

**COMPARATIVE ASSESSMENT OF
ECOMMERCE POLICY OF PAKISTAN WITH
INDIA AND BANGLADESH**



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AUTHOR'S DECLARATION

I Syed Talha Ali hereby state that my MPhil thesis titled '**Comparative Assessment of E-Commerce Policy of Pakistan with India and Bangladesh**' is my own work and has not been submitted previously by me for taking any degree from Pakistan Institute of Development Economics or anywhere else in the country or world at any time. If my statement is found to be incorrect even after my graduation, the university has the right to withdraw my MPhil degree.

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CERTIFICATE

This is to certify that this thesis entitled: “**Comparative Assessment of Ecommerce Policy of Pakistan with India and Bangladesh**” submitted by **Mr. Syed Talha Ali** is accepted in its present form by the School of Economics, Pakistan Institute of Development Economics (PIDE), Islamabad as satisfying the requirements for partial fulfillment of the degree in Master of Philosophy in Economics.

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DEDICATION

Dedicated to my Parents, Siblings, and Friends

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ABSTRACT

The digital trade in Pakistan is rising due to consumers' preference to buy goods and services online. This research thesis focused on the comparative assessment of e-commerce policy of Pakistan, India, and Bangladesh. The research firstly focused on the customer satisfaction of consumers on the digital trade landscape in Pakistan. This includes the analysis of customer satisfaction on the Product, Service, Website Characteristics, Privacy Protection, Payment System, and Network System. The results show that the customers are inclined towards online buying and selling but there are few constraints that make them do physical shopping. The lack of efficient internet connection is one of the most important factors in this regard.

The second model consists of total five variables. The e-commerce transactions value is the dependent variable while the gross national income, mobile cellular subscriptions, internet penetration, and research and development are the independent variables. This model is used to analyze the panel relationship of e-commerce value with the independent variables. The results show that all the variables show a positive relationship with the e-commerce value.

The third model consists of five variables also. The GDP per capita is used as dependent variable, while the e-commerce value, gross capital formation, internet penetration, and trade openness are used as independent variables. This model shows the relationship of GDP per capita with the independent variables. This model analyzes the time series analysis of Pakistan, India, and Bangladesh. The results show that there is a positive relationship among the dependent and independent variables, however, only trade openness shows a negative relationship with GDP per capita.

The final analysis is done by consolidating the results of all three models and suggesting suitable policy recommendations for the e-commerce policy of Pakistan. The suggestions include the overhauling of digital infrastructure in the country, along with proper focus on logistics, consumer protection, data protection, and telecommunication services. This research also suggests bringing the foreign investment in the technology sector of Pakistan to boost the digital trade in the country.

Keywords: E-Commerce, Digital Trade, E-Commerce Policy, Customer Satisfaction, ARDL Model, GDP per Capita

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CHAPTER 01

1. Introduction

The world is progressing rapidly and the means of doing business are also changing. The technological advancements have changed the traditional business model into an e-commerce market, through which the businesses are expanding at an exponential rate. The E-commerce market was still in place before Covid-19, but this virus actually helped to transform the business opportunities. The traditional style of doing business has its own pros and cons, but electronic commerce changed this style into a technological oriented market. During Covid-19, the e-commerce market expanded rapidly. The prime reason was that the lockdown in major cities disrupted the daily activities. The standard operating procedures restrictions were also imposed, which forced the people to remain at home. During this time, the online buying and selling increased, through which people started using the online websites to start buying the commodities without any problems. This change facilitated both the producer and the consumer. According to the statistics, Global electronic commerce has been rising exponentially, having above \$25 trillion sales in 2015¹. It is forecasted that the e-commerce sales will grow by \$3 trillion from 2021-2027. The total share of electronic commerce in global GDP was around 3% in 2015, while it was 4% in Asia Pacific, while North America and Europe were having 3% and 2.6% respectively (United Nations Conference on Trade and Development (UNCTAD), 2017).



Figure 1: Global Retail E-commerce Sales 2014-2021

¹ Digital Economy Report 2021

Source: (*International Trade Administration, 2022*)

Electronic commerce is generally defined as the transactions, which are bought and sold using any electronic means. It includes the purchase and sale of commodities using the internet. The electronic commerce, commonly referred to as the e-commerce, is rising rapidly due to the consumer dependence on the digital trade. If we compare the e-commerce markets of Pakistan, India and Bangladesh, the market size and sales are on rising trend in all the three countries. The growth rate of e-commerce in Pakistan is about 94% (State Bank of Pakistan, 2018). Pakistan's digital trade is expected to reach \$5 billion in 2025 (Statista, 2022), while India's digital trade is expected to cross \$1 trillion in 2025 (Raghuraman, 2022). In case of Bangladesh, it is hoped that the digital trade will reach \$15 billion in 2026 (Government of Bangladesh - Ministry of Commerce, 2018).

The Internet Broadband Subscribers also portray the same rising trend. According to Pakistan Telecommunication Authority (PTA), the total number of internet broadband subscribers in Pakistan are 72 million, while the 3G/4G subscribers are around 70 million (Karachi Chamber of Commerce and Industry, 2019). In India, the total number of internet subscribers are about 881 million, while for Bangladesh, it is around 67 million (Businessline, 2023). From the official statistics, it can be inferred that the in the near future, the traditional modes of doing business will become obsolete, while the internet linked businesses will be in the driving seat. The rising internet connectivity and smartphone adoption would be the major drivers of growth in the digital trade.

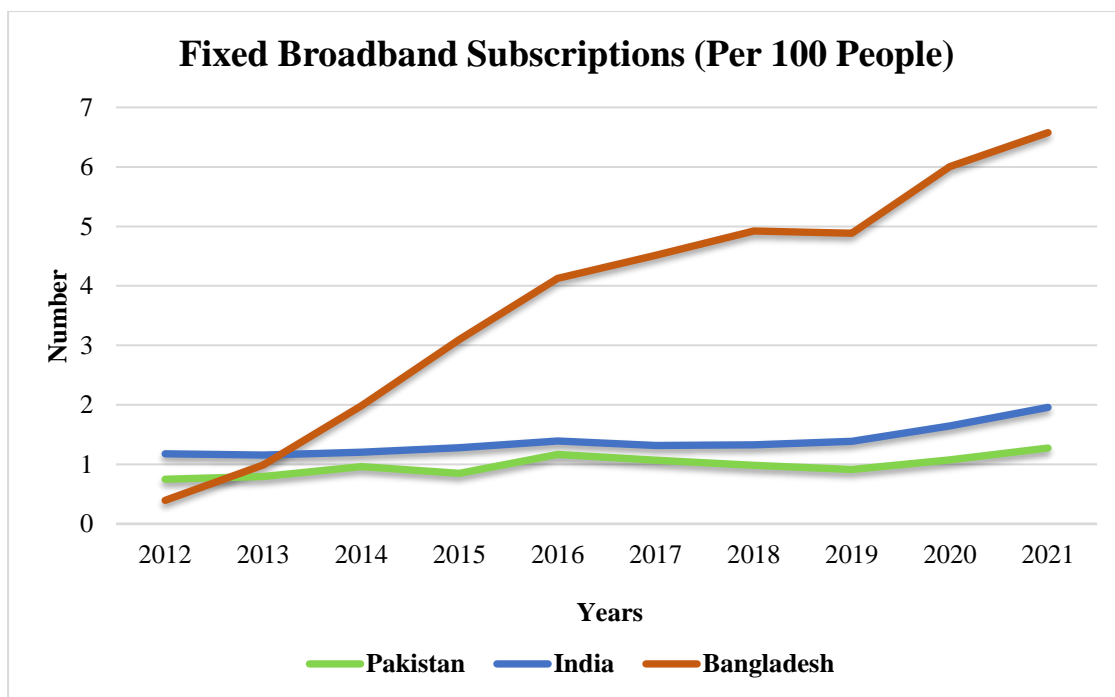


Figure 2: Fixed Broadband Subscriptions (2012-2021) (Pakistan, India, Bangladesh)
Source: (World Bank, 2020)

India is looking to overhaul its e-commerce framework so that the policy makers can contribute effectively to lay a foundation of strong digital economy that align with their national interests. Its main aim is to regulate the digital trade so that the competition can be revived. In the current scenario, the digital trade has expanded to every Indian city. Just within five years, some new realities emerged in India, such as daily commodities arriving to the doorstep of consumer within just half an hour. The e-pharmacies also emerged, and the new marketplaces brought village textiles to the buyers in the cities. Therefore, due to the fast expansion of e-commerce, the regulatory framework is changing and expanding its core principles to give accurate policy solutions. India's new e-commerce policy is looking forward to curbing the foreign influence in the local e-commerce market (Raghuraman, 2022). They aim to address the issues of the local retailers, scaling the 'population-size' platforms, and making good relations with key market partners. This new policy will counter the existing issues in Indian digital trade and will generate foreign exchange, which will be extremely valuable for the Indian economy.

Bangladesh introduced its first 'National Digital Commerce Policy' in 2018. Its main aim was to establish a digital system, which can transform the digital trade in Bangladesh. The major objectives include the promotion of digital commerce, creating conducive environment to conduct e-commerce business, assuring transparency and accountability, easing the access

to financial services, and protecting the rights of the consumers. It also aimed to protect the local industry, so that a competitive environment can be built for the local businesses also. The logistics support was also observed, and it was decided to upgrade the existing logistics system according to the global competitive environment. There is lack of payment methods available in Bangladesh, due to which this policy also focused to include the other type of payment methods in the country, such as Paypal (Government of Bangladesh - Ministry of Commerce, 2018). The policy also compared the policies of some other countries, which have already introduced the digital trade policies. This comparison also gave the direction to the current digital policy of Bangladesh. The internet infrastructure was considered to be one of the foremost concerns of the digital policy.

Pakistan's first electronic commerce² policy was devised in 2019, which focused on the Government's vision to promote business in Pakistan. The E-commerce in Pakistan is growing exponentially, and it has the ability to change the dynamics of the economy. The existing digital infrastructure is linking remote areas with the main city areas. The small enterprises have also enormous potential within and outside Pakistan through online e-commerce platforms. State Bank of Pakistan Annual Report indicates that the sales of international and local electronic commerce businesses were about Rs.21 billion in 2017, while it was above Rs.40 billion in the next year (State Bank of Pakistan, 2018). This pace is encouraging for the economy of Pakistan, but there were certain issues that required government attention to formalize a policy on e-commerce. The E-commerce Policy of Pakistan focuses on Regulatory Environment, Digital and Payment Infrastructure, Youth and SMEs³ empowerment, Taxation, Consumer Protection, Telecommunication services, Logistics and Supply Chain, Protection of Personal Data, and Global Connections and Mutual Negotiations.

² Electronic commerce is defined as the buying and selling of goods using internet and online communication networks.

³ Small and Medium-sized enterprises

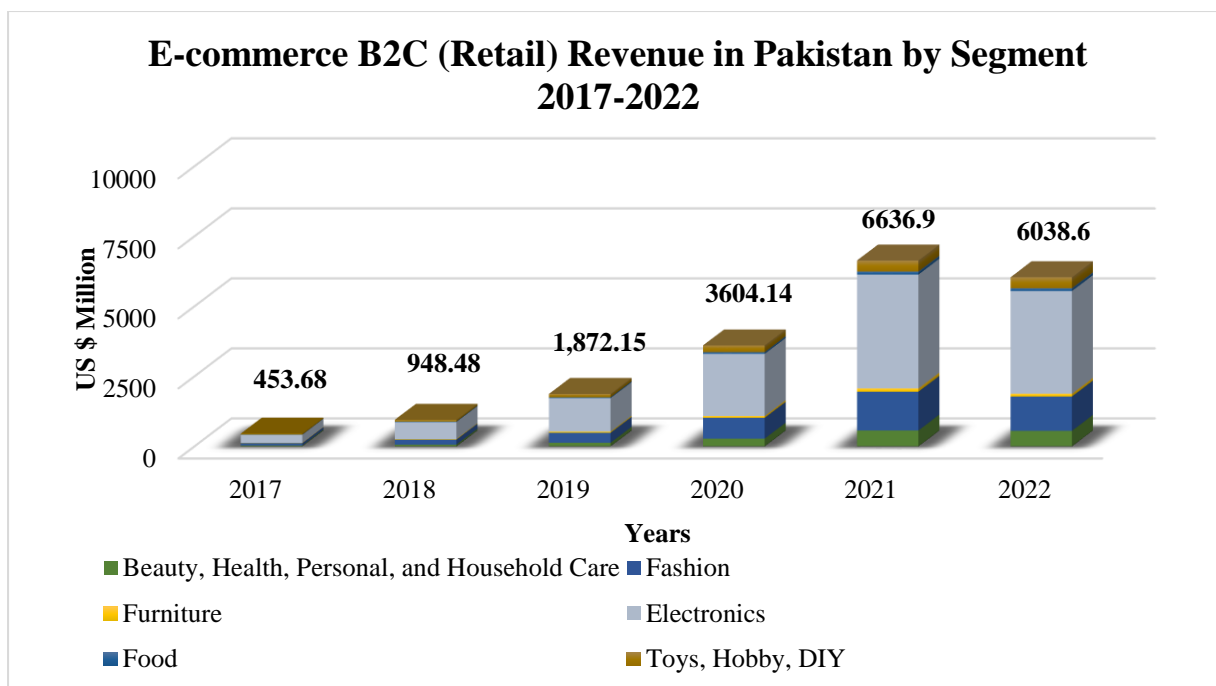


Figure 3: E-commerce B2C (Retail) Revenue in Pakistan by Segment 2017-2022
Source: (Statista, 2022)

There is no doubt that the e-commerce is helping Pakistan to boost its economy but there are various problems associated with it. This includes the payment gateways, technology infrastructure, logistics and customer adaptability of e-commerce market. These issues are slowing down the process of online buying and selling, thereby decreasing the customer satisfaction on online platforms. These problems will be critically analyzed in comparison with India and Bangladesh. The policy framework will also be assessed, so that gaps can be found in the existing policy of Pakistan.

The table number 01 shows the top e-commerce platforms in Pakistan. It shows that Daraz is the number one e-commerce platform. However, in terms of net sales, all the top websites are the textile companies.

Top E-Commerce Platforms in Pakistan

Serial No.	Websites
1	Daraz.pk
2	Olx.com.pk
3	Amazon.com
4	Alibaba.com
5	Priceoye.pk

Table 1: Top E-Commerce Platforms in Pakistan

Source: (Similarweb, 2023)

Top E-Commerce Websites in Pakistan in terms of Domestic Net Sales in 2021

Serial No.	Website	Owner	Net Sales	Market Share	Total Revenue	Revenue Growth %
1	Limelight.pk	Limelight	\$50.4m	0%-5%	>US\$50m	39.0%
2	Gulahmedshop.com	Gul Ahmed Textile Mills, Ltd	\$48.1m	0%-5%	>US\$75m	33.8%
3	Khaadi.com	Khaadi Pvt, Ltd	\$28.7m	<0%	>US\$50m	26.7%
4	Sanasafinaz.com	SS Fashion Resources	\$23.4	<0%	>US\$20m	33.1%
5	Alkaramstudio.com	Alkaram Textile Mills	\$22.1	<0%	>US\$50m	31.1%

Table 2: Top E-Commerce Websites in Pakistan in terms of Domestic Net Sales in 2021

Source: (ecommerceDB, 2022); (The Pakistan Business Council, 2023)

1.1. Statement of the Problem

The electronic commerce is the future of businesses, which can change the economic dynamics of a country, especially the developing countries. The research will focus on the loopholes and prospects of the existing e-commerce business of Pakistan and the e-commerce policy. The prime example is the lack of digital infrastructure, which is the basic foundation of the success of this business model. Along with infrastructure, the availability of reliable logistics support and the efficient payment gateways are important for e-commerce business. The payment issues are evident in Pakistan due to limited digital infrastructure. The international fintech companies are reluctant to initiate their operations in Pakistan due to risk of money laundering. Other factors will also be looked upon such as Taxation issues, Data Protection, Consumer protection and Regulatory environment. These problems will be compared with the latest policies and implementation mechanism of India and Bangladesh, so that the policy can be practically implemented rather than just publishing the piece of paper. The policy variable will also be analyzed in which the implementation of the previous policies can be ascertained through interacting with diverse stakeholders in the market.

1.2. Research Problem

Based on the narrative of Statement of the Problem as stated in the preceding text, I am narrowing my research problem into the “**Comparative Assessment of the E-commerce Policy of Pakistan with India and Bangladesh**” and have operationalized my topic into following questions and objectives.

