linear regression revisited: The numerical vs. the statistical perspective. *Communications in Statistics: Theory & Methods, 48*(22), 5492–5516. https://doi.org/10.1080/03610926.2018.1513147

Subrahmanya, B. M. (2015). Small-scale industries in India in the globalisation era: Performance and prospects. *International Journal of Management and Enterprise Development, 2*(1), 122–139. https://doi.org/10.1504/IJMED.2005.006034

Sujata, J., & Menachem, D. (2017). Impact of flash sales on consumers & E-Commerce industry in India. *Annual International Conference on Qualitative & Quantitative Economics Research*, 11–19. https://doi.org/10.5176/2251-2012_qqe17.9

Sun, H., Ni, W., & Lam, R. (2015). A step-by-step performance assessment and improvement method for ERP implementation: Action case studies in Chinese companies. *Computers in Industry, 68*, 40–52. https://doi.org/10.1016/j.compind.2014.12.005

Tandon, M. (2016). Regulation of e-commerce in India. *CLEAR International Journal of*

Research in Commerce & Management, 7(11), 88–92.

Tandon, U., & Kiran, R. (2019). Factors impacting customer satisfaction: an empirical investigation into online shopping in India. *Journal of Information Technology Case and Application Research, 21*(1), 13–34. https://doi.org/10.1080/15228053.2019.1609779

Tandon, U., Kiran, R., & Sah, A. N. (2018). The influence of website functionality, drivers and perceived risk on customer satisfaction in online shopping: An emerging economy use case. *Information Systems & e-Business Management, 16*(1), 57–91. https://doi.org/10.1007/s10257-017-0341-3

Tarabasz, A., & Poddar, G. (2019). Factors influencing adoption of wearable devices in Dubai. *Journal of Economics & Management, 36*(2), 123–143. https://doi.org/10.13140/RG.2.2.32364.87689

Taylor, C. (2014). *What is the difference between type I and type II errors*? Retrieved from about.com statistics website at http://statistics.about.com/od/Inferential-Statistics/a/Type-I-and-Type-II-errors.htm

Tehrani, S. (2014). Welcome to the Amazon: Leading online retail from local tax avoidance into your backyard. *InfoTrac LegalTrac, 67*(4).

Teo, T. S., & Yu, Y. (2005). Online buying behavior: a transaction cost economics perspective. *Omega, 33*(5), 451–465. https://doi.org/10.1016/j.omega.2004.06.002

Thirichanuru, S. (2016). Strengthen the small to strengthen the nation: Insights on HR issues in SMEs. *IUP Journal of Entrepreneurship Development, 13*(2), 38–49.

Traylor, M. (1983). Ordinal and interval scaling. *Journal of the Market Research Society,*

25(4), 297–303.

Trochim, M. W. (2017). Hindsight is 20/20: Reflections on the evolution of concept mapping. *Evaluation and Program Planning, 60*, 176–185. https://doi.org/10.1016/j.evalprogplan.2016.08.009

Tzanetakis, M., Kamphausen, G., Werse, B., & von Laufenberg, R. (2016). The transparency paradox. Building trust, resolving disputes and optimising logistics on conventional and online drugs markets. *International Journal of Drug Policy*, 58–68. https://doi.org/10.1016/j.drugpo.2015.12.010

Vakeel, K. A., Das, S., Udo, G. J., & Bagchi, K. (2017). Do security and privacy policies in B2B and B2C e-commerce differ? A comparative study using content analysis. *Behaviour & Information Technology, 36*(4), 390–403. https://doi.org/10.1080/0144929x.2016.1236837

Vanelslander, T., Deketele, L., & Van Hove, D. (2013). Commonly used e-commerce supply chains for fast moving consumer goods: comparison and suggestions for improvement. *International Journal of Logistics: Research & Applications, 16*(3), 243–256. https://doi.org/10.1080/13675567.2013.813444

Vanessa, N., & Japutra, A. (2017). Contextual marketing based on customer buying pattern in grocery e-commerce: The case of bigbasket.com (India). *Asean Marketing Journal, 9*(1), 56–67. https://doi.org/10.21002/amj.v9i1.9286

