

**IMPACT OF POVERTY ON FINANCIAL
DEVELOPMENT UNDER MODERATING ROLE OF
ICT AND TRADE OPENNESS IN SELECTED SOUTH
ASIAN COUNTRIES**



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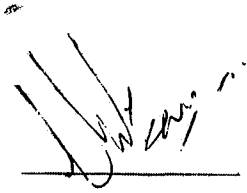
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CERTIFICATE

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**This Paper is dedicated to my parents, brothers, sisters,
and teachers**

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ABSTRACT

Several studies investigated the impact of financial development on poverty and find out that it may lower down the poverty level of the country. In the current study we investigate the relationship of financial development and poverty in other way around that poverty can also be a factor that can affect the development of financial sectors. The main aim of the study is to find the impact of poverty on financial development along with taking in consideration the moderating role of ICT and trade openness. This analysis is carried out for selected South Asian countries i.e., Pakistan, India, Bangladesh, Sri Lanka, and Nepal, from 1984-2020. In the study, we used the panel ARDL to determine the impact of poverty on financial development. Secondly, we checked for the moderating role of trade openness and Information and Communication Technology (ICT) on poverty and financial development. Finally, we checked for the Asymmetric effect of poverty, trade openness, and ICT on financial development by applying Nonlinear ARDL. Results have shown that higher poverty rates undermine the development of the financial sector. Significantly, higher poverty rates undermine the expansion of the financial sector in the context of lower levels of trade openness and ICT. Thus, greater trade openness and ICT help mitigate poverty's negative financial development effect. From the result, we also find that poverty, trade openness, and ICT have asymmetric impacts on poverty and financial development.

Keywords: Poverty, financial development, trade openness, ICT

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LIST OF ABBREVIATIONS

Acronym	Description
ARDL	Autoregressive Distributive Lag
ECM	Error Correction Model
ECT	Error Correction Term
FD	Financial Development
FINOP	Financial Openness
GDP	Gross Domestic Product
ICT	Information and Communication Technology
IMF	International Monetary Fund
INST	Institution Quality
MG	Mean Group
NARDL	Non-Linear Autoregressive Distributive Lag
PMG	Pool Mean Group
POPD	Population Density
POV	Poverty
SAV	Saving Rate
STPF	Strategic Trade Policy Framework
TO	Trade Openness
WDI	World Development Indicator

CHAPTER 1

INTRODUCTION

1.1 Introduction

Financial development is commonly characterized as an expansion in the level of monetary administration given through banks as well as financial services, which involved like investment funds by shareholders, insurance companies, and benefit assets in addition to an expansion in the monetary transaction in the capital market such as stock, bond and derivative market (Hussain & Chakraborty, 2012). The financial sector is the arrangement of organizations, instruments, and markets, just as the lawful and administrative system that grants exchanges to be made by broadening credit (Satti et al., 2015)

Over time, many studies have investigated the relationship between economic growth and financial development. Economists disagree regarding the relationship between the financial and real sectors. According to several researchers, the financial sector plays an important role in the economic growth of a country. In contrast, others claim that economic growth is responsible for financial development. But many factors can affect economic growth, and poverty can also be among those factors. Therefore, poverty may affect financial development as well.

Regarding the expected effect of poverty on financial development, (Patrick, 1966) has underlined the ‘supply-leading’ and ‘demand-following’ aspects of financial development. The supply-leading role of financial development was initially discussed in the work of (Schumpeter, 1934). He argued that well-functioning banks encourage technological innovation, leading to economic growth. Moreover, the study stressed the role of finance as a prerequisite for growth. The supply-leading function of financial institutions is based on the assumption that financial institutions promote the transfer of resources from traditional to contemporary industries. (Goldsmith, 1969;

Gurley & Shaw, 1955). Furthermore, countries with higher levels of economic development are more likely to experience larger economies of scale in financial services providing, which would encourage financial growth. (Harrison et al., 1999; Zang & Kim, 2007).

According to the demand following hypothesis, development in real sector growth brings development in the financial sector through "growth-led finance." Robinson (1952) emphasizes that some enterprises follow the demand channel, which may lead to real growth. An improvement in the country's economy is required to bring demand for new financial instruments; thus, the financial sector is responding well to this demand.

Similarly, if an economy lacks improvement in the financial sector, it causes less demand for financial services. However, more financial services are needed to improve on real side of the economy (Gurley & Shaw, 1955; Jung, 1986). Through an increase in the real side of the economy and satisfying the increased demand for financial services, new institutions will emerge, and new markets will arise. The work of (Goldsmith, 1969; Harrison et al., 1999; Liang & Reichert, 2006) also supports this hypothesis.

There are many ways through which poverty can exert its adverse effect on financial development. When there is poverty, people will have less money, which causes a reduction in investment and local domestic savings. At the same time, investment and domestic savings are positively associated with economic growth. Poverty can also directly affect economic growth (Zhu et al., 2022) by decreasing education, health institution, and physical capital. Poverty reduces physical and human capital, saving, and investment while these are the factor that is positively related to economic growth. According to the demand following hypothesis, there will be less financial development when there is less economic growth.

When there is high poverty in an area, the banking sector may be affected in several ways. One of the primary impacts of high poverty is that it can increase the cost of operation, making it difficult for banks to operate profitably in these areas (Benston, 1965). When the cost of operation is high, businesses and organizations may struggle to make a profit, which can limit their ability to invest in the banking sector. As a result, banks may be hesitant to invest in these areas as they may not see a profitable return on their investment. This can lead to a lack of access to banking services for those who need them most. Additionally, high operating costs can make it difficult for financial institutions to provide affordable banking services to impoverished people, further limiting economic and financial development.

In areas with high poverty, individuals and small businesses may have limited disposable income, which can limit their demand for banking services. This can make it difficult for banks to operate profitably in these areas and limit their ability to expand their operations. There may be limited banking infrastructure in areas with high poverty, such as physical branches, ATMs, and other banking services. This can limit access to banking services for individuals and small businesses. People living in poverty may have limited financial literacy, making it difficult to understand and use banking services effectively. This can limit their ability to access financial products and services, including loans, credit cards, and savings accounts. There may be limited demand for banking services in areas with high poverty as individuals may not have the financial resources to deposit and save money.

There are several factors that simultaneously effect the level of poverty and financial development in a country such as trade openness and ICT development. These factors/ policy measures not only have a direct positive effect on financial development, but it also moderates the adverse impact of poverty on financial development. Trade openness is usually found to benefit the poor and can

reduce poverty. Those countries open to international trade may grow faster, improve their productivity and provide better livelihood opportunities to people (Nadeem, 2018). Openness benefits lower-income household by providing them with the most affordable goods and services. Furthermore, trade openness is also helpful in the efficient allocation of resources through comparative advantages, which leads to increased income levels (Sghaier, 2021).