1.3. Research Questions

- 1- What is the current satisfaction level of stakeholders/customers doing E-commerce business in Pakistan?
- 2- What is the impact of Internet Penetration Rate, Logistics Performance Index, Research and Development Expenditure, Gross National Income, and Mobile Cellular Subscription on the E-commerce Market Size of Pakistan, India, and Bangladesh?
- 3- What is the impact of Internet Penetration Rate, E-commerce Market Size, Gross Fixed Capital Formation and Trade Openness on GDP per capita of Pakistan, India, and Bangladesh?
- 4- What are the loopholes and prospects in the existing E-commerce policy of Pakistan in comparison with India and Bangladesh?

1.4. Research Objectives

- 1- To find the possible solutions by considering the current satisfaction level of stakeholders/customers doing E-commerce business in Pakistan.
- 2- To analyze the impact of independent variables on the E-commerce Market Size and GDP per capita of Pakistan, India, and Bangladesh.
- 3- To analyze the E-commerce policies of our neighboring countries such as India and Bangladesh in comparison with Pakistan.

1.5. Explanation of the Key Terms/Concepts

Digital and Payment Infrastructure: It refers to the digital technologies that show the information technology and operations of an organization, such as Online Websites Portal, ATM Cards, Debit/Credit Cards, Fintech Companies, Paypal, Wise, and Payoneer.

Logistics: It provides the process through which the inventory, materials, and equipment can be moved from one location to another, such as Postal Services, Courier Companies, and Cargo Services.

Electronic Commerce: It refers to the ‘Online Buying and Selling of Goods’.

B2B: Electronic commerce between a manufacturer and a wholesaler.

B2C: Electronic commerce between business to the end consumer.

B2G: Electronic commerce between business to government.

C2B: Electronic commerce between consumer to business.

C2C: Electronic commerce between consumer to consumer.

1.6. Units of Data Collection

There are various resources for data collection. Firstly, the secondary data of Pakistan in comparison with India and Bangladesh is used for the quantitative analysis. Then through this analysis, the policy implementation is checked using the primary data collected from the diverse stakeholders in the market. The stakeholders are the persons doing e-commerce business for the past ten years. The Ministry of Commerce has also been consulted to figure out the shortcomings in this research. The primary data is collected by developing questionnaire and filling it through consulting the persons, who are in direct line of e-commerce business, while the secondary data is collected from the official reports, websites, policy briefs and books.

CHAPTER 02

2. Literature Review

The e-commerce related literature has been consulted in great detail. The policy documents and digital trade research papers of Pakistan, India, and Bangladesh have been thoroughly analyzed, so that the shortcomings can be solved by giving policy recommendations.

2.1. Electronic Commerce

Electronic commerce is a business through which individuals or firms buy and sell the commodities on an electronic online platform. It decreases the barriers of trade which are apparent in a traditional business. E-commerce is playing a big role for the countries' good economic performance (Javed, 2020). The popularity of electronic trade is rising rapidly. The reason for its expansion is its ability to improve digital economies and create new jobs. This will ultimately help the developing economies to minimize their development gaps and the division among the rural and urban population (Asian Development Bank, 2021).

2.2. Indian E-Commerce Policy

India's latest E-commerce policy was published in 2022. India's e-commerce ecosystem has been rising drastically. The transformation and growth of e-commerce in India are evident from an estimated \$20 billion in 2014 to \$56 billion in 2021. The main factors of this policy were the same as of Pakistan's policy, but the major focus was to break the monopoly power of foreign e-commerce companies and enhance the capabilities of domestic e-commerce Industry (Raghuraman, 2022). Inclusive Policy Processes, Policy Certainty and Stability, and Growth Orientation are some of the principles to drive new e-commerce frameworks in India.

In the last few years, Indian e-commerce has been progressing quite rapidly. Due to demographic dividend and rising internet access, the electronic commerce is reaching new heights. However, despite the success of electronic commerce in India, there are some challenges that need to be addressed. There are some issues that include privacy problems, lack of skills, and the trust factor in e-commerce. The absence of cyber laws is also the major issue in the current e-commerce framework. However, with the passage of time, the new laws are introducing which will ultimately solve the problems associated with e-commerce (Suryawanshi, 2017).

2.3. Bangladesh E-commerce Policy

In comparison with Pakistan and India, Bangladesh e-commerce policy was devised in 2018. The key difference in this policy is the encouragement of women entrepreneur in e-commerce businesses and protecting the rights of the domestic e-commerce industry (Government of Bangladesh - Ministry of Commerce, 2018). The major objectives of the National Digital Commerce Policy 2018 of Bangladesh include the promotion, expansion, and development of e-commerce, while ensuring a compatible environment for electronic business. The assurance of legal backup must also be done to protect the interests of entrepreneurs, buyers, and sellers. The policy also shows that the new opportunities will be ensured for the stakeholders, so that electronic commerce can be expanded.

The policy is solely concerned with the expansion of electronic commerce, however, there are various underlying concerns that must be addressed. The major challenges of Bangladesh e-commerce include the high-cost internet, privacy issues, lack of computer related training, poor knowledge of marketing, political issues, and lack of experience in doing digital trade. The prospects are enormous, as the potential of e-commerce in Bangladesh is huge, which can generate billions of dollars. In the initial stage, the digital trade business can be given incentives such as tax exemptions (Ohidujjaman, Hasan, & Huda, 2013). The relationship between manufacturer and consumer is very important, as it can build trust, so that the digital business can be expanded. The next step would be to secure the payment systems, such as using secure and reliable payment options, so that the consumers can buy or sell the goods with ease.

2.4. Pakistan E-commerce Policy

Pakistan's first E-commerce policy was devised in 2019, in which the primary focus was on the nine main factors. These factors include Regulatory Environment, Digital and Payment Infrastructure, Empowerment of Youth, Taxation, Consumer Protection, Telecommunication Services, Logistics, Data Protection, and Global Connectivity (Government of Pakistan - Ministry of Commerce, 2019). This policy's main purpose is to create an environment which can be suitable for the electronic commerce in Pakistan.

In Pakistan this industry has been rising rapidly showing worth of about Rs.52 billion in fiscal year 2017, while growing to around Rs.100 billion, showing growth of above 90% in 2018. The online buying and selling sales revenue in Pakistan was estimated at about \$4 billion in 2020, which was placed at 46th position all over the world in online businesses (Zia,

Sajid, & Siddique, 2022). This online buying and selling of the products can lead to low cost of production including direct and indirect costs, which can be very fruitful for a developing country like Pakistan.

2.5. Policy Comparison

Despite the emergence of e-commerce policies, the e-commerce business is a challenge for many countries due to its inherent problems. The major problem includes the payment issues in which the people are unable to pay in the foreign countries. If somehow payment platform is available, then such platform is very slow due to lack of digital infrastructure. The world's largest digital payment method 'PayPal' is not currently present in Pakistan. There are several other payment methods available such as debit/credit cards, prepaid cards and mobile wallets (Anjum & Chai, 2020), but due to lack of massive digital infrastructure, such payment methods face various issues during online transactions. Online shopping adaptation is also the hurdle for the people in Pakistan due to lack of digital knowledge and procedures. Despite the growing revenues of e-commerce in Pakistan, people generally do not prefer to buy the products online. There are various factors that can affect the consumers' online shopping behaviors, such as time, brand quality, security/privacy risk, and price (Sattar & Ameer, 2014).

Pakistan's e-commerce market can be better analyzed if compared with its neighboring countries. This comparison can be drawn using variables such as Logistics, Information and Communication Technologies, Payment Infrastructure and Human Capital. The comparison shows that the internet penetration⁴ rate in Pakistan in 2014 was only 15%, while India was at 20%. Other countries such as Turkey showed the rate at 57%, while Denmark's internet penetration rate was about 97% which was the highest in the world in 2014 (Sheikh & Basti, 2015). If we compare Pakistan with India, the economy of Pakistan is way behind India in e-commerce. Pakistan is lagging behind India in variables such as Processing at Customs, Logistics Infrastructure, and International Shipments Performance (Karachi Chamber of Commerce and Industry, 2019). The rank of Pakistan in UNCTAD B2C E-commerce index⁵ is 120, while India is at 83. The major difference between Pakistan and India is the human capital. The Human Capital Index 2017 ranks Pakistan at 134th, while India at 115th.

⁴ Internet Penetration Rate shows the portion of the population that has access to the internet facility.

⁵ E-commerce Index shows an economy's readiness to support e-commerce development.

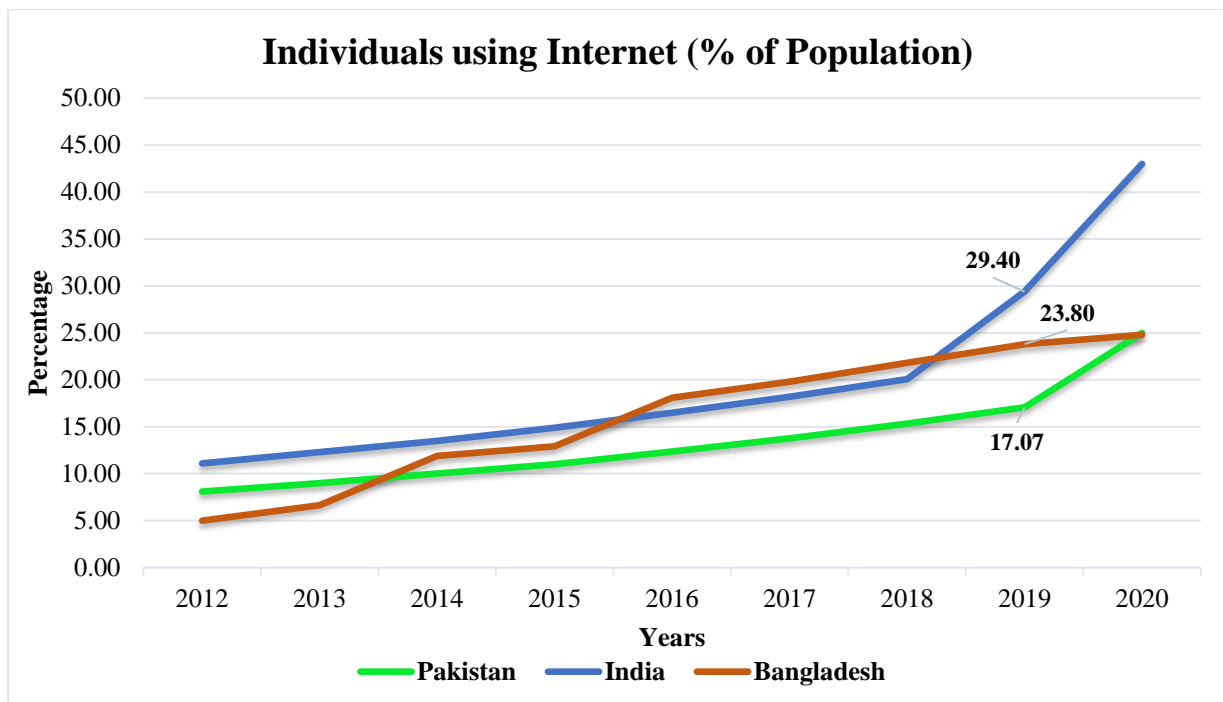


Figure 4: Individuals using Internet (% of Population) (2012-2020) (Pakistan, India, Bangladesh)
Source: (World Bank, 2020)

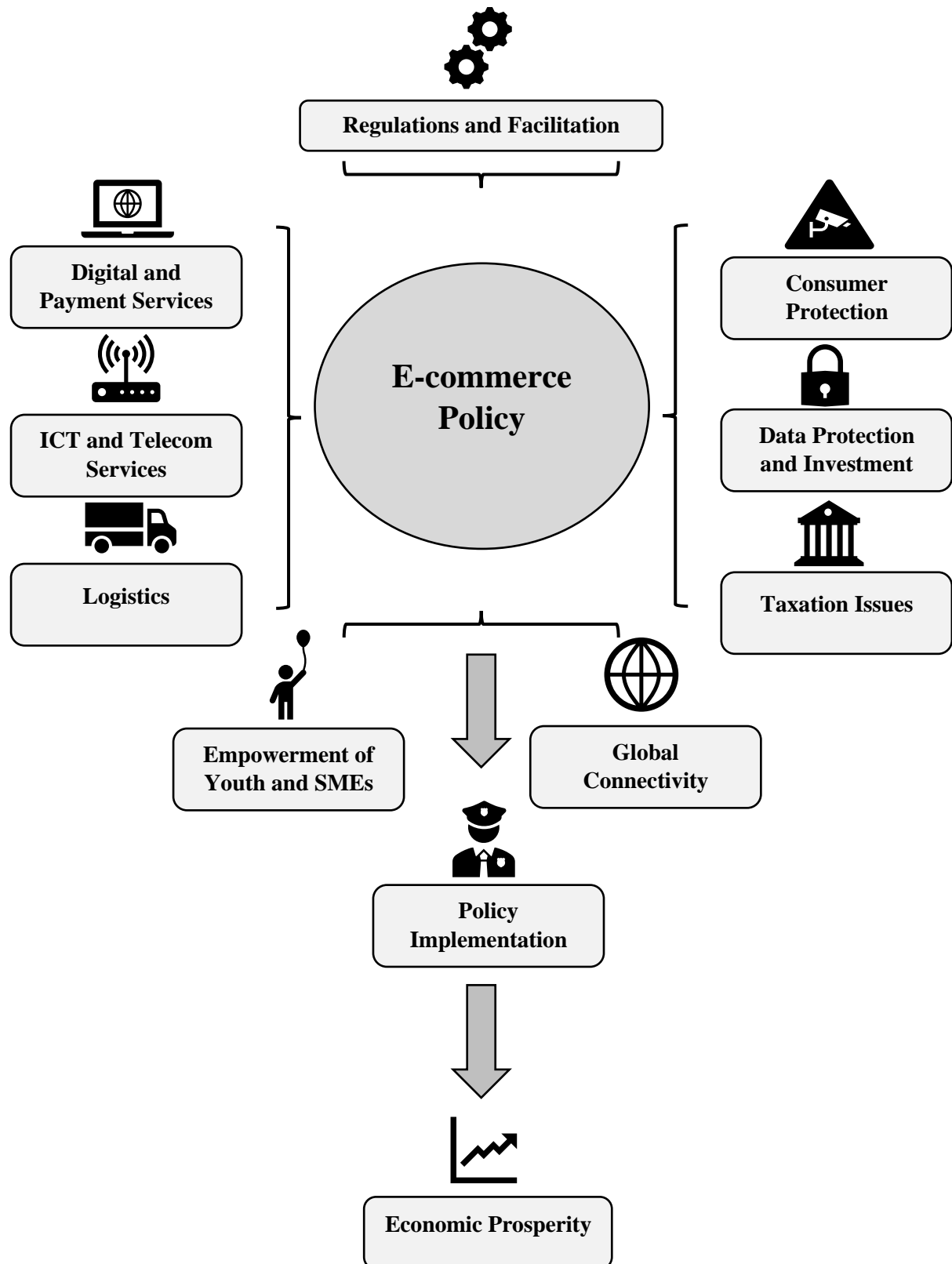
Another major problem is the logistics barrier in e-commerce industry of Pakistan. The supplying of the goods at the designated places requires costs and human resource. The ranking of Pakistan in Logistics Performance Index is 122, which is the lowest in South Asia (Shaikh, 2022). The elements of Logistics include Infrastructural Capacity, Institutional Capacity, and Industrial Capacity. Pakistan courier and logistics enterprises can benefit from the China Pakistan Economic Corridor, which is providing massive opportunities to enhance the supply chain using road links in neighboring countries.

The traditional supply chain can also be replaced by the Hourglass Supply Chain (HGSC), in which every entity can join and do business using internet technology (Ghayur, 2003). It is called the hourglass because the customers are at the upper part of the glass, while suppliers are at the lower part. The biggest strength of hourglass supply chain is its independence, while many other entities can join, which can provide business opportunities for suppliers and manufacturers. The current infrastructure requires a systematic method in which the logistics can be improved. The reverse logistics can also be applied, in which if the customer is not satisfied with the ordered products, then it can be returned to the seller as how it was bought (Naseem, Yang, & Xiang, 2021). However, the returns' directly affect the companies' reputation. These supply chain and logistics problems must be solved to improve the e-commerce business in the country.