Vasumathi, A., Rekha, S. K., & Subashini, R. (2016). An empirical study on customer preference towards online shopping among engineering students in a private university in Vellore District, Tamil Nadu, India. *International Journal of*

Services and Operations Management, 24(3), 289. https://doi.org/10.1504/ijsom.2016.076902

Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science, 46*(2), 186-204. https://doi.org/10.1287/mnsc.46.2.186.11926

Venkatesh, V., Thong, J., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acc eptance and use of technology. *MIS Quarterly, 36*(1), 157–178. https://doi.org/10.2307/41410412

Verhagen, T., & Van Dolen, W. (2009). Online purchase intentions: A multi-channel store image perspective. *Information & Management*, 77–82. https://doi.org/10.1016/j.im.2008.12.001

Verma, V., Sharma, D., & Sheth, J. (2016). Does relationship marketing matter in online retailing? A meta-analytic approach. *Journal of the Academy of Marketing Science, 44*(2), 206–217. https://doi.org/10.1007/s11747-015-0429-6

Verma, D., & Singla, H. (2019). Can Indian online fruits and vegetables companies break the jinx of orthodox shopping? *International Journal of Online Marketing (IJOM), 9*(4), 33-46. https://doi.org/10.4018/IJOM.2019100103

Vidović, Z. Č., & Vorkapić, M. M. (2020). The key indicators of the normality of distribution. *Inovacije u Nastavi, 33*(4), 146-157. https://doi.org/10.5937/inovacije2004146V

Vogt, P., & Johnson, R. (2016). *The Sage dictionary of statistics and methodology* (5th ed.). Thousand Oaks, CA: Sage.

Volkova, V. M. (2016). Research of Tukey's test statistic distribution under failure of the normality assumption. *International Scientific-Technical Conference on Actual Problems of Electronics Instrument Engineering (APEIE).* https://doi.org/10.1109/APEIE.2016.7806456

Vyas, P. H., Pandya, M. N., & Shukla, P. S. (2017). Measuring buyers' perception of online shopping: A study of rural and urban buyers in Vadodara district of Gujarat. *NICE Journal of Business, 12*(1), 19–32.

Wang, H., Du, R., Ai, S., & Chi, Z. (2015). The moderating role of perceived effectiveness of provider recommendations on consumers' satisfaction, trust, and online repurchase intention. *HCI in Business (HCIB)*, 382–391. https://doi.org/10.1007/978-3-319-20895-4_35

Warner, R. M. (2013). *Applied Statistics: From bivariate through multivariate techniques* (Vol. 2). Thousand Oaks, CA: Sage.

Watjatrakul, B. (2020). Intention to adopt online learning: The effects of perceived value and moderating roles of personality traits. *The International Journal of Information and Learning Technology, 37*(1/2), 46–65.

Whalen , K. A., & Whalen, C. J. (2018). The Circular Economy and Institutional Economics: Compatibility and Complementarity. *Journal of Economic Issues, 52*(3), 605–614. https://doi.org/10.1080/00213624.2018.1495985

White, B. E., Hubona, G. S., & Srite, M. (2019). Does *being there* matter? The impact of web-based and virtual world's shopping experiences on consumer purchase

attitudes. *56*(7). https://doi.org/10.1016/j.im.2019.02.008

Widodo, T., Pratama Setiadjie, R., & Poerita Sary, F. (2017). Analysis of the e-commerce use behavior on music products. *International Conference on Engineering Technology and Technopreneurship (ICE2T)*, 1–6. https://doi.org/10.1109/ICE2T.2017.8215958

Wolfinbarger, M., & Gilly, M. C. (2003). Dimensionalizing, measuring and predicting e-tail quality. *Journal of Retailing, 79*(3), 183–198. https://doi.org/10.1016/s0022-4359(03)00034-4

Wu, J.-F., & Chang, Y. (2016). Multichannel integration quality, online perceived value and online purchase intention. *Internet Research, 26*(5), 1228–1248. https://doi.org/10.1108/intr-04-2014-0111