Countries with more open trade policies tend to have higher levels of productivity in comparison to those with more restrictive trade policies. This is because trade openness stimulates competition among firms, both local and foreign, which drives innovation and efficiency. This increased competition leads to a better overall economic performance, with lower prices, higher-quality products and services, and improved productivity.

Additionally, open trade can benefit Small and Medium Enterprises (SMEs) by providing opportunities for growth and job creation. These new jobs and increased income can help alleviate poverty and improve the standard of living for those involved. On average, countries that have opened up to trade have experienced a decrease in poverty over time. Overall, open trade regimes can help reduce the cost of doing business and increase the competitiveness of firms, leading to higher economic growth and a reduction in poverty.

At the same time, trade openness also plays a significant role in financial development. Opening up an economy generates gains in terms of banking sector development. (Ashraf et al., 2017) had empirically found that trade openness increases the demand for higher finance and openness of domestic financial sectors, improving lending diversification opportunities. All of these contribute to decreasing the cost and risk of banking credit. Trade openness reduces the impact of economic shocks and fluctuations by providing access to a wider range of goods and markets, promoting

competition and specialization, and encouraging the efficient allocation of resources. As a result, trade can help stabilize economic growth, reduce poverty, and foster financial development.

In the emerging technological world, Information and communication technology (ICT) plays a crucial role in the financial sector development in many ways, like improving electronic financing (Ashrafi & Murtaza, 2008; Sassi & Goaid, 2013). Banks promote online banking and, more specifically, mobile app banking (Abda et al., 2017; Sharma et al., 2017; Stanisław, 2016). ICT is also pivotal for stock market development and the stability of financial systems (Allen et al., 2014; Shamim, 2007). ICT may also be efficiently utilized to fight against social issues like poverty. The link between ICT and poverty is usually investigated using the case study technique in the literature. Case studies reveal that business administration, agriculture, health and finance are the primary areas in which ICT may play a big role in reducing poverty.

The ICT sector provides various employment opportunities for those who are economically challenged. Through ICT, these individuals are able to access job and wage information without incurring travel or visit costs. ICT helps these individuals increase their market knowledge, reduce transaction costs, and improve their sales, ultimately leading to increased efficiency, income, and reduced poverty levels. Studies have shown that ICT usage has resulted in a statistically significant decrease in poverty among entrepreneurs in Tanzania between 2008 and 2010 and has also saved poor workers in China 6% of their time due to reduced transportation costs.

South Asian countries' poverty rate has been very high since their independence. According to (Bourguignon & Morrisson, 2002), there has been a dramatic fall seen in the world poverty rate from 94 per cent (1820) to 10.7 per cent (2013). However, South Asia's share of world poverty increased from 27.3 per cent to 33.4 per cent from 1990 to 2013. South Asia is leaving behind only Sub-Saharan Africa, which accounts for the largest poverty rate of 50.7 percent of the global

poor. More than 33 percent of people living in extreme poverty globally reside in south Asia. These high poverty rates motivated us to select South Asian countries based on the available data. The poverty rates of Pakistan, India, Bangladesh, Sri Lanka, and Nepal are 38.3%, 24.8%, 24.6%, 16% and 17.4% respectively and have lower level of financial development as well 0.22, 0.42, 0.26, 0.24, and 0.19 respectively for listed countries. Therefore, we selected Pakistan, India, Sri Lanka, Bangladesh, and Nepal in our sample.

1.2 Theoretical Discussion:

1.2.1 The Impact of Poverty on Financial Development

(Patrick, 1966) employs the demand-following hypothesis to figure out how financial growth affects economic growth and vice versa. The demand following hypothesis hypothesizes a causal relationship between economic growth and financial development. Here, the growing demand for financial services might broaden the horizon of the financial sector as the real economy grows (Gurley & Shaw, 1967; Goldsmith, 1969; Jung, 1986).

The study of (Jung, 1986) established unidirectional causality for the developed nation and their developing counterparts, and he supports the demand following hypothesis. In the same way, (Harrison et al., 1999) also favored the concept of demand following; he suggested that more economic growth endorses profitability and increased banking activities in the financial sector, which promotes the entrance of new banks in the country. Research work done by (Zang & Kim, 2007) applied the panel estimation technique and found strong evidence of demand following the hypothesis. He proposes that no proof of the hypothesis relating to the supply-leading process

exists. Some other studies also found that economic growth leads to financial development (Liang & Reichert, 2006; Ozturk, 2008).

Poverty is one of the factors that lower the level of financial inclusion, hinders the poor to basic financial infrastructure and reduces the investment in the economy. Poverty makes it very difficult for people to meet both ends of their lives (Galbraith, 1998). Lack of job opportunities and low salaries, on the other hand, limit individuals' wealth development, thereby trapping persons in the poverty trap (Azariadis & Stachurski, 2005; Bowles et al., 2006; Christopher & Michael, 2013; Dutta & Kumar, 2016; Galster et al., 2008; Mirza et al., 2019).

The literature shows that poverty has a negative impact on investment and GDP growth. There is a common image about poor people investing: they have very few real choices. Indeed, some people work extremely hard to earn just enough to cover their daily basic needs, which they always try to cover in the least possible expenses. A lower investment rate makes growth spurts unsustainable, and lower growth generates less domestic savings (Ali, 2016). Low savings mean that people have very few financial resources, which constrains them from using financial services. These services mainly lack access to the use of the banks' services and other financial apps. Second, when people have less money, they are likely to save less, which will result in fewer savings deposits in the banks. or financial institution. Moreover, poor people also have little access to insurance. Low investment and saving decrease the demand for financial services; according to the demand following hypothesis, there will be less financial development when there is less demand for the financial services.

Overall, an increase in poverty leads to lower investment, domestic savings, and GDP growth, Whereas improving investment, domestic saving, GDP growth, and have been found to be

positively related to financial development. As a result, we anticipate that a greater poverty level will be related to lower financial sector growth.