The consumer security and trust are also the major issue in the online business market. The advancement of technology has changed the dynamics of customer trust and privacy. The trust element acts as a currency which compels the consumer to buy the product by merely interacting on an online website. The customers will definitely buy more products online if the trust is high between the service provider and the consumer. This issue can be solved in Pakistan, if the websites rely on the quality of the product instead of quantity. The trust can be enhanced by showing the security seals and adding the trust badges. The clear and concise refund policy and procedures can further improve the customer satisfaction. The images and videos quality on the websites can also be improved (Imtiaz, Ali, & Kim, 2020). The advanced technology has also introduced the feature of Virtual Clothing using Visual Artificial Intelligence that can give the accurate size of clothing.

The literature review concluded that there is not enough research work done for the electronic commerce business in Pakistan. The electronic commerce is solely dependent upon the availability of reliable internet connection. The establishment of telecommunication companies in Pakistan paved the way to provide internet connections to the public. This led the businesses to change into an e-commerce market where the buying and selling of goods can be done on online platforms. The logistics support is also one of the most important variables in this regard. The e-commerce business opportunities have also encouraged the youth and women to become entrepreneurs. This evolutionary process will not only solve the problems associated with it, but also it will boost the economy of Pakistan in terms of foreign exchange reserves.

2.6. Conceptual Framework



2.7. Research Gap

The critical assessment of the e-commerce policy of Pakistan in comparison with India and Bangladesh has not been done before, because the first ever e-commerce policy was introduced in September 2019. There are few qualitative research papers which show the prospects and challenges of doing E-commerce business in Pakistan, but there are no published papers that comprehended the entire policy in comparison with the neighboring countries.

2.8. Policy Contribution

The research thesis has studied in detail the loopholes in the current e-commerce policy of Pakistan. The National E-commerce Council was made when this policy emerged. The sole purpose of this council was to oversee the implementation of the e-commerce policy. The council was bound to meet twice a year to manage the committees and working groups to implement it. This thesis has assessed the implementation mechanism through consulting the major stakeholders, that include the national e-commerce council, freelancers, and the customers.

CHAPTER 03

3. Research Methodology

3.1. Theoretical Foundations / Framework

The three econometric models will be made to assess the e-commerce policy of Pakistan in comparison with India and Bangladesh. The first model of customer satisfaction is derived from the work of (Cardozo, 1965) which explained the impact of expectations on customer satisfaction. If a product does not meet the requirements and expectations of the customer, then the satisfaction level of the customer decreases. (Gupta & Zeithaml, 2006) derived the theoretical framework for the customer satisfaction, which concluded that there are five critical variables that have an impact on the customer satisfaction. These include Managing Customer Relationship, Value Added Services, Products Availability, Variety Offered, and Ambience. There are many studies that focused on the use of Information and Communications Technologies in business but the most appropriate for our second and third model is the (Schreyer, 2000), which deals with the contribution of technology to economic growth.

The use of technological factor in an econometric model can also be traced back to the industrial revolutions. The first industrial revolution used water and steam power while the next one used electricity. The third industrial revolution explained the importance of electronics and technology. Now, the use of Artificial Intelligence and Robotics justified the emergence of the fourth industrial revolution. Another important model is the Diffusion of Innovation Model developed by E.M. Rogers in 1962, which explained how an idea gains popularity and spreads in a social system. It is studied by (Pease & Rowe, 2005), which concluded that there are various factors that contribute to the adoption of e-commerce business by the small and medium-sized enterprises. The Technological Acceptance Model 1989 is also an important model, which focused on the perceived ease of use, usefulness, and the actual behavior of the people in a social system. The study conducted by (Fayad & Paper, 2015) showed the extension of the technological acceptance model by measuring the actual behavior of people in adapting the e-commerce business.

3.2. Research Strategy, and Design

The mixed method approach has been used in this research including both qualitative and quantitative work. The panel of Pakistan, India and Bangladesh is made using the available reliable data. The reason for choosing the latest data is that the e-commerce

business was not active in any of the countries due to the non-availability of the internet. The data on the digital indicators can only be found in the recent times.

The first model has been made using the primary data collected from the sample, which is made from the persons, which usually buy products and services using online platforms. The sampling is done using convenient sampling technique. The questionnaire has been made using the variables such as online presence, income profile, age, and gender. The research methodology of the first model is based on the B2C Customer Satisfaction model designed by the (Sheikh & Basti, 2015). In this model, the customer satisfaction is dependent upon various factors, such as Product, Service, Network System, Payment System, Privacy Protection, and Website Characteristics. All these variables are further divided on the basis of their characteristics and converted into questionnaires. The following model is made for Pakistan only.

Model 01: Customer Satisfaction = $f(\beta_0 + \beta_1\text{Product} + \beta_2\text{Service} + \beta_3\text{Network System} + \beta_4\text{Payment System} + \beta_5\text{Privacy Protection} + \beta_6\text{Website Characteristics} + \epsilon)$

Variables	Specification	Source
Customer Satisfaction (Dependent)	Dependent Variable	Primary Sources such as Customers, Buyers, Sellers, Private Companies
β_1 – Product (Independent)	Availability, Range, Quality, Expectation	-do-
β_2 – Service (Independent)	Quality, Call Center, Management, Response, Attitude, Timeliness, Accuracy, Delivery Company	-do-
β_3 - Network System (Independent)	System Accessibility, Privacy, Guidance, Technical Problems	-do-
β_4 - Payment System (Independent)	Time Lapse, Payment Method Options, Protection of Payment, Delivery Charges	-do-
β_5 - Privacy Protection	Reliability, Privacy, Private	-do-

(Independent)	Information, Consumer Rights	
β_6 - Website Characteristics (Independent)	Easy to use, Website Layout, Convenient, Updated, Manageable	-do-

Table 3: Model 01 Variables Specification

The second model is made on the basis of panel data of Pakistan, India, and Bangladesh. The data was collected from various secondary sources and then the impact of independent variables upon dependent variable has been determined. The methodology of this model is implemented using the study by (Ortiz, Rodriguez, & Gomez, 2020). The following model is used for all the three countries.

$$\text{Model 02: } EC_{it} = \text{constant} + \beta_{0it} + \beta_{1i}DI_{it} + \beta_{2i}RD_{it} + \beta_{3i}GNI_{it} + \beta_{4i}PO_{it} + \varepsilon_{it}$$

Variables	Measurement	Source
EC – Electronic Commerce (Dependent)	The percentage of enterprises' total turnover from E-commerce / Transactions through Credit/Debit cards	Ministry of Commerce, State Bank of Pakistan Official Reports, Private Entities, Field Visits
β_1 – DI – Digital and Payment Infrastructure (Independent)	Volume of Internet, Internet Penetration Rate, Mobile Phones / Telephone subscription per 100 people	World Development Indicators, Ministry of Information Technology and Telecommunication
β_2 – RD – Research and Development (Independent)	The percentage of Gross Domestic Product devoted to Research and Development spending in each country	World Development Indicators
β_3 – GNI – Gross National Income (Independent)	Per Capita Disposable Income from each country (constant 2015 US\$)	World Development Indicators
β_4 – Po – Policy Variable (Internet Penetration) (Independent)	Policy Implementation Mechanism	Policy Implemented or Not?

Table 4: Model 2 Variables Specification

The third model has been made to compare the three countries' e-commerce profile with their respective economic growth. The methodology of this model is applied using the study done by (Zatonatska, 2018). The following model is used for all the three countries.

$$\text{Model 03: } \ln \text{ GDP PC}_{it} = \beta_{0it} + \beta_{1i} \ln \text{ GCF}_{it} + \beta_{2i} \ln \text{ IP}_{it} + \beta_{3i} \ln \text{ Ecom}_{it} + \beta_{4i} \text{ TO} + \varepsilon_{it}$$

Variables	Measurement	Source
GDP Per Capita (Dependent)	Country's Gross Domestic Product in Million USD	World Development Indicators
β_1 – Gross Capital Formation (Independent)	Gross Capital	World Development Indicators
β_2 – IP – Internet Penetration (Independent)	Internet Penetration as a share of a population using the World Wide Web in the total population of the Country	World Development Indicators, Ministry of Information Technology and Telecommunication
β_3 – E-Commerce Transaction Value	The percentage of enterprises' total turnover from E-commerce / Transactions through Credit/Debit cards	Ministry of Commerce, State Bank of Pakistan Official Reports, Private Entities, Field Visits
β_4 – Trade Openness	(Exports + Imports) / GDP	World Development Indicators

Table 5: Model 3 Variables Specification

3.3. Methods of Data Collection

The research strategy and design are based on both quantitative and qualitative analysis. In the first place, the regulatory bodies such as the Ministry of Commerce and other private entities are visited to check the secondary data and analysis. Then, the problems of the policy are checked through consulting stakeholders of the e-commerce business in Pakistan. The primary data is taken from these stakeholders and used for analysis. The secondary data is taken from the World Development Indicators (WDI) website.

The E-commerce policy of India and Bangladesh are also analyzed so that the major issues in the existing policy of Pakistan can be found. The econometric model has been formed by linking the independent variables such as Digital Infrastructure, Internet

Penetration, Research and Development, Consumer Protection, and Telecom services, with the dependent variable of growth rate of e-commerce Market in Pakistan. The econometric model is made on the basis of availability of the reliable and official data. The policy variable has also been used in the model in a way that the existing policy is implemented in the previous time period or not. If the policy is not practically implemented, then the mechanism of its implementation is evaluated.

3.4. Sampling and Analysis

The sampling is done using convenient sampling technique. The respondent's profile is made using the strata differentiated by distinct groups and subgroups. The sampling is done by consulting different stakeholders' views about the existing e-commerce policy and its implementation. Those enterprises are contacted which are currently doing business in these areas. The online e-commerce markets such as Daraz, Amazon, Walmart, and Shopify websites are also visited in comparison with the local e-commerce stores of Pakistan. Their sales, payment gateways, logistics, digital infrastructure, and telecommunication services are also compared, so that the key policy issues can be found in the existing policy of Pakistan. The statistical analysis is done using the statistical packages to ascertain the unusual behavior of independent variables.

3.5. Significance of Research

The significance of this research thesis is evident because of the large scope of electronic commerce, not only for Pakistan but also for the world. The digital technology has changed the ways of doing business. The artificial intelligence, digital marketing, social media, and data analytics have changed the business operations of an entity. For example, a company, which is trying to sell its products in a targeted pool of consumers, will collect the data using the data analytics software, which can tell where the company must sell. The digital marketing using social media has also become very popular in this business model.

This research is certainly beneficial for the Ministry of Commerce, as the policy of e-commerce was devised by the ministry. The research has found the useful analysis for the concerned departments and stakeholders, so that the accurate policies can be implemented. The technological infrastructure factor is of the prime importance in this regard. Pakistan must change its business operations by using technology, just like the developed countries are doing. In this way, the economy of Pakistan will be in a position to earn foreign exchange reserves, which are the need of the hour. The research on the electronic commerce will

ultimately improve the basic foundations of the policy, which when implemented, will be beneficial for the stakeholders.

CHAPTER 04

4. Results First Model

The first model has been made using the primary data collected from the sample, which is made from the persons, which usually buy products and services using online platforms. The sampling is done using convenient sampling technique. The questionnaire has been made using the variables such as online presence, income profile, age, and gender. The research methodology of the first model is based on the B2C Customer Satisfaction model designed by the (Sheikh & Basti, 2015)

Model 01: Customer Satisfaction = $f(\beta_0 + \beta_1\text{Product} + \beta_2\text{Service} + \beta_3\text{Network System} + \beta_4\text{Payment System} + \beta_5\text{Privacy Protection} + \beta_6\text{Website Characteristics} + \epsilon)$

4.1. Respondents' Profile

The following figures show the results about the profile of the respondents', who participated in this research. The table shows that the majority of the respondents are male, while 45.5% are females. The majority of the respondents were of the age 25-35 years, while the majority are holding university degrees. A large chunk of respondents is doing jobs having an income from 70,000 to 150,000. However, their online shopping duration varies from 1-3 years.

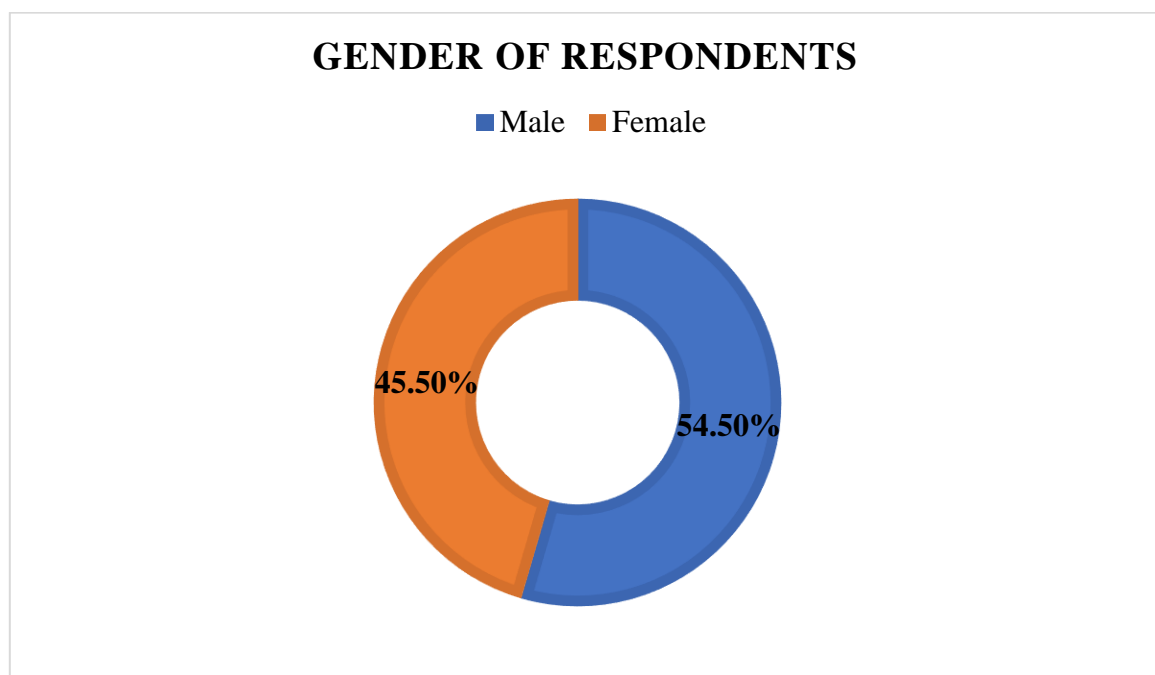


Figure 5: Gender of Respondents

The figure 06 shows the ages of the respondents. The majority of the respondents were of the age 24-35 years, while the smallest chunk was of the age between 50-60. The age bracket shows the young people generally have interest in shopping online as compared to the old people.

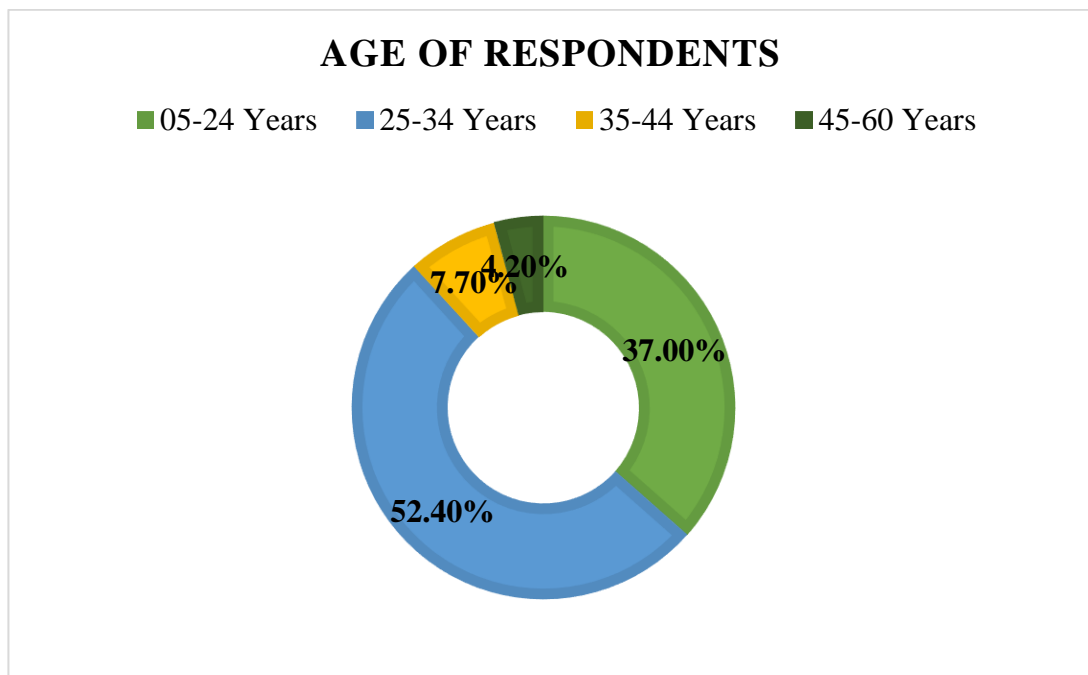


Figure 6: Age of Respondents

The next table 05 shows the education and occupation level of the respondents. A very large number of respondents were educated till the university degree, while the majority were doing jobs. In this research, it has also been found that some people are also doing freelancing. A small portion of 7% were doing business.