Xu, W., Yu, Y., & Zhang, Q. (2018). An evaluation method of comprehensive product quality for customer satisfaction based on intuitionistic fuzzy number. *Discrete Dynamics in Nature & Society*, 1–12. https://doi.org/10.1155/2018/5385627

Xu Y., Chong T. W., Krilavičius T., Man K. L. (2015) Perceived benefits, risks and trust on online shopping festival. In G. Dregvaite and R. Damasevicius (Eds). Information and Software Technologies. *Communications in computer and information science.* https://doi.org/10.1007/978-3-319-24770-0_20

Yang, Y. H. (2017). Copyright royalty regulation and competition in the music retail market. *KDI Journal of Economic Policy, 39*(1), 83–102. https://doi.org/10.23895/kdijep.2017.39.1.83

Yang, K., Tu, J., & Chen, T. (2019). Homoscedasticity: an overlooked critical assumption for linear regression. *General psychiatry, 32*(5), e100148. https://doi.org/10.1136/gpsych-2019-100148

Zhu, J., Han, L., Gou, Z., & Yuan, X. (2018). A fuzzy clustering-based denoising model for evaluating uncertainty in collaborative filtering recommender systems. *Journal of the Association for Information Science & Technology, 69*(9), 1109–1121. https://doi.org/10.1002/asi.24036

Zhu, S., & Chen, J. (2016). E-commerce use in urbanising China: The role of normative social influence. *Behaviour & Information Technology, 35*(5), 357–367. https://doi.org/10.1080/0144929X.2016.1160286

Zhuo, D., & Xiaoting, Z. (2010). An empirical study on factors which affect consumers' online shopping behavior. *International Conference on E-Business and E-Government*, 2200–2203. https://doi.org/10.1109/ICEE.2010.556

Zulfadil, Hendriani, S., & Machasin. (2020). The influence of emotional intelligence on team performance through knowledge sharing, team conflict, and the structure mechanism. *Journal of Management Development, 39*(3), 269–292. https://doi.org/10.1108/jmd-12-2018-0354

Appendix A: Survey Instrument Usage Permissions

From: Srinivas Samprathi
Sent: Thursday, June 25, 2020 8:50 AM
To: Tandon
Subject: Re: Requesting your approval to reuse your survey (questionnaire) instrument in my dissertation research; Your research article titled "Customer satisfaction using website functionality, perceived usability, and perceived usefulness towards online shop...

Hello Professor,

Thanks for your reply and approval.

Thanks,
Srini

From: Tandon
Sent: Sunday, June 21, 2020 4:16 PM
To: Srinivas Samprathi
Subject: Re: Requesting your approval to reuse your survey (questionnaire) instrument in my dissertation research; Your research article titled "Customer satisfaction using website functionality, perceived usability, and perceived usefulness towards online shop...

Dear Srinivas
Greetings!
The scale items of the paper you have mentioned have been provided at the end of the research paper on page 13-14. I am attaching the paper for your reference as well as the questionnaire for your reference. You may please use this questionnaire but kindly include the items on Pay-on-delivery/ Cash-on delivery in your research as I am currently working on this. I am also attaching one of my paper which will provide you an idea about my current project.