1.2.2 The impact of trade openness on Poverty and Financial Development

According to a study by the (Bank, 2019), countries with more open trade regimes have, on average, higher levels of productivity compared to those with more closed regimes. This is because increased competition can lead firms to adopt new technologies and best practices, improving their efficiency and competitiveness. Trade openness can increase competition between firms, both domestic and foreign, which can drive innovation and efficiency (Marčeta & Bojnec, 2022). This can lead to lower prices, better quality products and services, and improved productivity (Shu & Steinwender, 2019)

Increased competition can also help businesses, especially small and medium-sized enterprises (SMEs), to expand and create new jobs (Reeg, 2015). SMEs that engage in international trade are more likely to create new jobs and have higher levels of productivity compared to those that do not (Lionel et al., 2022). New jobs and increased income can help to lift people out of poverty and improve their living standards. On average, countries that opened to trade saw a decline in poverty rates over time (Maëlan & Singh, 2014).

Trade openness increases investment which can lead to improved infrastructure, such as roads, ports, airports, and telecommunications networks. This can help to reduce the cost of doing business and increase the competitiveness of firms, which can lead higher economic growth. Improved infrastructure can also make it easier for people to access basic services such as education and healthcare, which can raise living standards and help to alleviate poverty (ILO, 2022).

In addition, trade openness can also help to improve technology adoption, particularly in developing countries where access to new technologies can be limited. This can lead to increased productivity and higher the quality of products and services (Shakil & Imran, 2022). Investment in human capital, such as education and training, can help to improve the skills and knowledge of the workforce, leading to increased productivity and competitiveness. Improved human capital can increase the amount/level of wages, helping to raise living standards and reduce poverty (Attanasio et al., 2022).

1.2.3 Impact of ICT on poverty and Financial Development

The utilization of ICT holds great potential in addressing socioeconomic issues that also includes poverty reduction and financial development (May et al., 2014). The ICT sector provides various employment opportunities for those who are economically challenged (poor) (Yilmaz & Koyuncu, 2018). By utilizing ICT, these individuals are able to obtain job and salary information without incurring any expenses for transportation or visits. Additionally, the ICT sector also opens up opportunities for starting small ICT-based enterprises, including repairing mobile phones, selling SIM cards, and running internet cafes.

ICT helps these individuals increase their market knowledge, reduce transaction costs, and improve their sales, marketing, and procurement processes, ultimately leading to increased efficiency, income, and reduced poverty levels (Choi, 2003; Meijers, 2014). Studies have shown that ICT usage has resulted in a statistically significant decrease in poverty among entrepreneurs in Tanzania between 2008 and 2010 and has also saved poor workers in China 6% of their time due to reduced transportation costs (Bhavnani et al., 2008; Mascarenhas, 2014).

Education programs facilitated by ICT can enhance the knowledge, skills, and employment opportunities of individuals living in poverty (Kelles-Viitanen, 2003). These programs also provide access to both general and technical education. Additionally, ICT allows individuals in poverty to access financial services and transfer money more quickly, cheaply, and securely, reducing the transaction costs for microfinance institutions that cater to impoverished households (Mushtaq & Bruneau, 2019). Furthermore, ICT promotes better governance and transparency in public institutions, contributing to poverty reduction, and enhances access to government services, saving time and money in communication. ICT also amplifies the voices of those in poverty, making their needs and concerns more visible.

1.3 Research Problem

Previous literature observed the effect of financial development on poverty and emphasized that financial development has a poverty-reducing effect (Johan, 2017). In the literature, according to the demand following hypothesis, we observe that poverty can also be a factor that affects financial development. South Asia continues to experience high levels of poverty, with more than a third of the global poor residing in the region, financial development decreases as the level of poverty increases as shown in the graph/figure.

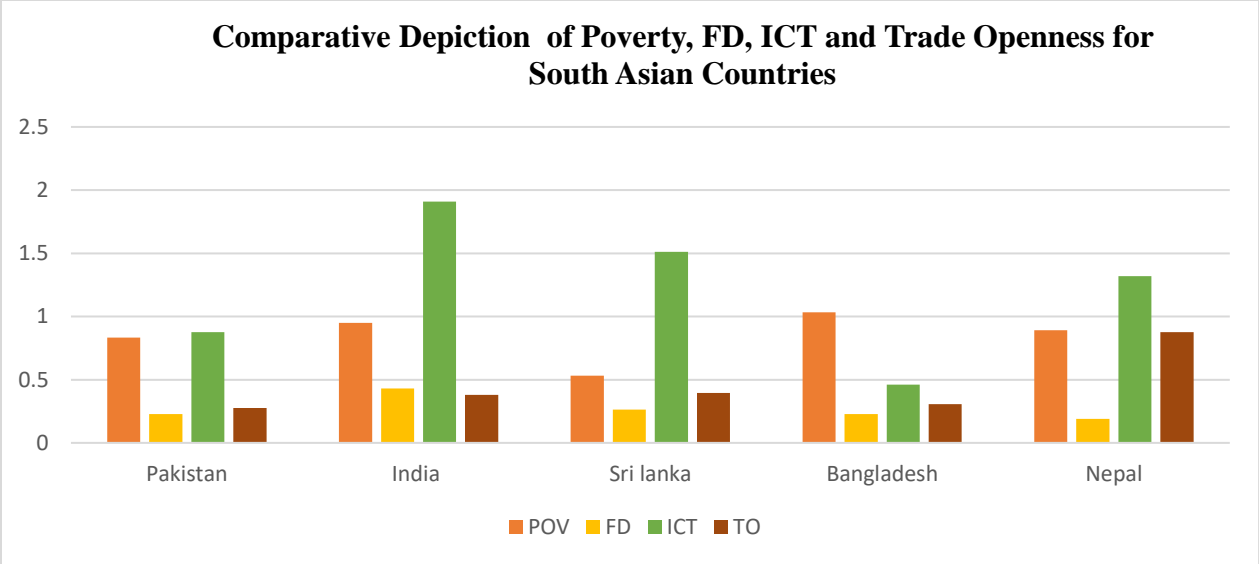


Figure 1.1: Comparative Depiction of Poverty, FD, ICT and Trade Openness for South Asian Countries (2020)

The above graph shows that these South Asian countries are grappling with the issue of high poverty levels and low financial development. To combat poverty, these countries are looking towards increasing international trade as a solution. Trade openness has a trickle-down effect that can promote growth and reduce poverty. In addition to trade openness, Information and Communication Technology (ICT) is also seen as a crucial tool for reducing poverty and promoting financial development in developing countries. Over the past few years, trade openness and ICT have been used as financing tools to address poverty and enhance financial development. This phenomenon provides, the basis to conduct a study in case of South Asian countries to determine the relative effectiveness of the study’s variables on financial development. This study will investigate the relationship between poverty and financial development in South Asian countries and the role that ICT and trade openness play in this relationship. Despite several studies investigating the impact of financial development on poverty, there is still a gap in understanding how poverty affects financial development. Additionally, there is a lack of knowledge about how

ICT and trade openness can impact poverty and financial development and how they moderate the relationship between poverty and financial development. Furthermore, this study will also check the asymmetric impact of poverty, trade openness, and ICT on poverty and financial development. The study aims to fill this gap by investigating the relationship between poverty and financial development in South Asian countries, Pakistan, India, Bangladesh, Sri Lanka, and Nepal, from 1984-2020. The study uses panel ARDL and panel nonlinear ARDL methods to analyze the data, which allows it to capture the dynamic relationship between poverty and financial development over time, and to identify the specific ways in which ICT and trade openness can impact poverty and financial development. Additionally, the study examines the asymmetric impact of poverty, trade openness, and ICT on poverty and financial development, which allows it to identify any nonlinear relationships between these factors.