Particulars	Education
High School	11.9%
University Degree	78.3%
PhD	6.3%

Table 6: Education of Respondents

Particulars	Education
Job	46.2%
Business	7%

Student	37.1%
Freelancing	1.4%
Not Working	7.7%

Table 7: Occupation of Respondents

The next figure 07 shows the household income of the respondents. The large group of respondents are earning between PKR 70,000-150,000. A very small portion is earning above PKR 300,000, while some are earning below PKR 30,000.

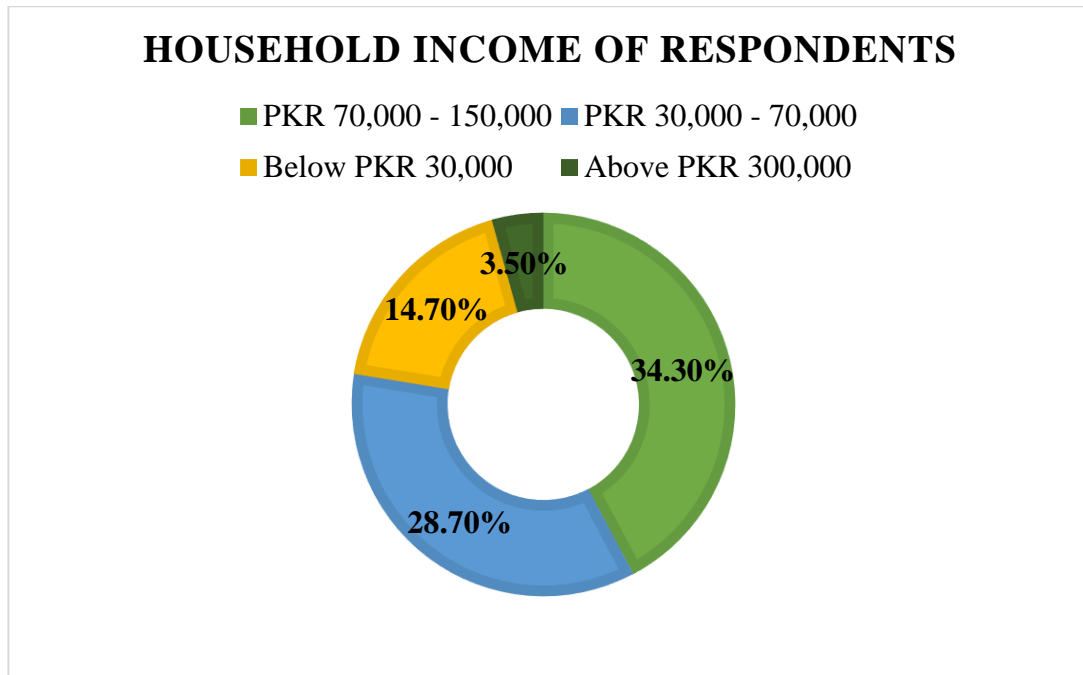


Figure 7: Income of Respondents

The figure 08 explains the online shopping involvement of the respondents. The data shows that most people have been shopping online only for the past one year. People generally trust physical business as compared to online business (Sheikh & Basti, 2015).

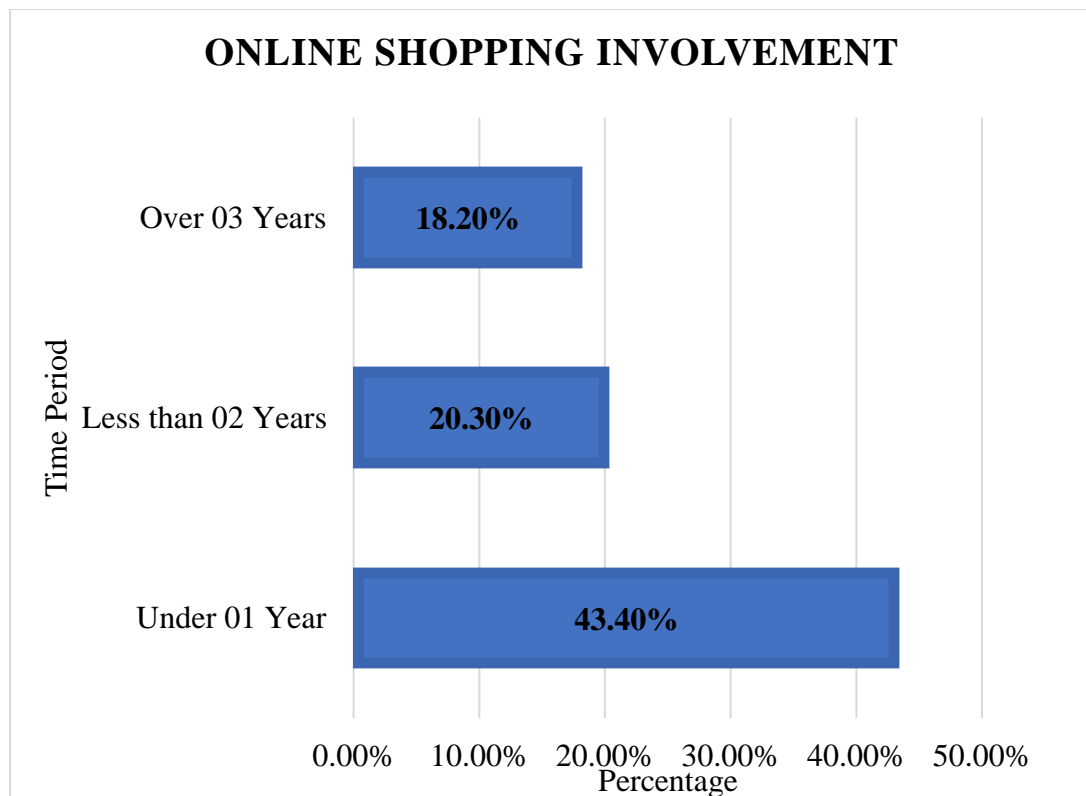


Figure 8: Online Shopping Involvement

4.2. Online Purchasing Behaviors

4.2.1. Factors that Encourage the E-commerce

This question asked the respondents about the persons online purchasing behavior. The respondents are of the view that there are some factors that encourage the respondents. These factors include the lack of availability of the desired product, prices, quality, and time saving. The respondents' are of the view that time saving is one of the most important factors that encourage people to buy online products (Sheikh & Basti, 2015).

4.2.2. Factors that Discourage the E-commerce

There are also factors that discouraged the respondents from doing e-commerce buying or selling. The majority are of the view that the poor after sale service is the major reason that discourages people to buy goods from online stores instead of physical shops. Some also showed that the issue of online payment is also a major problem. Generally, people prefer to shop physically because of the level of trust between buyer and customer. For some people the lack of knowledge about online shopping is also a big hurdle in doing online shopping.

4.2.3. Good and Services Bought Online

The respondents bought different products online. The household products such as clothes and furniture have been bought in abundance during the last one to two years. The electronic components were also high in demand, followed by food products, books and then professional services. Some respondents also bought a few makeup and beauty products, while some preferred to buy perfumes, gifts, and gym equipment also.

4.2.4. Preferred Mode of Payment

The following figure 09 shows that the respondents preferred to pay using cash during online shopping. The major reason is the lack of trust in the digital method of payment. After the cash on delivery option, some preferred to pay using debit/credit cards while some chose to pay using jazz cash and easy paisa. It has been observed that Pakistan needs a strong digital payment network, so that people can trust such methods.

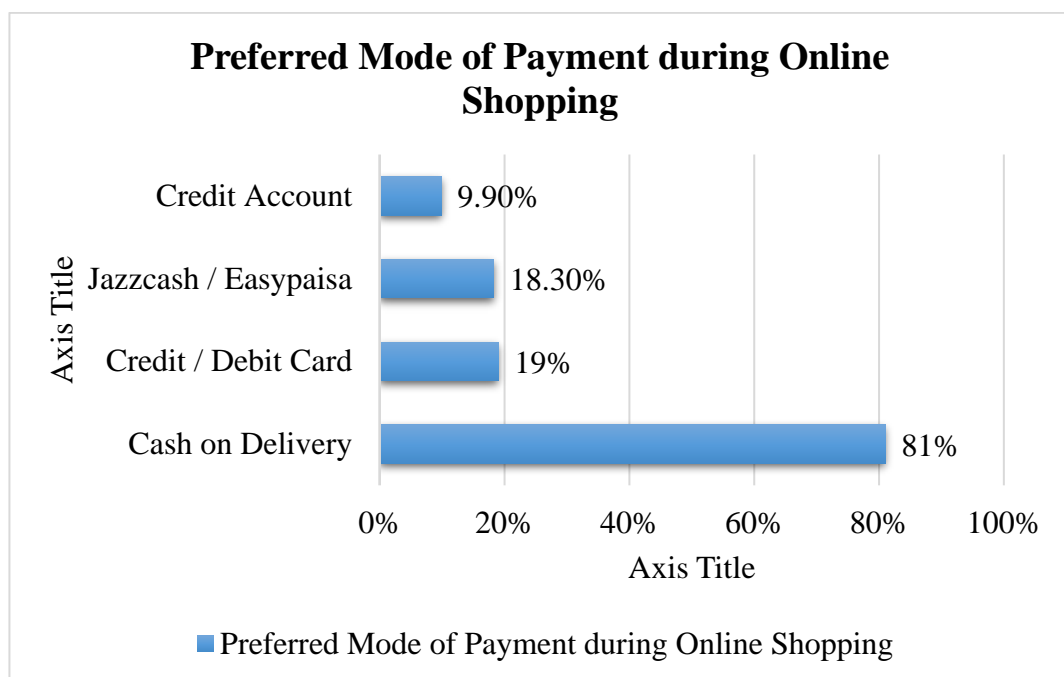


Figure 9: Preferred Mode of Payment

4.2.5. Sources to learn about E-Commerce Websites

The respondents are of the opinion that they learned the majority from the social media sites, while it is followed by friend recommendation, then email and newspaper. The learning about e-commerce is also due to covid-19, as people generally were forced to remain at home while using social media approximately all the time.

4.3. Product Characteristics during Online Business

4.3.1. Product Availability

The following figure shows the respondents view about the availability of the product during online shopping. The majority of respondents agreed that the required product was available during online shopping. But only a small portion of people disagreed with the given statement.

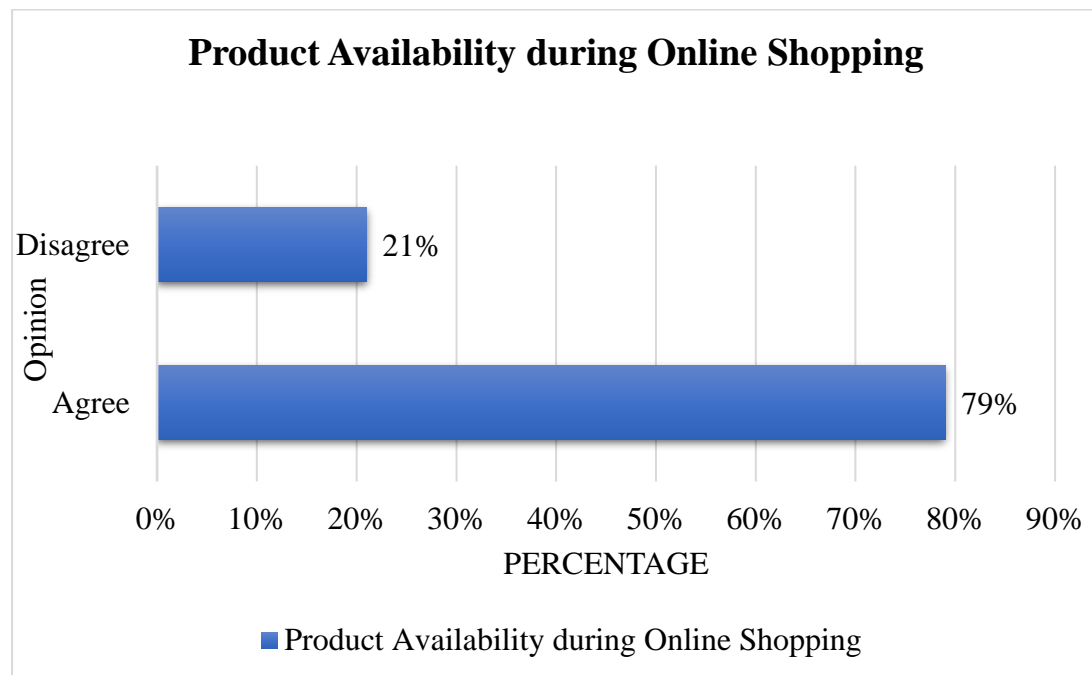


Figure 10: Product Availability

4.3.2. Different Ranges of Products Availability Online

The respondents were asked about the availability of different ranges of products during online buying and selling. A large chunk of people agreed that the various range of products were available online. However, some people disagreed with the statement.

4.3.3. Quality of Products Available Online

Figure 11 depicts the respondents view' about the quality of the products available online. A small number of people viewed that the products were of substandard quality, while some people showed that the quality of the products was of the excellent quality.



Figure 11: Product Availability

4.3.4. Satisfaction Level of Respondents About Products

69% of the respondents said that they were satisfied with the product, while the remaining viewed that they were not satisfied with the product. The satisfaction level largely depends upon the quality of the products bought by the respondents.

4.4. Services Provided by Websites

4.4.1. Quality of Information Available on Online Websites

The respondents said that the quality of the information available online was excellent. More than 70% of respondents argued that the website showed the information in a very simple manner. This showed that the information available was satisfactory and according to the requirements of the respondents.

4.4.2. Response and Feedback on Online Websites during Online Buying/Selling

Figure 12 shows that the respondents are of the view that the response and feedback was excellent, while only a few respondents opted that the response and feedback was poor. Only 29% of the total responses showed the feedback to be poor. The prime reason depends upon the subjective experiences of the respondents during online shopping.

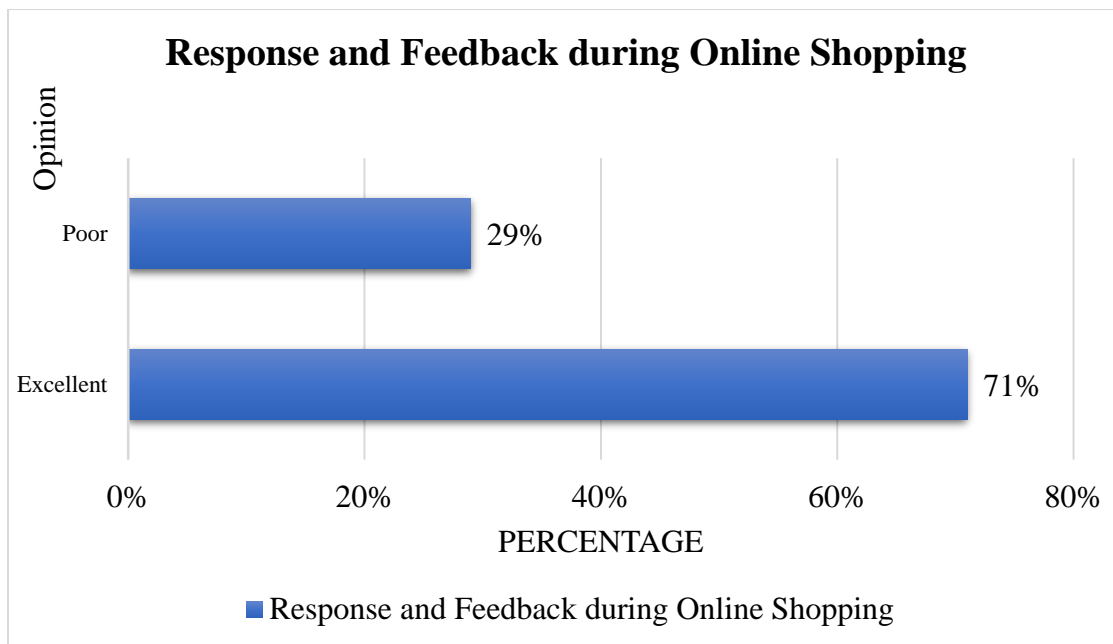


Figure 12: Response and Feedback

4.4.3. Accuracy and Completeness of Shipment

This question was aimed to find the accuracy and completeness of the shipment ordered by the respondents during online shopping. The results showed that about 68% of the respondents agreed that they are satisfied with the accuracy and completeness of the shipment. However, 32% of respondents did not agree, as they received inaccurate and incomplete shipments frequently.