Best wishes for your research
Dr Tandon

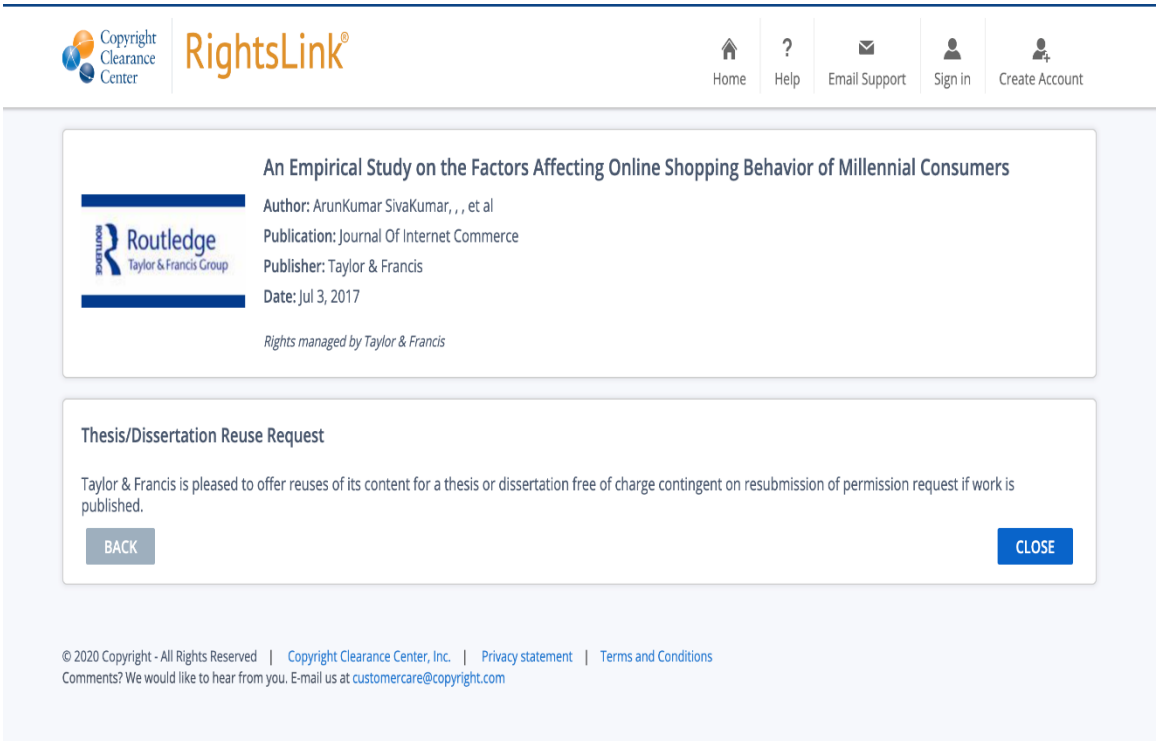
On Mon, Jun 22, 2020 at 2:22 AM Srinivas Samprathi wrote:
Hi,

My name is Srinivas Samprathi and I am a doctoral student of Information Systems Management at Walden University, USA.

I was referring to your 2016 research paper "
Customer satisfaction using website functionality, perceived usability, and perceived usefulness towards online shopping in India".

I am emailing to request you to share the survey (or questionnaire) instrument that you used for this research article and also your approval to reuse your questionnaire in my research dissertation.

Thanks,
Srinivas



Appendix B: Relevant Measurement Scales Categorized by Composite Variables

Scale	Items
Customer Satisfaction	Q26: Shopping online is an exciting experience. CS1
	Q28: I am satisfied with the Cash on Delivery (COD) mode of online retailers. CS2
	Q40: I am satisfied with product range offered by online retailers. CS3
	Q41: I am satisfied with the quality of products offered online. CS4
	Q44: Online shopping is a satisfying experience as it offers customized product at my convenience. CS5
	Q45: Products purchased online have measured up to my expectations. CS6
	Q46: I am satisfied with the way online retailers carry out transactions. CS7

Scale	Items
Customer's Trust	Q15: Online retailers provide ample information. CT1
	Q17: Successful initial purchasing builds confidence for further purchasing. CT2
	Q18: The language used by online retailers is easy to understand. CT3
	Q27: The websites have adequate security measures. CT4
	Q29: I feel safe while using my credit card/debit card on the websites. CT5
	Q30: I trust that the Websites will not give my personal details to other websites without my permission. CT6

Scale	Items
Transaction cost	Q12: It was easy for me to learn internet shopping. TC1.
	Q16: Information provided by online retailers help me to purchase products. TC2
	Q19: Process of transaction on the web is convenient. TC3
	Q20: It is easy to place orders online. TC4
	Q21: It is easy to track orders placed online. TC5
	Q22: It is easy to modify orders placed online. TC6
	Q23: It is easy to cancel orders placed online. TC7
	Q37: Online discounts and promotions offered are often attractive. TC8
	Q31: Online shopping enables me to accomplish shopping more quickly than traditional stores. TC9
	Q32: Online shopping helps me to find product information within the shortest time frame. TC10
	Q33: Shopping online takes less time from search of products to Transaction. TC11
	Q36: While shopping on internet I can find some products that are not easily available in physical stores. TC12
	Q38: Detailed order submission helps in purchasing. TC13
	Q39: Online shopping facilitates comparative analysis of similar products. TC14