1.4 Research Questions

- 1) What is the impact of poverty on financial development in South Asia?
- 2) What is the moderating role of ICT and trade openness on financial development for a given level of poverty?
- 3) What is the asymmetric effect of poverty, ICT, and Trade openness on financial development?

1.5 Objectives of the Study

The primary objectives are to examine the impact of poverty on financial development by taking into account the moderating role of ICT and trade openness. However, the specific objectives of the study are stated as under

- 1) To examine the impact of poverty on financial development in South Asia.
- 2) To analyze the moderating role of ICT and trade openness on financial development for a given level of poverty.
- 3) To examine the asymmetric effect of ICT poverty and Trade openness on financial development
- 4) To critically analyze the policies related to poverty, trade and ICT in Pakistan

1.6 Hypothesis of the Study

The following are the main hypothesis of the study:

H₁: Higher is the level of poverty in an economy; lower would be the level of financial development.

H_{2a}: Trade openness has a positive impact on financial development.

H_{2b}: Trade openness moderate the impact of Poverty on financial development.

H_{3a}: ICT penetration has a positive impact on financial development.

H_{3b}: ICT moderate the impact of Poverty on financial development.

1.7 Significance of the Study

There is vast literature discussing how financial development and economic growth help in poverty reduction. But the literature is silent about the impact of poverty on financial development. The recent analyses will be helpful for the policymakers in the case of developing countries' analysis of whether the poverty reduction is helpful in achieving the financial development between these selected samples of developing countries covering all aspects of financial development in the form of an index. Trade openness and ICT play a vital role in reducing poverty. The unique thing about the study is that it will check the moderating role of trade openness and ICT on poverty and financial development. The second uniqueness is that this study also checks for the asymmetric effect of poverty, trade openness, and ICT on financial development.

1.8 Organization of the Study

This study is organized into the following six chapters. The first chapter discussed the background of the study, research problem and questions, objectives, and significance of the study. The second chapter included the literature review. The third chapter contains Methodology, which involves the selection of model and sources of data and an explanation of econometric techniques. The fourth chapter “results and Interpretation” explains the empirical result of the data. The fifth chapter comprises the qualitative part, which includes the policies reviews, and interview result of the relevant department to the study. The last chapter is the concluding chapter in which we conclude the whole study and give some policy recommendations.

CHAPTER 2

LITERATURE REVIEW

There is vast literature on the impact of financial development on poverty. The previous studies (Hossein & Colin, 2005; Johan, 2017; Odhiambo, 2009) has revealed that financial development may help alleviate poverty in various ways. Firstly, Financial development may enhance poor people's access to formal finance by tackling the underlying reasons for financial market failures, factors such as evidence asymmetry, and the high fixed cost of lending to small borrowers (Hossein & Colin, 2005; Stiglitz, 1998). Secondly, financial development allows the poor to use their collected savings and borrow money to start microenterprises, resulting in enhanced access to financial services, increased employment and income, and eventually reduced poverty (Newland & Patrick, 2004). Third, it may support the poor indirectly via its effect on economic growth. It is due to a strong link between financial development and economic growth. This trickle-down theory is supported by several studies, including (Dollar & Kraay, 2001; Mellor, 1999; Ravallion & Datt, 2002).

In the current study, we are following the demand-following hypothesis is that an increase in economic growth has a positive and significant relation to an increase in financial development.

2.1 Demand Following Hypothesis

The studies of (Jung, 1986) established unidirectional causality for the developed nation and the developing counterparts, and he supports the demand following hypothesis. In the same way, (Harrison et al., 1999) also favored the concept of demand following; he suggested that more economic growth endorses profitability and increased banking activities in the financial sector, which promotes the entrance of new banks in the country. Research work by (Zang & Kim, 2007)

applied the panel estimation technique and found strong evidence of demand following the hypothesis. He proposes that no proof of the hypothesis relating to the supply-leading process exists. Some other studies also found the result that economic growth leads to financial development (Liang & Reichert, 2006; Ozturk, 2008). The study by (Gnangnon & Kimm, 2021) investigated the impact of poverty on financial development. Particularly, this study examined the impact of poverty on financial development through the channel of human capital. Furthermore, this study also analyzes whether the magnitude of effect of poverty on financial development depend on the level of trade openness. The result of the study shows that high poverty rate weakens the development of the financial sector. The level of trade openness also matters because greater the trade openness helps to reduce the negative effect of poverty on financial development.

2.2 Trade Openness, Poverty and Financial Development

Trade openness negatively influences poverty since it promotes economic development, and economic growth is positively associated with trade openness and growth rate (Edwards, 1992; Sinha & Sinha, 2000; Wacziarg, 2001). International trade openness facilitates the flow of FDI, capital inputs, products, and services to host countries or areas. Economists have recognized that trade openness has influenced economic development positively (Smith, 1937). Trade can highly improve per capita income when countries concentrate on manufacturing items with a comparative advantage. It can also help countries grow through technology transfer, product diversification, rising scale economies, effective resource allocation and distribution in the economy, and Trade with other countries.

Trade openness increases the imports and exports of goods and services in addition it advances national technologies. Henceforth, productivity increases when the production process becomes

more efficient. Consequently, the openness of economies to international Trade expands faster compared to closed ones, and it is expected that greater openness would positively influence growth. Therefore, (Ben-David & Loewy, 1998) advocated that trade barriers should be reduced to improve the economy. Greater the advantages of growth The more governments pursue trade barrier reduction programs. However, (Adhikary, 2011) remarks that trade openness causes more exchange rate depreciation, decreasing the aggregate supply of inputs by raising the prices of the imported inputs used in production. As a result, local production tends to fall, resulting in reduced competitiveness in the domestic market.