4.4.4. Timely Product Delivery

The respondents are of the view that they received the delivery on time. More than 65% of the respondents were satisfied with the time of the delivery, while 35% were not satisfied with the time of the product delivery.

4.5. Importance of Network System for Customer Satisfaction

4.5.1. System Accessibility

The results show that the respondents were satisfied with the system accessibility during online shopping. 92% of respondents viewed that system was easily accessible, while some inaccessibility occurred only a few times due to internet connection issues.

4.5.2. Guidance to Entry Errors during Online Shopping

The following pie figure 13 shows the results of the guidance to entry errors during online shopping for the respondents. It is shown that more than 50% of respondents were not given guidance to entry errors while shopping online. Only 45% of the respondents viewed that they were guided properly during online shopping.

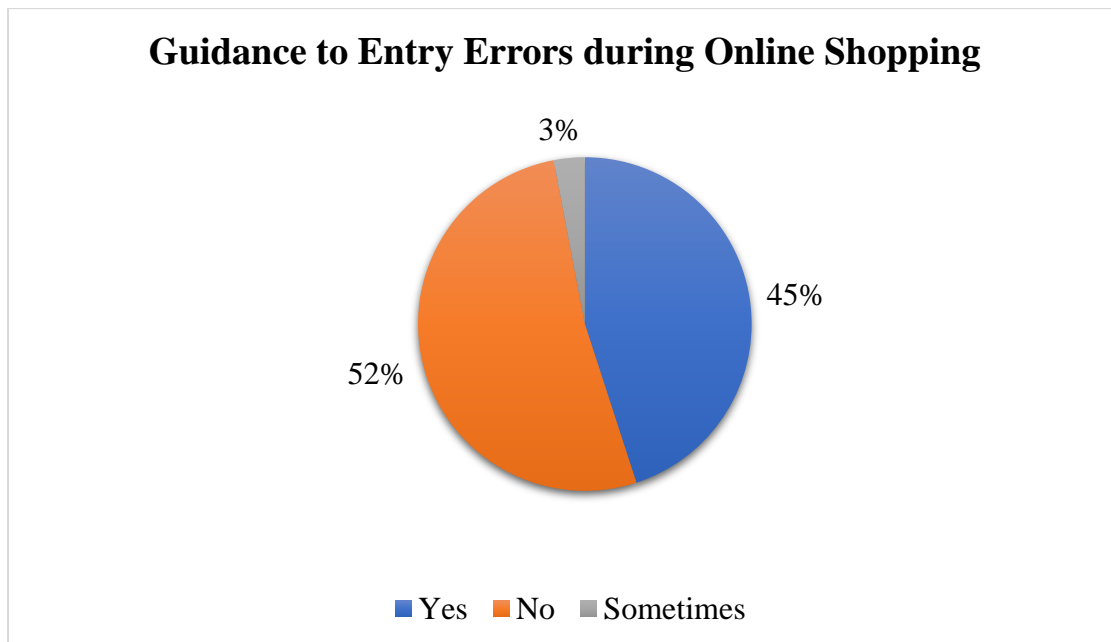


Figure 13: Guidance to Entry Errors

4.5.3. Technical Problems During Online Shopping

This question was asked to check whether the technical problems are happening occasionally or not. More than 65% of the respondents did not face any major technical problem during online shopping, while around 35% faced major technical problem while shopping online.

4.6. Importance of Payment System for Customer Satisfaction

4.6.1. Satisfaction level with the Time Lapse of Order and Delivery

This question was asked to find the respondents' satisfaction level with time lapse of order and delivery. The majority of respondents are of the opinion that they are satisfied with the time lapse of order and delivery. Only 26% of respondents were not satisfied with the time lapse of order and delivery.

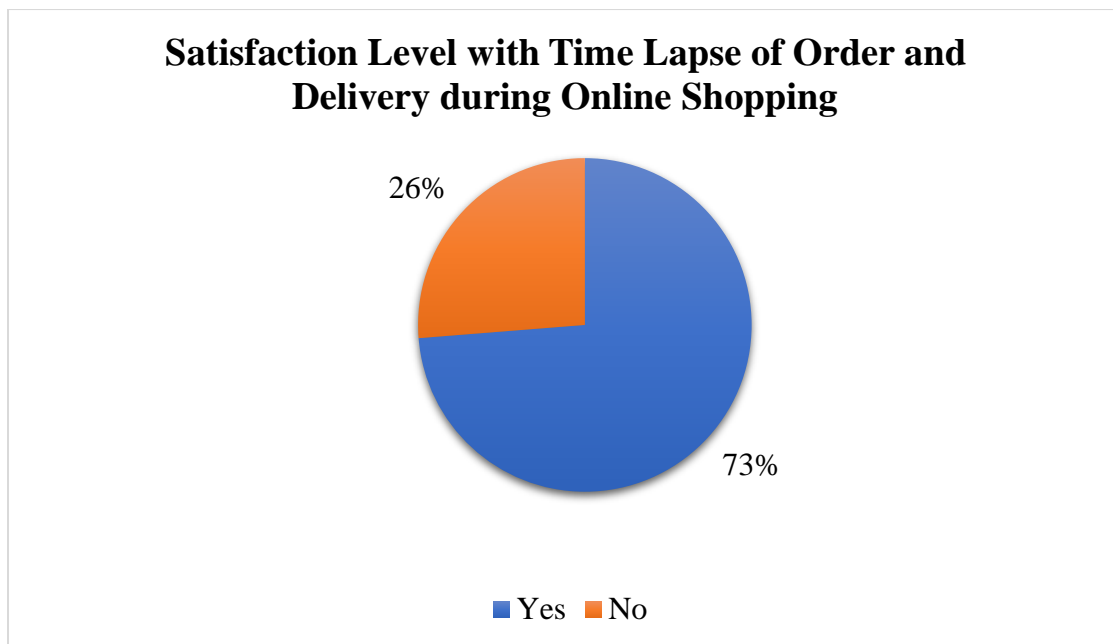


Figure 14: Satisfaction level with Time Lapse of Order and Delivery

4.6.2. Different Payment Method Options Availability during Online Shopping

The results show that more than 86% of the respondents answered that there were various payment method options available during online buying and selling of commodities. Only a handful of participants did not acknowledge the availability of this facility.

4.6.3. Satisfaction Level with the Protection of Payment Information

The question was asked about the protection of payment information of respondents. Majority opted that the payment information is secure but large number of people viewed that the payment information is not fully secure in Pakistan due to excessive online fraud. People generally prefer to pay cash on delivery and avoid the payment using debit/credit cards. The main reason is the lack of trust on the digital payment options due to fraudulent activities.

4.6.4. Appropriate Delivery Charges

The respondents were asked about the delivery charges whether these charges are high or low. Many responded that charges are of medium level, while some mentioned the unnecessary high charges. Only 5.6% of respondents viewed that the charges are lower than expected.

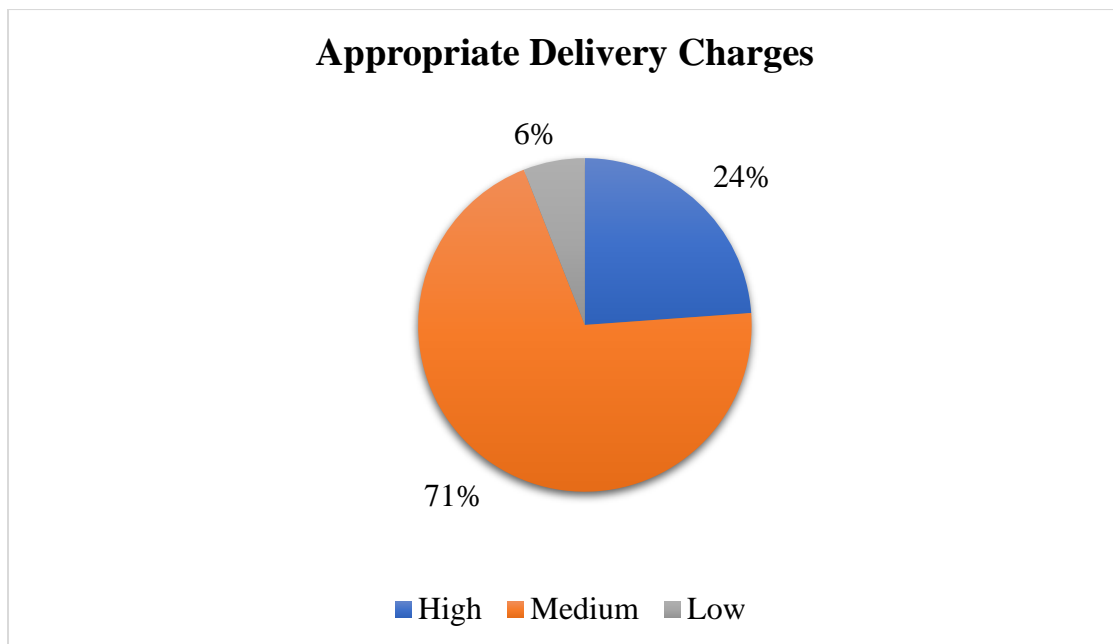


Figure 15: Appropriate Delivery Charges

4.7. Importance of Privacy Protection for Customer Satisfaction

4.7.1. Reliable and Trustworthy system of Privacy Protection

The respondents were asked about whether the system of privacy protection is reliable and trustworthy or not during online shopping. Despite the technical problems and fraudulent activities during online shopping, more than 60% are satisfied with the current system of privacy protection. The general trend shows that people viewed this system as reliable and trustworthy, while only around 40% of the respondents showed that the privacy protection system is not reliable.

4.7.2. Satisfaction Level about the Given Privacy and Security

66% of respondents are satisfied with the given privacy and security on the websites. However, only 33.1% of respondents said that they are not fully satisfied with the given privacy and security as they encountered fraud and scams on that respective website.

4.7.3. Private Information Protection During Online Shopping

The following figure 16 depicts the results about the protection of private information during online shopping. The majority of the participants showed that their private information such as contact number and addresses are protected during online shopping while around 44% of the participants viewed that their private information is not

fully safe. Some participants also shared their bad experiences about specific websites regarding their private information.

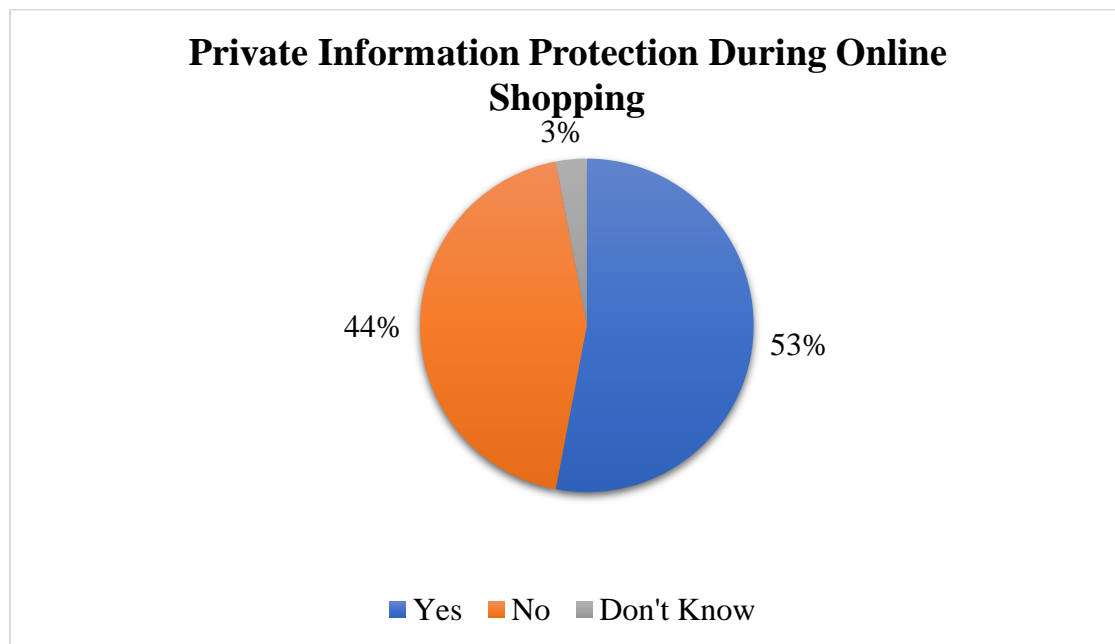


Figure 16: Private Information Protection

4.7.4. Availability of Appropriate Information about the Buyer/Seller

Despite the problems of privacy protection and security, the respondents also shared that the appropriate information was readily available about the Buyer and Seller. Some shared that the information was available and incomplete. A minor number of participants shared that the information was not available at all.

4.8. Importance of Website Characteristics for Customer Satisfaction

4.8.1. Easy and Understandable Websites

A large number of respondents said that the websites are easy to use and understand. However, only 13% of respondents concluded that some websites are tricky to use without any guidance.

4.8.2. Convenient Layout and Design of Websites for a Layman

Figure 17 depicts that the design and layout of majority of the websites used for online buying and selling is convenient for a layman. However, there are certain technical difficulties that can be considered an issue for the person having no computer knowledge.

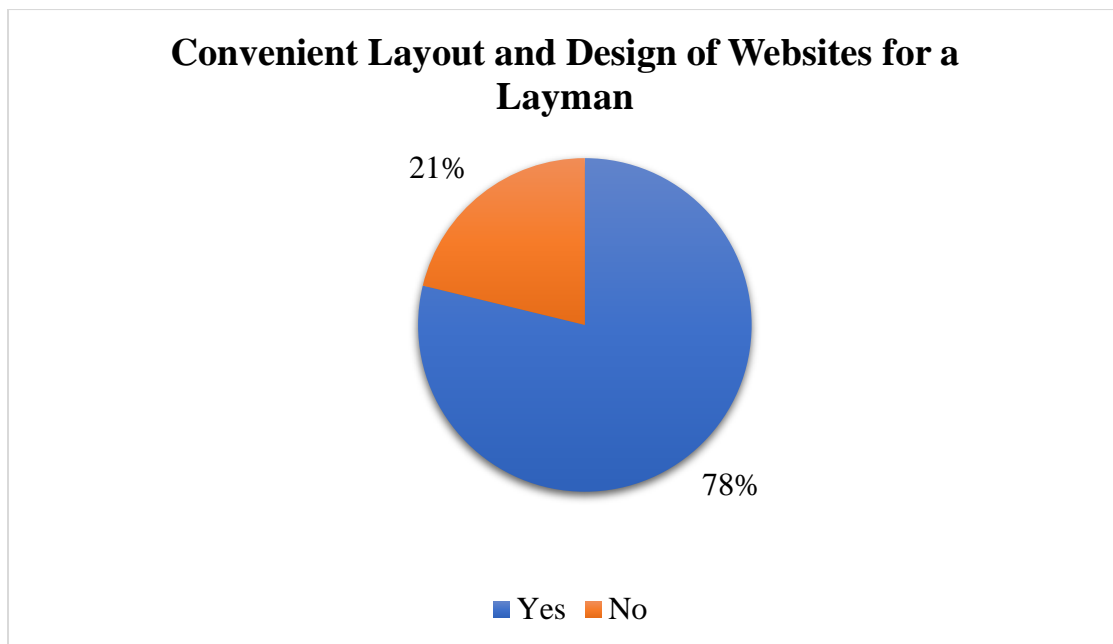


Figure 17: Convenient Layout and Design of Websites for a Layman

4.8.3. Searching Product Easily during Online Shopping

Around 85% of the respondents concluded that they did not have to work hard to find the product. Only searching the product name on the website gave us the required information. However, only 15% did not find it easy to find the required product.

4.8.4. Websites Updated with Most Recent Details

Around 76% of the participants viewed that the websites for online buying and selling were updated with the most recent details. Some people said that they do not know about the updates of the websites while only 22% showed that the websites are not updated at all.