Scale	Items
Growth of online retail	I would continue to purchase products online. GR1
	I recommend online shopping websites to other people. GR2
Website functionality	The layout of online retailing websites facilitates shopping. WB1
	The attractive colour scheme of online retailing websites facilitates
	shopping. WB2
	The graphics displayed in websites provide ease for ordering
	Product. WB3
	The search function at the websites is helpful. WB4
	Q13: Internet shopping websites are easy to use. WB5
	Q14: Navigation for internet shopping is easy for me. WB6
	Q34: Online retailers provide a wider assortment (variety) of products than traditional stores. WB7
	Q35: Online retailers provide more information about the features of products than traditional stores. WB8

Note. Survey measurement scales and items

Appendix C: Survey Invitation Letter

Hello,

As doctoral students, we frequently use research information to help us become better at information management. Digitization and online retailing growth are affecting small businesses. Closing the research gap may contribute to positive social change by building a stable environment for small businesses.

I am writing to request your participation in a research project that has been approved by Walden University and the Institutional Review Board (IRB). The proposed research is for my dissertation and partial fulfillment of the doctoral degree at Walden University. Participation is completely voluntary and anonymous. Participation in this research will take approximately fifteen to twenty minutes of your time.

Instructions: Should you decide to participate, please continue to read this correspondence through to the end. At the end of the participation letter you will be asked to respond by selecting the link at the bottom of the page.
The survey will include the following: review an online consent form, which will provide you with a selection to opt-out, or continue with the survey. By continuing with the survey, you are providing the researcher with your implied consent to participate in the research. The survey will ask you to answer all the questions on a Likert scale by selecting one of the four choices (strongly agree, agree, disagree, and strongly disagree). Within approximately two weeks after receiving your initial email you will receive a friendly reminder to complete the survey. You will not receive any additional reminders or be spammed for your participation. Emails will not be distributed to a third-party recipient.

Confidentiality: Any information you provide will be kept anonymous. Information on personal identity will not be collected and the results of this study will not reflect your individual responses. The researcher will not use your information for any purposes outside of this research study.

Thank you for your participation!
Srinivas N. Samprathi, Researcher
Doctoral Student, Information Systems Management
College of Management
Walden University

Appendix D: Permissions for adapting and reprinting

Statista.com website says – "Yes, our statistics may be cited or quoted. If you would like to cite a particular statistic, please use the URL for this statistic."

https://www.statista.com/help/#faq52a7448029f8d06f6a00000f.

From: McKinsey
To: Srinivas Samprathi
Subject: Requesting permission to quote three data charts from digital-india-technology-to-transform-a-connected-nation-full-report.ashx

Hi Srini,

Thank you for your interest in McKinsey & Company. We apologize for the delayed response.

Per below, you have permission to use the exhibit **as it originally appears**. Please note we do not allow for the use of this material in sales or promotional materials or related marketing literature. We ask that our content be used only for educational, informational, or editorial purposes. We do not authorize the use of our content for sales, marketing, business, or promotional purposes.

We kindly ask that you cite the exhibit as follows:

Exhibit from "Digital India: Technology to transform a connected nation", March 2019, McKinsey Global Institute, www.mckinsey.com. Copyright (c) 2022 McKinsey & Company. All rights reserved. Reprinted by permission.

Kind regards,
McKinsey Reprints

Hi,

My name is Srinivas Samprathi. I am a doctoral (PhD) student at the Walden University. Per the FAQ in McKinsey.com website, I am writing this email requesting permission to quote three data charts from digital-india-technology-to-transform-a-connected-nation-full-report.ashx in my academic dissertation literature review section. Please help provide permission or let me know for any information needed from me to seek permission.