Several recent studies indicate that Trade is integrally related to financial growth. According to (Rajan & Zingales, 2003), trade liberalization, when particularly paired with capital-flow liberalization, reduces the incentives of incumbent business enterprises or financial intermediaries' incentives to obstruct financial growth to minimize entrance and competition. In addition, Trade may reduce incumbents' relative political strength. Trade then has a positive influence on financial growth. (Braun & Raddatz, 2005) go further into the political channel, demonstrating those nations, where trade liberalization Diminishing the influence of organizations most concerned in restricting financial growth is an enhancement in the financial sector. However, as trade liberalization helps such groups, foreign financing will suffer.

While (Braun & Raddatz, 2005; Rajan & Zingales, 2003) investigate how Trade influences the supply of foreign financing. According to (Newbery & Stiglitz, 1984), the Trade might possibly raise uncertainty and income volatility by changing price elasticities. Increased insurance demand might spur financial growth (Svaleryd & Vlachos, 2002), for example, underlining the need for risk modification. To the degree that openness is connected with higher vulnerability to exterior shocks and international rivalry, the demand for such financial services will rise to averse to such

shocks. According to (Do & Levchenko, 2007), financial development is endogenously influenced in part by each country's desire for foreign money. A country's comparative advantage in international commerce may influence its production pattern, hence its external funding requirement. Those countries specializing in financially dependent commodities would thus have a high need for international funding, resulting in a high degree of financial intermediation. In contrast, nations that specialize in products and depend less on foreign funding would have a less developed financial system.

Trade openness benefits internet finance growth and, conversely, internet finance development benefits the banking sector by increasing the volume and lowering the risk of bank loans. (Junhui et al., 2020). The Banking sector can help directly increase the growth by increasing the quality of financial services and fund availability while indirectly reducing the cost of financing (Bayraktar & Wang, 2008).

2.3 Information and Communication Technology and Financial development:

Many studies in the literature create a link between electronic apps and financial growth. At the same time, other studies state that there is a positive association between economic growth and mobile phone use (Choudhary & Sarmah, 2017; Sassi & Goaid, 2013). Providing E-information enables to decrease in price swings while also benefiting economic sectors. Some studies (Dewan & Ramaprasad, 2014; Donnellan & Costello, 2011) have concentrated on the influence of economic factors on small and medium-sized businesses.

(Donner, 2007) It should be highlighted that ICT is largely responsible for economic growth and social progress and significantly influences employment and productivity rates. A 10 per cent rise

in technology level results in a 0.75 decrease in unemployment and a 1.02 increase in per capita gross domestic output (GDP) share. (INSEAD, 2013) confirm that technology plays an important role in reducing poverty, increasing employment, and improving living standards.

The ICT increases economic growth, decreases poverty and increases the employment level in the country by creating new job opportunities. When employment increases, people tend to invest more in human capital. (Cole et al., 2014) stated that human capital accumulation is essential for financial development. It is shown that education increases participation in the financial market, measured by invested income and equities ownership, while drastically falling the possibility that an individual declares bankruptcy, experiences a foreclosure, or is delinquent on loan. Another research showed that physical and human capital best explain financial development and contribute more than average to financial development.

2.4 Impact of other Factors on Financial Development

Various studies have proven that institutions have an impact on economic development, which is an essential requirement for poverty reduction (Dollar & Kraay, 2001; Enders & Hoover, 2003; Kakwani & Pernia, 2000; Ravallion, 2003). The institutions also have an effect on how economic growth gains are distributed throughout a society's diverse social and political groupings. Meanwhile, despite equal economic development rates, poverty reduction rates vary significantly between countries (Duyos et al., 2014). As a result, weak institutions would impede economic progress and have an effect on the prevalence of poverty among countries. This may lead to a poverty trap caused by institutions. Thus, an insufficient institutional framework contributes directly or indirectly to poverty path dependency.

Institution quality can contribute to financial development in various ways, including by improving creditor and investor protections (La Porta et al., 1997), channeling resources to fruitful activities, minimizing misuse and waste (Capasso, 2004), and political intervention in borrowing decisions. Other research has underlined the favorable impact of institutions and governance quality on financial development (Adjei & Matthew, 2018; Atif et al., 2020; Kim et al., 2001; Zeeshan et al., 2020)

According to (Garcia-Herrero & Wooldridge, 2007), financial openness is accomplished by reducing obstructions to cross-border capital and financial services, widening and extending cross-border financial relationships, and eliminating less satisfactory treatment of international investors and foreign investors' money. Trade liberalization, financial development, and economic growth are a few determinants of financial development. (Vo & Daly, 2007) Their analysis shows that it positively affects rich and educated countries' trade liberalization, financial development, trade openness, and sound banking system. In the same direction (Lane & Milesi-Ferretti, 2008) demonstrate experimentally that financial integration is positively related to the financial sector, financial development, and economic growth. Still, the relationship with trade openness is not quite strong.

To inspect the association between financial development and financial openness (Baltagi et al., 2009), find out the marginal effect of financial openness is high on financial development, specifically in lower-income countries. While in developing countries, banking sector development is associated with financial and Trade openness (Toyin & Toyin, 2016; Zheng et al., 2017). Besides the banking sector financial openness can also affect the stock market.

2.5 Literature on Model Selection:

For dynamic panel data, generalized method of moments (GMM) is the best practice (Manuel, 1989; Manuel & Olympia, 1995). GMM is the ideal method when there is high number of variables and low number of observations. GMM can mislead or biased results when the number of observation is too high and the cross-section is low (Nahla et al., 2015; Pesaran et al., 2001). Therefore, we selected Auto Regressive Distributive lag (ARDL)model for our data set size (Fazli & Abbasi, 2018; Kutu & Ngalawa, 2016).

The ARDL model copies most of its attributes from its previous model, which includes the short and long run estimation from its mixed order of integration (Shin et al., 2014). Moreover, the ARDL can work with both kind of sample sized data (small and large).

Pool Mean Group (PMG) approach has been used in this study. This approach makes the long run coefficient homogeneous and makes it similar to the dynamic fixed effect (DFE), and Mean Group (MG) estimator, gives the short-run coefficients, intercepts, error correction terms, and the error variances to differ freely across the entire cross-section (Fazli & Abbasi, 2018; Onuoha et al., 2018). PMG and MG provide reliable coefficient irrespective of the presence of the endogeneity because the lag of dependent and independent variable is included during estimation.