4.8.5. Like the Process of Completing the Order

The respondents are asked to answer about their likeness of the process of product order. Around 89% of respondents said that they liked the process of completing the order while 11% showed that the process was not easy to handle and manage.

4.9. Repurchase Behavior

4.9.1. Like to Buy Product Again from the Same Website

The participants were asked about their repurchase behavior so that the trend can be measured in an effective way. Around 78% of participants considered that they will definitely buy from the same website. They explained that the features and the easy-to-handle options were the prime reason that they will use the same website again to get their desired product.

4.9.2. Telling Others About the Websites

The participants inferred that they will definitely tell others also to use the websites for their desired products, as these websites were quite easy to understand and manageable also.

4.9.3. Recommending the Website to Friends and Family

The following pie chart number 18 shows that around 77% of the participants said that they will recommend the websites that they used for finding their desired products. Only 20% of the participants showed that they will not recommend it, while 3% opted as 'Maybe'.

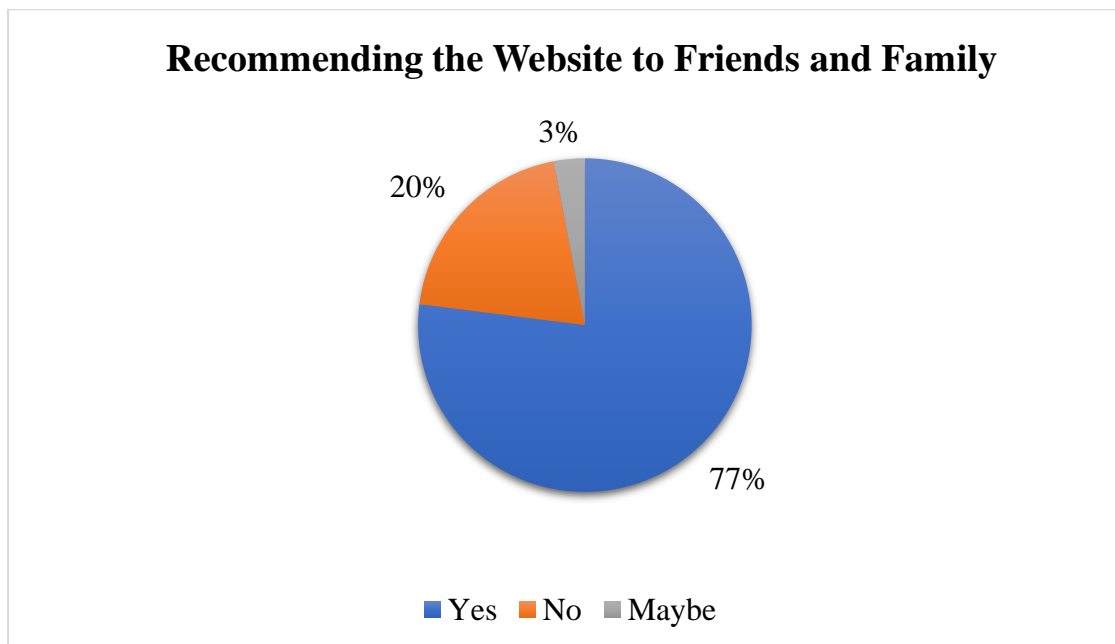


Figure 18: Recommending the Website to Friends and Family

4.10. Problems Faced by the Buyers/Sellers during Online Business in Pakistan

4.10.1. Problem Faced during Online Business in Pakistan

The following bar chart figure 19 shows that there are various problems that the respondents faced during online business in Pakistan. The figure shows that the logistics and product delivery issue is the major problem right now. This is followed by the extra taxes, payment problems, and data privacy and protection problems also. Some also faced issues related to unnecessary regulations, while some also opted that internet connectivity is also the major hurdle in online business in Pakistan.

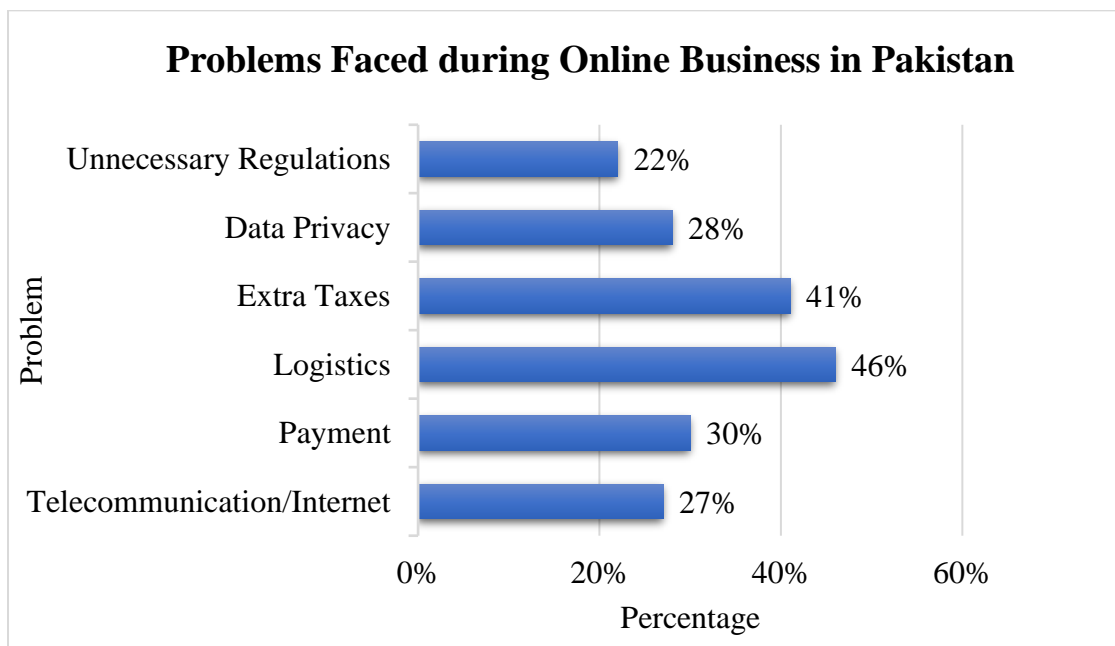


Figure 19: Problems Faced during Online Business in Pakistan

4.10.2. Awareness of Pakistan Government E-Commerce Policy 2019

The following pie figure 20 shows that around 61% of the respondents are not aware of the Pakistan Government E-Commerce Policy 2019, while only 39% of respondents are familiar with the E-Commerce Policy of Pakistan.

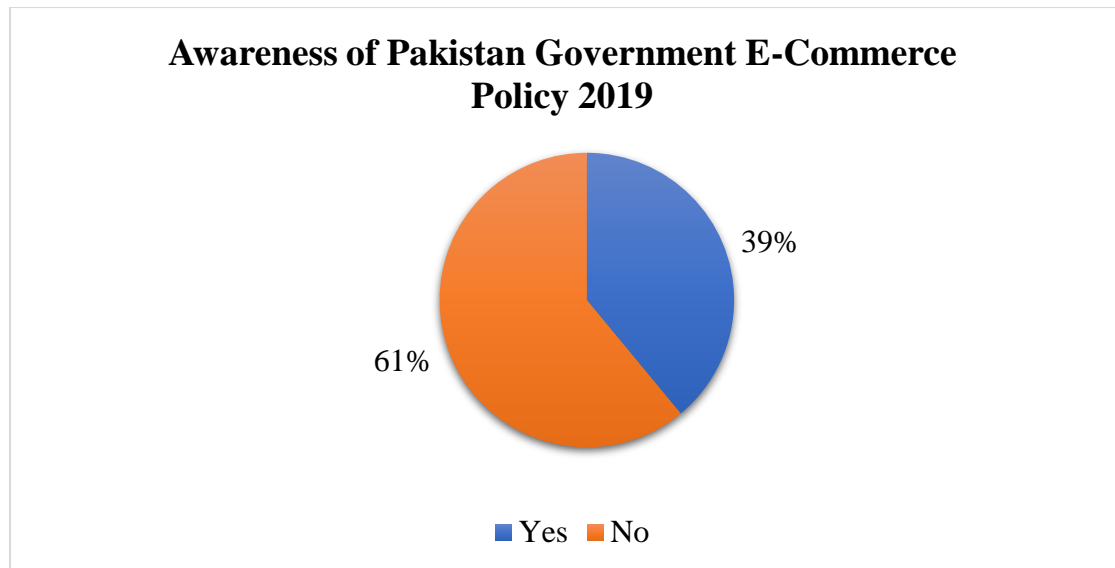


Figure 20: Awareness of Pakistan Government E-Commerce Policy 2019

4.10.3. Factors Improvement to Improve Digital Trade in Pakistan

The following results show that the respondents showed that there are various factors that needs to be improved so that the e-commerce can be improved in Pakistan. The results show that 39% of the participants are of the view that the taxation system needs to be improved further, followed by consumer protection, and regulations. Many also concluded that the internet connectivity problem should also be solved especially in remote areas of Pakistan.

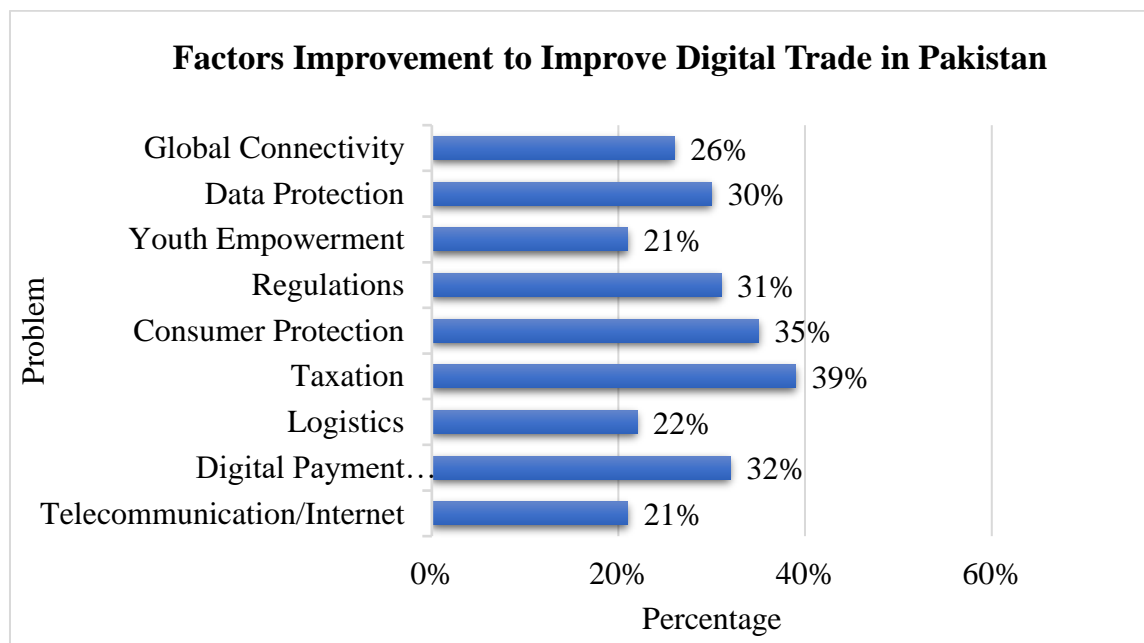


Figure 21: Factors Improvement to Improve Digital Trade in Pakistan

CHAPTER 05

5. Results 2nd Model

The second model is made on the basis of panel data of Pakistan, India, and Bangladesh. The data was collected from various secondary sources and then the impact of independent variables upon dependent variable has been determined. The methodology of this model is implemented using the study by (Ortiz, Rodriguez, & Gomez, 2020). The following model is used for all the three countries.

$$\text{Model 02: } EC_{it} = \text{constant} + \beta_{0it} + \beta_{1i}MCS_{it} + \beta_{2i}RD_{it} + \beta_{3i}GNI_{it} + \beta_{4i}Po_{it} + \varepsilon_{it}$$

5.1. Descriptive Statistic

The following table 07 shows the results of descriptive summary of the first model. The dependent variable is the e-commerce value, while the independent variables are mobile cellular subscriptions, research and development, gross national income, and internet penetration as policy variable. The summary shows the mean, standard deviation, minimum and maximum values of the 72 observations. The maximum value is internet penetration, which is 48.7, followed by gross national income which is 14.9917, then e-commerce value 11.37251 and then mobile cellular subscriptions and research and development.

Estimation Sample regress				
Number of Observation: 72				
Variable	Mean	Std. Dev	Min	Max.
LN E-commerce(Value)	5.272115	3.676184	-5.703783	11.37251
LN Mobile Cellular Subscription	3.136765	1.837075	-1.616742	4.736198
Research & Development	0.4197604	0.2351382	0.11566	0.85876
LN Gross National Income	12.89682	1.077459	11.36564	14.9917
Internet	7.888203	15.14387	0	48.7

Penetration rate (Policy Variable)				
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Table 8: Model 2 Descriptive Summary

5.2. Unit Root Test

The first step in the estimation of the first model is to check the unit root of the dependent variable and independent variables. The unit root will tell whether the series is stationary or not. The following table shows the results of the unit root tests that is applied on the variables. The Augmented Dicky Fuller test is applied first with level and then with first and second difference. The augmented dicky fuller probability shows the unit root existence in the series. If the probability value is greater than 0.05, then the null hypothesis is accepted showing that the series has unit root. Therefore, the series is tested on the first and second difference. Now, the probability value is smaller than 0.05, showing that we will reject the Null hypothesis. This means that the series is now stationary. The e-commerce value, which is dependent variable is stationary on first difference. The mobile cellular subscription, which is an independent variable is stationary at level. The next independent variable is research and development which is stationary at second difference, as its probability value is less than 0.05 at second difference. The gross national income is stationary at first difference. The internet penetration, which is showing the percentage of people using the internet is also stationary at second difference.

Variable	Level		First Difference		Second Difference	
	ADF Fisher Chi- square: Statistic	Probability	ADF Fisher Chi- square: Statistic	Probability	ADF Fisher Chi- square: Statistic	Probability
E-Commerce Transactions Value	3.66750	0.7216	21.7489	0.0013		
Mobile Cellular Subscriptions	22.6865	0.0009				

Table 10: Westerlund Test for Cointegration

5.4. Autoregressive Distributed Lag Model (ARDL)

From the Unit root tests, we know that the variables are stationary at level and first difference, then the autoregressive distributed lag model (ARDL model) will be applied to find the co-integration among the variables. The ARDL approach is applied on the basis of automatic selection of 4 lags, while the standard lag length criteria is followed by Akaike info criterion (AIC).

5.5. Applying ARDL

The model is explained by the value of R-squared which is 0.99, showing that the 99% variation is explained in determining the e-commerce value. The value of Durbin Watson test also shows the absence of autocorrelation. The results show that the gross national income, mobile cellular subscriptions, research and development, and internet penetration have a positive relation with e-commerce transactions value.

Dependent Variable: LN_EC				
Method: ARDL				
Variable	Coefficient	Std. Error	t-Statistics	Prob.*
LN_EC(-1)	0.918840	0.015136	60.70482	0.0000
LN_GNI	1.074395**	0.207897	5.167928	0.0000
LN_GNI(-1)	-0.992288	0.223443	-4.440892	0.0000
LN_MCS	0.596234**	0.075747	7.871351	0.0000
LN_MCS(-1)	-0.503836	0.067279	-7.488752	0.0000
RD	1.458681	0.807687	1.805998	0.0758
RD(-1)	-1.212980	0.876255	-1.384277	0.1712
INT_	0.007215**	0.002912	2.477500	0.0160
C	-0.948695	0.933783	-1.015969	0.3136
R-squared	0.995042			
AIC	0.252114			
DW Test	1.920395			

**5% Level of Significance

Table 11: ARDL Author's Own Calculation

All these independent variables show the probability value less than 0.05, thereby showing significant relationship. The dependent variable e-commerce shows the higher the gross national income, the e-commerce value will rise. The mobile cellular subscription also shows that e-commerce will increase by 0.59. The research and development also depict the positive relationship. The internet penetration, which is used as policy variable shows that the e-commerce value will rise by 0.007, if the relevant policy is implemented, while ensuring the internet infrastructure in the respective country (Ortiz, Rodriguez, & Gomez, 2020).

5.6. Applying Bound test

The next procedure is to apply the bound test on the model which explains the long run relationship between the variables. The f-statistics value shows that it is 9.57 which is greater than the value of upper bound limit, thereby rejecting the null hypothesis of no relationship. This proves that the variables show co-integration and have long-run relationships.