2.6 Conceptual Framework

The conceptual framework of the study is based on the demand-following hypothesis developed by (Patrick, 1966). According to this hypothesis, the development in the financial sector is due to the development in the real sector. But many factors or variables can boost or hinder economic growth. From the literature, we can see that poverty can also be among those variables that can

affect economic growth. The research of (Saleem et al., 2021) finds out inverse relationship between high poverty and economic growth.

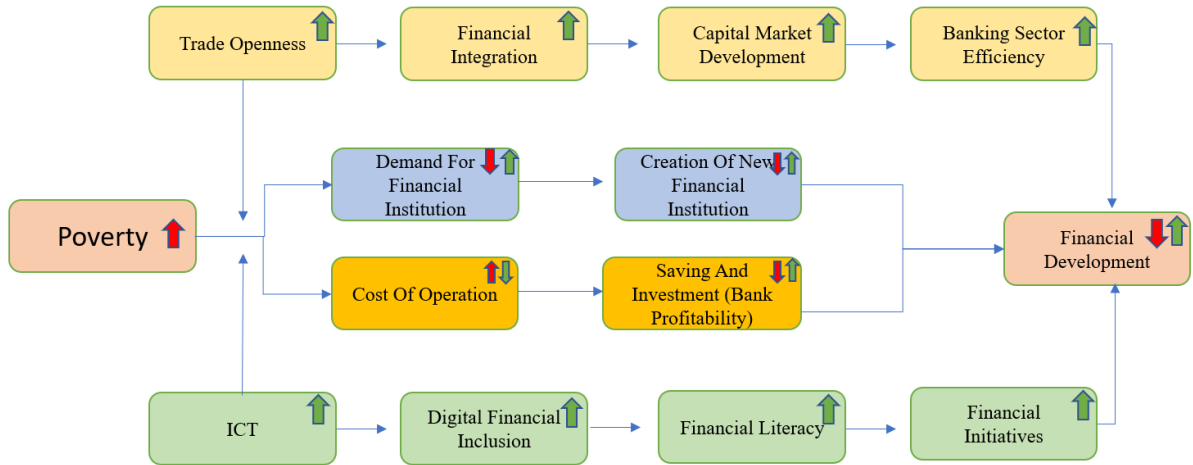


Figure 2. 1: Conceptual framework for the impact of poverty on financial development in the presence of moderating role of trade openness and ICT

According to the demand following hypothesis, as mentioned earlier, high poverty will impede real economic growth, reducing the demand for financial institutions and services and hence reducing financial development (Jung, 1986; Patrick, 1966) and vice versa.

For the current study, we are taking trade openness and information and communication technology (ICT) as the moderating variables to reduce poverty and enhance financial development. ICT may also be a powerful tool for income generation and access to education, which can help reduce poverty (Batchelor et al., 2005; Kelles-Viitanen, 2003). Some other studies (Duff, 2002; Gerster & Zimmermann, 2003; Okello et al., 2014; Olatokun, 2008) also argue that ICT can also be used as a tool that derails development, thereby aggravating poverty. At the same time, researchers (Alimi & Adediran, 2020; Alshubiri et al., 2019; Zouheyr et al., 2021) explore that ICT diffusion increases digital financial inclusion, which helps to bring financial literacy. Financial literacy helps bring novel financial initiatives that improve the financial structure in

quality and quantity (Chowa et al., 2014; Henager & Cude, 2016; Nunoo & Andoh, 2011). Trade openness is also one of the sources of poverty reduction found in the following studies (Brooks, 2003; Maëlan & Raju, 2014; Qadir et al., 2000). Trade openness helps to reduce poverty by improving economic growth, generating employment opportunities, and providing cheaper goods to poor people. While (Asghar & Hussain, 2014; Diem et al., 2021; Kim et al., 2010) also proved that trade openness is beneficial for financial development.

When people have a lower level on income, they spend most of their income for substance, and because of this their investment in health, physical and human capital is almost impossible or non-existent. As a result, economic investments are reduced, resulting in a less productive workforce and reduces the economic growth. According to the demand following hypothesis, when there is less economic growth, there will be a reduction in demand for financial services. Therefore, there will be less financial development.

In the past literature there are many more studies related to the impact of financial development on the poverty, but we found very rare studies about the impact of poverty on financial development. The gap we have seen in the literature is that we didn't find any study for the south Asian countries in which they find out the impact of the poverty on the financial development. This research will contribute to economics; to find out relationship between poverty and financial development and to econometrics that we checked for the moderating role of trade openness and Information and communication technology (ICT) and also find out the hidden co-integration between the dependent and independent variable through non-linear panel ARDL.

CHAPTER 3

METHODOLOGY

To achieve the objective of the current study this study employs mix method technique mean both quantitative and qualitative approach. Qualitative procedures use text and image data, have distinct steps in data analysis, and employ various investigation strategies despite the processes being similar. However, even within a single strategy, the methods used are not always the same due to the fact that qualitative projects use a variety of inquiry strategies from social justice thinking to ideology perspective to philosophical stances, the landscape of qualitative methods reveals a variety of viewpoints (Creswell & Garrett, 2008).

In quantitative procedure we will discuss the empirical framework through which the study's objective is carried out. In this procedure, the model for financial development is discussed. The econometric techniques comprising unit root test, co-integration analysis linear and non-linear panel ARDL approach to co-integration and a brief description of variable and its sources are discussed.

3.1 Analytical Methods

This study will employ the following basic model to study the effect of poverty on financial development in line with the empirical literature (Ehigiamusoe, 2020; Hossein & Colin, 2005)

$$FD_{it} = \alpha_0 + \alpha_1 POV_{it} + \alpha_2 GDPC_{it} + \alpha_3 SAVING_{it} + \alpha_4 INST_{it} + \alpha_5 FINOP_{it} + \alpha_6 TO_{it} + \alpha_6 ICT_{it} + \alpha_6 POPD_{it} + \mu_{it} \quad (3.1)$$

Here

- **FD=financial development**
- **POV=poverty**

- **GDPC=GDP per capita income**
- **SAVING=saving rate**
- **INST= institution quality index**
- **FINOP= financial openness**
- **TO= trade openness**
- **ICT= Information and Communication Technology**
- **POPD= Population Density**
- **μ_{it} = error term, i = country index, t = time index.**