Null hypothesis: No levels relationship				
F-Bounds Test	Value	Significance Level	Lower I(0)	Upper I(1)
		10%	2.2	3.09
F-statistics	9.575585	5%	2.56	3.49
k	4	2.5%	2.88	3.87
		1%	3.29	4.37

Table 12: Bounds Test

CHAPTER 06

6. Results 3rd Model

The third model has been made to compare the three countries' e-commerce profile with their respective economic growth. The methodology of this model is applied using the study done by (Zatonatska, 2018). The following model is used for all the three countries.

$$\text{Model 03: } \ln \text{ GDP PC}_{it} = \beta_{0it} + \beta_{1i} \ln \text{ GCF}_{it} + \beta_{2i} \ln \text{ IP}_{it} + \beta_{3i} \ln \text{ Ecom}_{it} + \beta_{4i} \text{ TO} + \varepsilon_{it}$$

6.1. GDP Per Capita

The third model is used to check the relationship between the GDP per capita of Pakistan, India, and Bangladesh e-commerce value. The GDP per capita is used as dependent variable, while the independent variables include gross capital formation, internet penetration rate, e-commerce transactions value, and trade openness. These variables are used to check whether the GDP per capital has a positive relationship with these variables or not. Simple least square technique is applied to find the relationship between the variables.

The following figure 22 shows the GDP per capita of Pakistan, India, and Bangladesh. It can be seen that from year 2010, the per capita GDP of India was highest, followed by Pakistan and then Bangladesh. Due to technological advancements in all the countries, the internet played a major role in changing the dynamics of trade and investment. This change ultimately impacted the per capita GDP of the three countries. In year 2022, the per capita GDP of India was highest, followed by Bangladesh and then Pakistan.

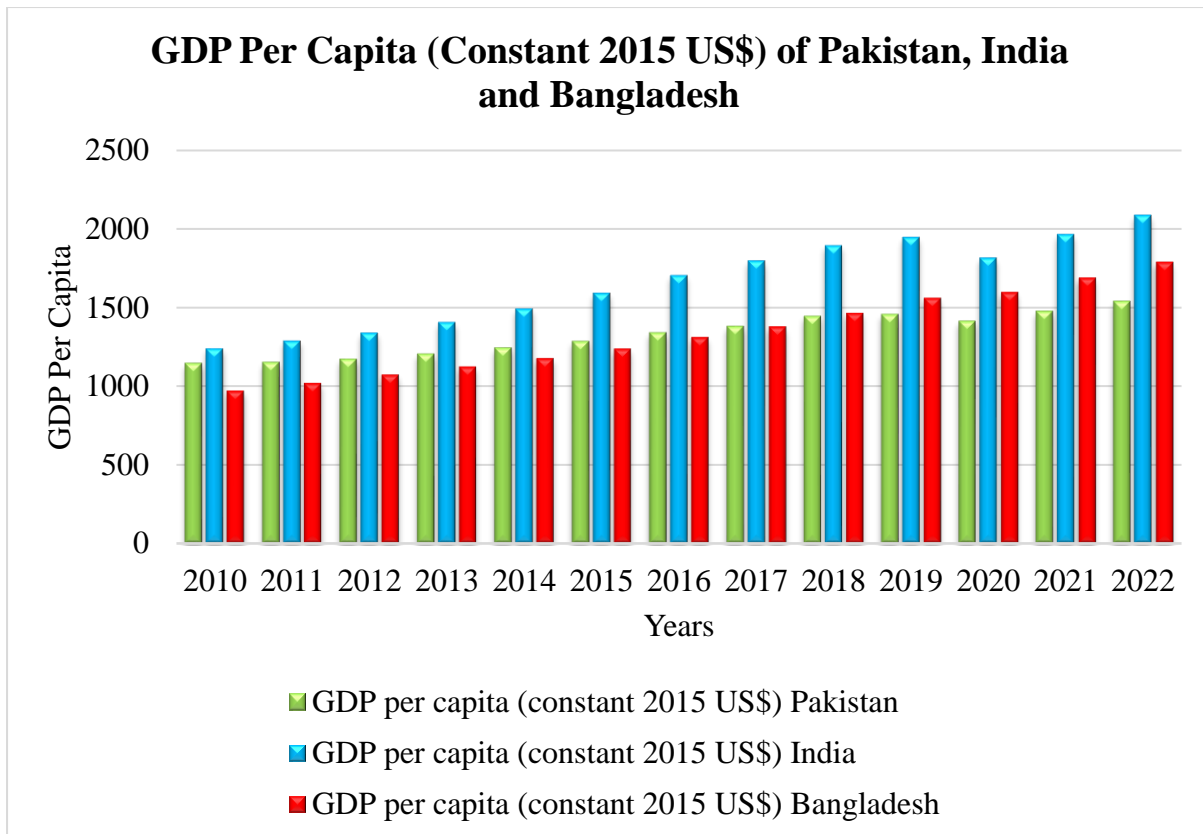


Figure 22: GDP Per Capita of Pakistan, India, and Bangladesh
 Source: (World Bank, 2020)

6.2. Unit Root Test

The first step in the estimation of the third model is to check the unit root of the dependent variable and independent variables. The unit root will tell whether the series is stationary or not. The following table shows the results of the unit root tests that is applied on the variables. The Augmented Dicky Fuller test is applied first with level and then with first and second difference. The Augmented Dicky Fuller probability shows the unit root existence in the series. If the probability value is greater than 0.05, then the null hypothesis is accepted showing that the series has unit root. Therefore, the series is tested on the first and second difference. Now, the probability value is smaller than 0.05, showing that we will reject the Null hypothesis. This means that the series is now stationary. The GDP per capita value, which is dependent variable is stationary at first difference. The gross capital formation, which is an independent variable, is also stationary at first difference. The next independent variable is internet penetration which is stationary at level. The trade openness and e-commerce transactions value are also stationary at a level.

Variable	Level		First Difference	
		Probability		Probability
GDP Per Capita		0.1580		0.0000
Gross Capital Formation		0.3549		0.0000
Internet Penetration		0.0096		
Trade Openness		0.0048		
E- Commerce Value		0.0415		

Table 13: Model 3 Unit Root

6.3. Pakistan Third Model Results

The following figure shows the results of the third model in which the dependent variable is the GDP per capita while the independent variables are e-commerce value, gross capital formation, internet penetration, trade openness. The results show that the all the variables have a positive relationship with GDP per capita except the trade openness. The trade openness is the only insignificant variable having a negative relationship with the GDP per capita. There are various studies that show that the relationship between the GDP per capita and trade openness is positive such as (Dollar, Outward-Oriented Developing Economies Really Do Grow More Rapidly: Evidence from 95 LDCs, 1992), (Dollar & Kraay, Trade, Growth and Poverty, 2004), and (Sachs & A, 1995). However, the sign of the relationship between trade openness and GDP per capita is ambiguous, as various studies could not find solid evidence (Rodriguez, 2007). Although, it has determined that assuming all other things constant, countries that have low GDP per capita are likely to grow faster than the countries having high GDP per capita (Vehapi, Sadiku , & Petkovski, 2015). The Durbin Watson test also indicates that there is no autocorrelation in the model.

Dependent Variable: LN_GDP_CAPITA				
Method: Panel Least Squares				
Variable	Coefficient	Std. Error	t-Statistics	Prob.*
C	0.324985	1.256403	0.258663	0.7992
IN_LN_ECOM	0.008806	0.005004	1.759899	0.0975
IN_LN_GCF	0.262480	0.051958	5.051771	0.0001
IN_LN_INT	0.122798	0.018950	6.480193	0.0000
IN_LN_TO	-0.073718	0.042910	-1.717980	0.1051
AR(1)	0.288854	0.041775	6.914503	0.0000
R-squared	0.989338			
DW Test	2.007916			

Table 14: OLS for Pakistan; Author's Own Calculation

6.4. India Third Model Results

The following figure shows the results of the third model in which the dependent variable is the GDP per capita while the independent variables are e-commerce value, gross capital formation, internet penetration, trade openness. The results show that all the variables have a positive relationship with GDP per capita except the trade openness. The internet penetration variable shows a positive relationship, but it is insignificant. The reason includes that the people using the internet are not as significant as other variables to the variable of GDP per capita, however they depict positive relationship. It means with an increase in the value of people using the internet, the per capita GDP will also rise. The trade openness is the significant variable having the negative relationship with the GDP per capita. The sign of the relationship between trade openness and GDP per capita is ambiguous, as various studies could not find solid evidence of being in a positive relationship (Rodriguez, 2007). Although, it has determined that assuming all other things constant, countries that have low GDP per capita are likely to grow faster than the countries having high GDP per capita (Vehapi, Sadiku, & Petkovski, 2015). The Durbin Watson test also indicates that there is no autocorrelation in the model.

Dependent Variable: LN_GDP_CAPITA				
Method: Panel Least Squares				
Variable	Coefficient	Std. Error	t-Statistics	Prob.*
C	-0.788569	1.991043	-0.396058	0.6976

LN_LN_GCF	0.255050	0.075049	3.398446	0.0040
LN_LN_INT_	0.038690	0.036525	1.059286	0.3062
LN_LN_TO	-0.269516	0.054331	-4.960645	0.0002
LN_IN_ECOM	0.091420	0.018081	5.056158	0.0001
AR(1)	0.424530	0.263338	1.612109	0.1278
AR(2)	-0.643621	0.417009	-1.543423	0.1436
SIGMASQ	0.000526	0.000189	2.776039	0.0141
R-squared	0.995012			
DW Test	2.182989			

Table 15: OLS for India; Author's Own Calculation

6.5. Bangladesh Third Model Results

The following figure shows the results of the third model of Bangladesh in which the dependent variable is the GDP per capita while the independent variables are e-commerce value, gross capital formation, internet penetration, trade openness. The results show that all the variables have a positive relationship with GDP per capita except the trade openness and internet penetration. The e-commerce value variable shows a positive relationship, but it is insignificant as its probability value is greater than 0.05. It means that in this model, the e-commerce transactions value does not play a significant role for the GDP per capita. The positive relation between internet penetration shows that the increase in the value of people using the internet will cause the per capita GDP to rise. The trade openness is the insignificant variable having the negative relationship with the GDP per capita. The sign of the relationship between trade openness and GDP per capita is ambiguous, as various studies could not find solid evidence of being in a positive relationship (Rodriguez, 2007). Although, it has determined that assuming all other things constant, countries that have low GDP per capita are likely to grow faster than the countries having high GDP per capita (Vehapi, Sadiku, & Petkovski, 2015).

Dependent Variable: LN_GDP_CAPITA				
Method: Panel Least Squares				
Variable	Coefficient	Std. Error	t-Statistics	Prob.*
C	-7.057480	1.529084	-4.615496	0.0003
LN_LN_GCF	0.568762	0.066674	8.530504	0.0000
LN_LN_INT_	-0.001236	0.017131	-0.072123	0.9434
LN_LN_TO	-0.038228	0.034531	-1.107056	0.2846
LN_IN_ECOM	0.011431	0.019410	0.588899	0.5642
AR(1)	0.596405	0.282556	2.110753	0.0509

SIGMASQ	0.000110	4.06E-05	2.717140	0.0152
R-squared	0.998905			
DW Test	1.811863			

Table 16: OLS for Bangladesh; Author's Own Calculation

CHAPTER 07

7. Discussion and Analysis

The three models depict that the e-commerce is going to be the most important component of a country's economic dependence. Using digital technology, the trade has revolutionized, creating ample opportunities for the unemployed people also. The first model showed the current status of digital trade in Pakistan, the second model showed the panel relationship of Pakistan, India and Bangladesh between the e-commerce and other independent variables such as gross national income, internet penetration as policy variables, research and development, and mobile cellular subscription. Now, the policy document will be analyzed using these three model results and the major components of the e-commerce policy of all three countries.

7.1. Regulatory and Facilitation Environment

The regulatory and facilitation environment is one of the foremost component for the digital trade. The regulations are used to guide businesses to earn profit. The facilitation environment is necessary to boost up the trade in the country. There are various stakeholders that are interested in this e-commerce policy of Pakistan. These include freelancers, business owners, industries, financial institutions, revenue authorities, small medium enterprises, and the consumers. These stakeholders are greatly influenced by the e-commerce policy. Pakistan's first e-commerce policy was introduced in 2019 (Government of Pakistan - Ministry of Commerce, 2019). This policy made a national e-commerce council for dealing the operational matters of the digital trade. This council will provide the facilitation and encourage the youth, women entrepreneurs to focus on the digital trade in Pakistan.

Apart from this, the e-commerce is treated under the domain of traditional commerce in terms of regulation. The e-commerce must be separated from the traditional commerce, as there are a lot of issues in carrying out the digital trade under these conditions. The most important one is the lack of digital infrastructure. The traditional commerce, which is being operated under the ministry of commerce, must be separated from the e-commerce.

In Indian e-commerce policy (Raghuraman, 2022), the major focus is given on the local businesses instead of foreign markets. The Indian government criticized the foreign e-commerce markets a lot, which paved the way to regulate the entire e-commerce industry. The foreign market players exploit the rules to gain an advantage over the local market. If we

compare such technique with Pakistan, Pakistan is lacking in the policy framework and implementation. The digital landscape in Pakistan is not as broad as in India, the people still prefer to do business in foreign markets as compared to the local markets due to lack of trust on government and regulatory bodies. If compared with Bangladesh e-commerce policy, the major concern is again controlling the exploitation of local industries. The foreign investors are allowed to do business in Bangladesh, but they are only restricted to China, so that the local industry can be prioritized first (Government of Bangladesh - Ministry of Commerce, 2018).

7.2. Financial Inclusion and Digitalization through Payment Infrastructure Development

The financial inclusion and digitalization through payment infrastructure development is one of the foundational steps to reach the peak of digital trade. The internet is the one element that provides the solid base to start the e-commerce. Without or slow internet connection, the digital trade can never be successful. Pakistan is lacking in digital infrastructure due to lack of digital knowledge and ideas in the top offices of government. The lack of digital knowledge can be justified by the lack of budget and investment in the digital sector of Pakistan. The e-commerce policy of Pakistan puts special emphasis on this factor. This policy's main aim is to enable the financial institutions to cater for electronic transactions and encourage the new players into the market of digital technology. Its secondary aim is to discourage the cash on delivery payment method and include only the digital payment methods such as debit/credit card payments, and jazz cash/easy paisa payments.

Sada pay is also one of the financial institution in Pakistan that ensures the smooth transfer of money from one place to another. The recent news about the 'Paypal' coming to Pakistan is also an achievement because this step will pave the way to reduce the hurdles during payment transactions. The developed cities of Pakistan have already good internet connections, but the digital infrastructure must be developed in remote areas so that the remote villages can also get benefit from these facilities. The State Bank of Pakistan RAAST payment system is an example through which the instant digital payments can be achieved. It can enable end-to-end digital payments among consumers, business entities and government organizations instantly (State Bank of Pakistan, 2021). It can provide enhanced security, low-to-no transaction costs, full sector-wide interoperability, and customer-centric innovative products and services.

Indian e-commerce introduced India's newest and most ambitious initiative, known as 'The Open Network for Digital Commerce' (ONDC), that aims to decrease the digital monopolies and make the digital trade industry more inclusive for both the buyers and sellers (Raghuraman, 2022). This initiative would establish common interoperable frameworks and protocol that can facilitate the buyers and sellers to operate across different e-commerce platforms. Pakistan's e-commerce landscape must establish such kind of open network that can facilitate both the buyers and sellers without any hurdle during digital payments. In Bangladesh, the digital trade is growing at a much faster rate than other countries. Their digital landscape also focusses on the inclusion of efficient financial institutions such as 'Paypal', so that the digital payments issues can be solved.

7.3. Global Connectivity and Multilateral Negotiations - World Trade Organization Work Programme on Electronic Commerce

This factor is also paramount for the implementation of successful e-commerce policy. The trends on which the current global community is working, must also be carried out in Pakistan. The policy makers should put a greater emphasis on the recent multilateral negotiation around the world, so that such changes can be brought forward to our home country. The global connection between the countries must be increased, as this can solve the problems of each country doing the trade.

The World Trade Organization has made a system of agreements, through which it can liberalize the international trade. It provides the legal architecture on how to liberalize the international trade. These discussions are happening in two parallel tracks. The WTO Work Program on Electronic Commerce (WPEC) was started in 1998. It was based on the non-negotiating and exploratory nature discussions. The second is the Joint Initiative (JI) on electronic commerce, which focusses on the binding agreement among its members. In 2017, the 11th Ministerial Conference was held, in which the Joint Initiative was made to solve the issues in electronic commerce. The initiatives also focused on the investment facilitation and domestic regulations of the member countries. The themes involved in these initiatives include enabling electronic commerce, openness and e-commerce, trust and e-commerce, cross-cutting issues, telecommunications, and market access (Digital Watch, 2020).

The extensive discussions are held recently in the WTO 13th Ministerial Conference, March 01, 2024. These discussions reached an agreement that the custom duties must be prohibited temporarily to encourage the electronic commerce among the member states.

However, India wanted to re-examine the implications of the moratorium, especially in the case of developing and least developed countries. The 13th Ministerial Conference focused on dedicated discussions on e-commerce topics and issues. The impact of custom duties was also analyzed especially to maintain a level playing field for both the developed and less developed countries. The Conference also addressed the challenges in the digital trade. It highlighted the collaboration among the member countries to solve the problems in digital trade (Thomson Reuters, 2024). The General Council of WTO has been given a task to conduct periodic reviews of this work program. All the member nations also agreed to maintain the current practice of not imposing custom duties until the 14th Ministerial Conference.

The member countries expressed their willingness to start the WTO negotiations on e-commerce. These negotiations can be extremely beneficial for all the countries. The developing countries are trying to access the free flow of data, which can enhance their digital trade. The developing countries such as Pakistan and Bangladesh, want to get their digital problems solved using these negotiations. The major reason to join these negotiations is to control the unnecessary regulations of the government in the digital trade. However, India showed its concerns of using unrestricted access to data. Due to this reason, India chose not to align itself with these negotiations. The concern of India shows that the developing countries need policy space in ownership and use of data in cloud computing, artificial intelligence, and data storage.

In 2024, the first round of electronic commerce negotiations started, in which the Australia, Japan, and Singapore welcomed the participation of other countries to achieve mutual agreement on e-commerce. Pakistan must take practical steps to participate in such initiatives, which can be extremely beneficial for the economy and digital trade, because the success in electronic commerce can only be achieved through global connectivity and multilateral negotiations. There are various advantages that Pakistan can gain from these initiatives. These agreements can provide market access through which Pakistan can reach international markets and consumers. It can also improve the cross border electronic commerce trade of Pakistan. Due to these programs, the limited technology problem can be solved. The new digital payment gateways can be beneficial for the local industry of Pakistan. This will ultimately improve the overall economic growth of the country.

However, there are various disadvantages as well that need to be addressed. Due to market access, the competitive pressure can phase out the local industry which might be harmful for the country's economic growth. The regulatory burden is also a challenge in Pakistan digital trade. The compliance in these negotiations may bind the producers and service providers, which can affect the electronic commerce. Such negotiations can provide benefits to urban areas as compared to rural areas due to the digital divide in the country. Despite these challenges, joining these negotiations will benefit Pakistan in long term. It can provide solutions to the challenges related to digital trade. The digital infrastructure can be improved which will undoubtedly benefit overall economy of Pakistan.

7.4. Empowerment of Youth and Small Medium Enterprises through E-Commerce

Due to global inflation and also covid-19, the youth were badly affected due to lack of employment opportunities. In this regard, the youth empowerment is extremely important, as in Pakistan the young people constitute a major part of the population. The e-commerce policy focused specifically on empowerment of youth and small medium enterprises. The technological advancements must ensure that youth can benefit from it. The young people can initiate startups, so that they can also participate in the economy of Pakistan. Government of Pakistan initiated various steps that give loans to youth for their startups. Comparing it with Indian and Bangladesh e-commerce framework, both policies focused specifically on youth and women entrepreneurs also. Pakistan must include the youth and women entrepreneurs into the policy making process especially of digital trade policy. This will ensure the empowerment of youth and women also.

7.5. Taxation Issues

One of the most important hurdles in ensuring the smooth completion of digital trade transactions is the taxation. The e-commerce policy especially focused on the issues of taxation, in which the tax on digital products and services will be determined. The policy encourages the emerging ideas to start digital trade as it does not tax the industry in these initial years of the e-commerce industry. The provincial governments are also encouraged to incentivize the online businesses and revision of sales tax. The issues of double taxation must also be addressed. Indian and Bangladesh e-commerce policy also ensured the smooth completion of digital trade by giving incentives to the stakeholders of digital trade. The taxes are imposed on the foreign companies only, so that the local businesses can be saved from the

foreign companies' monopolies. Pakistan must start to make its tax process easy and reliable, so that a common man can understand it with ease. The taxation system must be changed, and the new industries must be given credit instead of taxes. When this industry of digital trade becomes old enough, then tax should be imposed.

7.6. Consumer Protection in the Digital Environment

The success of an e-commerce business largely depends on the protection of consumers data in the digital environment. The confidence of the consumers on the current digital market framework is not sufficient. The first model results show that the consumers are showing confidence in dealing with online buying and selling, but they are not totally satisfied with the service of data protection. The consumers must be given reliable framework so that they can be secured from online fraudulent activities. The general awareness must be raised so that the consumers can know about their rights of protection. The e-commerce policy of India and Bangladesh specifically focused on the consumers in the domestic market as compared to foreign investors. A solid dispute resolution mechanism should be built up to address the concerns of consumers regarding their grievances.

7.7. Information and Communication Technologies (ICT) Sector and Telecom Services

The Information and Communication Technologies sector is one of the most important and foremost steps through which digital trade can be successful. The telecom sector is also important for the communication purposes. All the three e-commerce policies focused on initiating the digital framework, in which the ICT sector will be given special attention. The Government should start attracting foreign investment in the telecom sector especially in the remote areas of Pakistan. The internet connectivity issues should also be solved, as the stakeholders are greatly affected by the low internet connection. The launch of 3G/4G band in Pakistan paved the way of internet breakthrough. The internet users increased rapidly after the launch of the internet providing companies. The following figure compares the mobile cellular subscription in Pakistan, India, and Bangladesh. The figure shows that the performance of Pakistan has been declining in this sector. Therefore, immediate steps should be taken to bring advanced technology into the country.

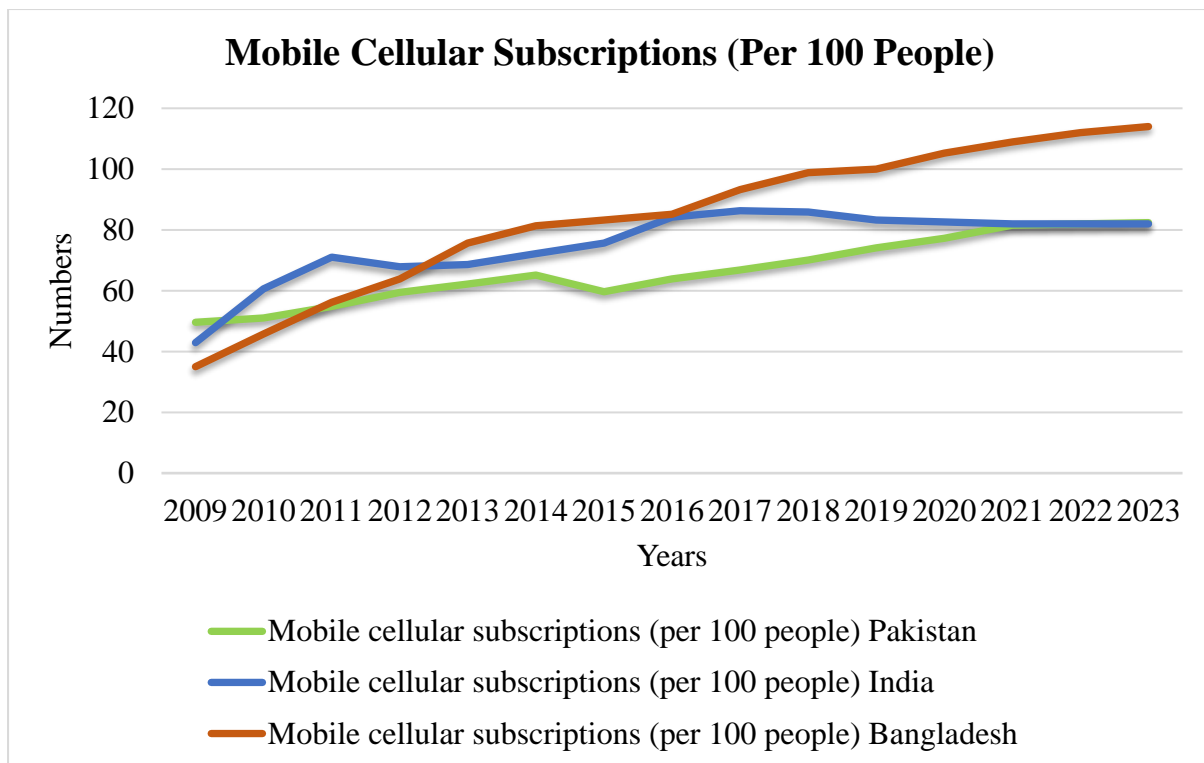


Figure 23: Mobile Cellular Subscriptions (Per 100 People) of Pakistan, India, and Bangladesh
Source: (World Bank, 2020)

7.8. Logistics

For the success of e-commerce, logistics is also an important component. The logistics provides the supply chain through which the products and services are transferred from one place to another. The logistics barriers should be dealt with according to the demands of the consumers in the market. Logistics play an important role in the B2C model in which the trade is between the businesses and consumers. The e-commerce policies of Bangladesh and India focused on the upgradation of logistics support. The standard roads and highways are extremely important to upgrade the logistics performance index.

7.9. Data Protection and Investment

Data is often termed as the oil of the digital trade industry. Without its protection, the trade would not be possible. It is very important to save and make proper use of the generated data, so that future policy decisions can be effectively implemented. Recently the Ministry of Information Technology and Telecommunication started the process of Pakistan's first policy of cloud and the bill of data protection is also at the final stages. These laws and regulations will improve the existing data protection issues and problems within the country.

CHAPTER 08

8. Conclusion and Policy Recommendations

The ways of doing business are changing. Due to technological progress, the digital trade is becoming extremely popular in the world. The objective of this thesis was to analyze the e-commerce policy of Pakistan, India, and Bangladesh.

It is concluded that the first model evaluated the current situation of e-commerce in Pakistan. It covered different areas in which the current customer satisfaction was evaluated. The evaluation is done on the basis of various variables such as technology, internet, communications, data protection, privacy, e-commerce websites and online buying/selling problems. The first model concluded that the people in Pakistan are generally inclined to do shopping physically. However, the sample shows that the people who did online shopping are satisfied with most of the component. Some hurdles are present in which the customers are not fully satisfied with the current status of digital commerce in Pakistan. These include the high delivery costs, lack of internet facilities, lack of knowledge about online business, and no complaint redressal mechanism. These are some of the problems in the current level of digital trade in Pakistan.

The second model concluded that the variables such as e-commerce transaction value is dependent upon various other factors. These include the gross national income, internet penetration, mobile cellular subscriptions, and research and development expenditure. All these variables show the positive results. It means that the change in independent variable will bring positive change in the e-commerce transactions value in the country. The estimation technique of Autoregressive Distributed Lag Model (ARDL) and Bound Testing Approach is applied, which show the long run relationship between the variables.

The third model concluded that the GDP per capita is greatly influenced by the e-commerce value, internet penetration, trade openness, and gross capital formation. All these variables show positive result except trade openness, which means that the positive change in the independent variable will bring a positive increase in the GDP per capita of the three countries. The results of all three countries were somehow similar. However, in some legal framework, India has a more robust digital trade framework than Pakistan and Bangladesh.

It is concluded that Pakistan must change its existing e-commerce policy, by taking the practical guidelines from India and Bangladesh. Both these countries have a much better policy as compared to Pakistan. Pakistan should actively engage in international discussions concerning the advancement of electronic commerce. By actively participating in forums such as World Trade Organization negotiations, Pakistan stands to gain invaluable insights into global best practices. Pakistan can achieve success in digital trade by incorporating these insights into its legislative framework, which would not only enhance its e-commerce sector, but also foster economic growth and competitiveness on a global scale. In 2019, Pakistan's e-commerce policy was introduced but due to lack of political stability, it could not be carried forward. Our first model results also show that majority of the people doing online business in Pakistan are not aware of the e-commerce policy of Pakistan. The policy recommendations show that the legal framework of e-commerce must be changed. The internet connectivity issues must be solved especially in remote areas of Pakistan. The foreign investment must be put into the technology and communication sector so that the digital trade can be increased. The customer privacy and data protection must be given top priority. The logistics and taxation issues must be streamlined. The digital trade is in its infancy stage in Pakistan; therefore, the policy makers should give some incentive to the industry so that it can be expanded further just like it expanded in India and Bangladesh.

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Annexure

Questionnaire Survey for E-commerce Business in Pakistan

Following forty-three questions are asked to find out the customer satisfaction level of the respondents doing business to consumer (B2C) e-commerce business in Pakistan. The data taken has remained confidential and is only be used to improve the existing electronic commerce policy of Pakistan. The major respondents are the buyers, sellers, regulators, and private companies which are doing e-commerce business in Pakistan.

Section I: Participants' Profile
1) What describes your gender?
2) What is your age?
3) What is your education level?
4) What is your occupation?
5) How much is your household income?
6) Since when are you doing online business?
7) How many times do you shop online?
Section II: Purchasing Behaviors of Customers doing E-commerce
1) Which factors encouraged you to buy products online?
2) Which factors discouraged you to do online shopping?
3) Which goods or services did you buy online?
4) Which mode of payment did you prefer during online shopping?
5) From which sources did you learn about e-commerce websites?
Section III: Product Characteristics During Online Buying/Selling
1) Was the product easily available online?
2) Did you find different ranges of products online?
3) What was the quality of packaging of products you ordered online?

4) Are you satisfied with the products you ordered online?
Section IV: Services Provided by Websites
1) What was the quality of information available on websites?
2) How was the response and feedback on the websites?
3) Are you satisfied with the accuracy and completeness of shipment?
4) Was the product delivery on time?
Section V: Network System and Customers Satisfaction Levels
1) Was the system easily accessible?
2) Were you given guidance to entry errors?
3) Did you face any technical problems during ordering or payment?
Section VI: Payment System and Customers Satisfaction Levels
1) Are you satisfied with the time lapse of order and delivery?
2) Were the different payment method options available?
3) Are you satisfied with the protection of your payment information during online buying/selling?
4) How appropriate were the delivery charges?
Section VII: Privacy Protection and Customers Satisfaction Levels
1) Do you think the system of privacy protection is reliable and trustworthy?
2) Are you satisfied with the given privacy and security during online buying/selling?
3) Do you think your private information is protected online?
4) Were you given appropriate information about the buyer/seller?
Section VIII: Website Characteristics and Customers Satisfaction Levels

1) Were the websites easy to use and understand?
2) Do you think the websites' layout and design was convenient?
3) Did you find it easy to search for the product on the website?
4) Were the websites updated with most recent details?
5) Did you like the process of completing the product order?
Section IX: Repurchase Behavior
1) Would you like to purchase the products again from this website?
2) Would you like to tell others about this website?
3) Would you like to recommend this website to your friends and family?
Section X: Problems faced by the Buyers/Sellers during Online Business in Pakistan
1) Which major problems did you face during online business in Pakistan?
2) Are you satisfied with the Government of Pakistan E-commerce policy 2019?
3) As a seller, do you think Pakistan has the potential to generate billions of dollars using e-commerce?
4) What major changes would you like to suggest the Government of Pakistan to improve the e-commerce business?

Third Model Descriptive Statistics

The following table shows the results of the descriptive summary of the third model. The dependent variable is the GDP per capita, while the independent variables are gross capital formation, internet penetration, trade openness, and e-commerce transactions value. The summary shows the mean, standard deviation, minimum and maximum values of the 69 observations. The maximum value is of gross capital formation, which is 27.62953, followed by e-commerce transactions value which is 11.33857, then GDP per capita 7.642582 and then internet penetration and trade openness.

Estimation Sample regress				
Number of Observation: 69				
Variable	Mean	Std. Dev	Min	Max.
LN GDP Per Capita	7.058383	0.290927	6.470858	7.642582
LN Gross Capital Formation (Constant 2015 US\$)	25.23549	1.283334	23.54392	27.62953
LN Internet Penetration	1.675699	1.625998	-2.813411	3.871201
LN Trade Openness	-1.026136	0.272631	-1.852338	-0.599679
LN E-Commerce Transactions Value	5.117278	3.650327	-5.703783	11.33857

Author's Own Calculation