Moreover, we determine the moderating effect of ICT and trade openness on the impact of poverty on financial development. Openness and ICT are taken as moderating variables because they directly or indirectly affect the poverty and financial development. The moderating variable also minimizes poverty's negative effect on financial development. We add the interaction terms of trade openness, ICT and poverty; the models are as follow:

$$FD_{it} = \alpha_0 + \alpha_1 POV_{it} + \alpha_2 TO_{it} + \alpha_3 ICT_{it} + \alpha_4 (POV * TO)_{it} + \alpha_5 GDPC_{it} + \alpha_6 SAVING_{it} + \alpha_7 INST_{it} + \alpha_8 FINOP_{it} + \alpha_9 POPD_{it} + \mu_{it} \quad (3.2)$$

$$FD_{it} = \alpha_0 + \alpha_1 POV_{it} + \alpha_2 TO_{it} + \alpha_3 ICT_{it} + \alpha_4 (POV * ICT)_{it} + \alpha_5 GDPC_{it} + \alpha_6 SAVING_{it} + \alpha_7 INST_{it} + \alpha_8 FINOP_{it} + \alpha_9 POPD_{it} + \mu_{it} \quad (3.3)$$

$$FD_{it} = \alpha_0 + \alpha_1 POV_{it} + \alpha_2 TO_{it} + \alpha_3 ICT_{it} + \alpha_4 (ICT * TO)_{it} + \alpha_5 GDPC_{it} + \alpha_6 SAVING_{it} + \alpha_7 INST_{it} + \alpha_8 FINOP_{it} + \alpha_9 POPD_{it} + \mu_{it} \quad (3.4)$$

Where (POV*TO) is the interaction term between poverty and trade openness. By the mean of the interaction term, we determine the moderating role of trade in analyzing the impact of poverty on financial development. Hence, we compute via partial derivatives of the above equation as follows:

$$\frac{\partial FD_{it}}{\partial POV_{it}} = \alpha_1 + \alpha_4 TO_{it} \quad (3.5)$$

Furthermore, we compute the appropriate standard errors and t-statistics to establish the statistical significance of the marginal effects. (Brambor et al., 2006) emphasized the need to calculate the marginal impact's standard errors and t-statistics for inference purposes.

$$\sigma^2 \frac{\partial FD_{it}}{\partial POV_{it}} = var(\alpha_1) + TO var(\alpha_4) + 2TO cov(\alpha_1 \alpha_4). \quad (3.6)$$

The standard error is calculated by taking the square root of the variance, and when the marginal effect is divided by the standard error, it will produce the t-statistics. The presence of a large t-statistic indicates that the marginal impact is statistically significant. The above processes will be followed for the moderation analysis of the other two models.

3.2 Econometrics Methodology

It is a preliminary step to check the stationary of macroeconomic variables' data taken from different sources. The stationary of the data describes the mean and the variance are the same, while non-stationary of the data describes the means and the variance are not the same. However, it might be possible that panel data will be faced with the Spurious Regression problem, so to prevent Spurious Regression by checking the stationary of the data will be good.

3.3 Unit Root Tests

We used Levin Lin Chu (LLC) and The Im, Pesaran, and Shin (IPS) panel unit root test to confirm the presence of unit root in the time series variable. The Levin Lin Chu (LLC) test is based on the

homogeneity of the autoregressive parameter. In contrast, the IPS test is based on the heterogeneity of autoregressive parameters, concluding that no pooling regressions are associated with IPS tests.

The following hypothesis will be tested in the panel data for stationary variables.

H₀ = The panel set contains the unit root.

Alternative hypothesis.

H₁ = The panel set do not contain the unit root

3.3.1 Levin Lin Chu

The Levin, Lin Chu (LLC) Test was first developed in 1992 (Levin et al., 1992). This is an extension of the Dickey-Fuller (DF) test. The general equation form of the test is followed

$$\Delta Y_{it} = \alpha_i + \beta Y_{it-k} + \gamma_i t + \sum_{j=0}^k \phi_j \Delta Y_{it-j} + \theta_t + \varepsilon_{it} \quad (3.7)$$

In the above equation Δ , α_i and θ_t is the first difference operator used as fix and time effect. the equation the first difference operator shown as Δ , α_i and θ_t is used as fix and time effect, Y_{it} show the dependent variable, ε_{it} expresses white noise term, i show the cross-sections while t shows time series. The Levin Lin Chu (LLC) is based on $tb = \hat{\beta}/se(\hat{\beta})$ where $(\hat{\beta})$ is the OLS estimator of (β) and $Se(\hat{\beta})$ is the standard error. The following are the hypothesis for this equation

$$H_0: \beta = 0$$

$$H_1: \beta < 0$$

H₀ is null hypothesis that the data has a unit root problem, meaning data is non-stationary While H₁ is the alternate hypothesis shows that data has no unit root, mean data is stationary. The LLC

relies heavily on the assumption that cross-section and individual processes are moved independently the equation is follow:

$$\Delta X_{it} = \alpha_i + \beta_i X_{it-j} + \gamma_i t + \sum_{j=0}^k \theta_{ij} \Delta X_{it-j} + \varepsilon_{it} \quad (3.8)$$

The hypothesis is:

$$\beta_1 = \beta_2 = \dots \beta = 0$$

$$\beta_1 = \beta_2 = \dots \beta < 0$$

H_0 is the null hypothesis, which shows that the variable has a unit root, while H_1 the alternate hypothesis shows the variable has no unit root. The test statistics are $t_{\beta_i} = (\hat{\beta})/Se(\hat{\beta})$ where $(\hat{\beta})$ is the OLS estimator of β and $Se(\hat{\beta})$. Due to the independent assumption of the data, (β) follows a normal distribution.

A different number of tests are used to check the stationarity of the data in the model. Based on the previous literature and having strong properties, we will use the following unit root test.

3.3.2 The Im, Pesaran and Shin (IPS)

This test is the above LLC test extension proposed by Im Pesaran and shin. This test was first introduced in 1997. The main aim of the test is to introduce a heterogeneity coefficient of Y_{it} . And they introduced a new stationarity technique based on individual mean statistics. They used to distinguish between cross-sectional and time-series dimension estimates and allow different lag lengths, residual, and parameter values. The IPS has a big assumption of using the Monte- Carlo simulation. The IPS model is given below:

$$\Delta Y_{it} = \alpha_i + \beta_i Y_{it-j} + \gamma_i t + \sum_{j=0}^k \theta_{ij} \Delta Y_{it-j} + \varepsilon_{it} \quad (3.9)$$

In the above equation DY_{it} is the independent variable, which is the autoregressive (AR) form. α_i Shows the drift or intercept in different i cross-sections, which shows that all cross-section is different, t is the time-series dimension, and i shows the cross-section. b is the vector parameters, which are different for each cross-section Y_{it-1} expresses as the lag of the dependent variable. ΔY_{it-j} Denote as the lag of the dependent variable, which is used to remove the problem of autocorrelation. The ε_{it} Denote the white noise disturbance term.

Im, Pesaran, and Shin (IPS) test Hypothesis are:

$$H_0: b = 0 \text{ for all } i$$

$$H_1: b < 0 \text{ for at least one } i$$

H_0 , the Null hypothesis, confirms that data has a unit root, which means that data is non-stationary and H_1 , the alternative hypothesis shows that data have no unit root, which means data is stationary. The test assumption is that the time series is fixed in all cross-sections, and a t-statistic balance is required for comparison.

3.4 Co-Integration Analysis

Various tests have been introduced for the co-integration analysis. This term defines the long-run association between the selected variables. We will verify the relationship among the variables using panel co-integration tests developed by Pedroni and Kao co-integration test.

3.4.1 Pedroni Co-integration test

(Pedroni, 1996, 2001, 2004) proposed several types of tests for co-integration with panel data models that allow for significant heterogeneity. Pedroni tests surpass the previous panel Co-integration tests because they allow multiple regressors (for heterogeneity, in errors across cross-sectional units, and for co-integration vector to vary across different sections of the panel)

panel regression model of Pedroni is given below:

$$Y_{it} = \alpha_i + \delta_t + \gamma_i t + \sum_{j=0}^k \beta_j X_{it} + \varepsilon_{it} \quad (3.10)$$

Pedroni proposed seven different types of co-integration statistics to capture the between and within effects in the panel. Pedroni's different types of tests proposed are further classified into two categories. The first category comprises of four tests, which are based on pooling and within the dimension. The four tests in the first category are very similar to the previous co-integration tests. The other three tests are incorporated in the second category, pooling between dimensions.

In Pedroni's test, the null hypothesis is that there is no co-integration between the variables, while the alternative hypothesis is that there is co-integration between the variables. For Pedroni's co-integration test, the variables can have different levels of integration, but they must all be stationary.

3.4.2 Kao Co-integration test

The study applied a co-integration test to get the long-run relationship between financial development and explanatory variables. Kao presented the co-integration test for panel data set in, also known as a residual-based test for checking co-integration among variables. It has a resemblance with Dicky-fuller and ADF of co-integration. The advanced and commonly used co-

integration test is Kao compared to Pedroni and Johansen-fisher. The basic Methodology for checking co-integration is the same in both tests of Kao and Pedroni. Still, the Kao test has the advantage of imposing the homogeneity in coefficients of the AR model and co-integrating vectors. The main reason for applying the Kao test is that Pedroni incorporates just seven regressors in the co-integration equation. Still, the Kao test includes more than seven regressors in the co-integrating equation (Asteriou & Hall, 2007). The general form of the Kao test is as follows:

$$Y_{it} = \alpha_i + \beta X_{it} + \hat{\mu}_{it} \quad (3.11)$$

In the above written, Kao's equation i and t stand for countries and years equations where Y_{it} represents the dependent variable which is the sustainable development in our study. α_i is the intercept of the equation and the restriction imposed on it to be heterogeneous among cross-sections β denotes the coefficient of explanatory variables and is allowed to be homogeneous among cross-sections. X_{it} represents the vector of independent variables of the study. $\hat{\mu}_{it}$ is a white noise term.

According to this equation residual-based, the Co-integration test could be applied.

$$\hat{\mu}_{it} = e\hat{\mu}_{it} + v_{it-1} \quad (3.12)$$

It is the auxiliary regression of the Kao test in which $\hat{\mu}_{it}$ is the estimated residual form the first equation of the test.

In Kao's test, the null hypothesis is that there is no co-integration between the variables. The alternative hypothesis is that there is co-integration between the variables. For Kao's co-integration test, the variables must be integrated of the same order, meaning they must be either I(0) or I(1).

3.5 Linear Autoregressive Distributive Lag (ARDL)

The concept of the ARDL model was first introduced by (Pesaran et al., 2001) typically, by (Pesaran et al., 1999), which investigated the long-run association between income inequality and regressors like financial development, openness, inflation, increasing population, state final consumption and expenditure. The ARDL has some qualities more than other technical methods. First, ARDL applies when the variables are stationary at level, first difference, or a combination of both. We can't consider the Engel Granger because it only applies to two variables. The same is the case with Johanson & Juselius, (JJ) it is also applicable through all the estimated variables containing the same level of integration, and it works for large data sets only. Secondly, it covers the maximum lags for data sets moving from general to a particular method. Third, ECM can be used if any shock happens in the short run and how the convergence or equilibrium will be transformed into the long-run adjustment. ARDL is used for a single equation that can withdraw and estimate the result without difficulty. Forth, ARDL uses for a small sample, so it has the advantage over other techniques because it does not include the error term correlation. Fifth, endogeneity is low problematic in this technical method because it is free of error term correlation. Lastly, (Pesaran et al., 1999) also described that the long-time span, short estimation and lag order in the ARDL neglect the issue related to serial correlation and endogeneity problems. This study will use the following four model:

Model 1:

$$\begin{aligned}
 FD_{it} = & \beta_0 + \sum_{i=0}^k \beta_1 \Delta FD_{it-1} + \sum_{i=0}^k \beta_2 \Delta POV_{it-1} + \sum_{i=0}^k \beta_3 \Delta GDPC_{it-1} + \\
 & \sum_{i=0}^k \beta_4 \Delta SAV_{it-1} + \sum_{i=0}^k \beta_5 \Delta INST_{it-1} + \sum_{i=0}^k \beta_6 \Delta FINOP_{it-1} + \sum_{i=0}^k \beta_7 \Delta TO_{it-1} + \\
 & \sum_{i=0}^k \beta_8 \Delta ICT_{it-1} + \sum_{i=0}^k \beta_9 \Delta POPD_{it-1} + \delta_1 FD_{it-1} + \delta_2 POV_{it-1} + \delta_3 GDPC_{it-1} + \\
 & \delta_4 SAV_{it-1} + \delta_5 INST_{it-1} + \delta_6 FINOP_{it-1} + \delta_7 TO_{it-1} + \delta_8 ICT_{it-1} + \delta_9 POPD_{it-1} + \mu_{it}
 \end{aligned}
 \tag{3.13}$$

Model 2:

$$\begin{aligned}
FD_{it} = & \beta_0 + \sum_{i=0}^k \beta_1 \Delta FD_{it-1} + \sum_{i=0}^k \beta_2 \Delta POV_{it-1} + \sum_{i=0}^k \beta_3 \Delta GDPC_{it-1} + \\
& \sum_{i=0}^k \beta_4 \Delta SAV_{it-1} + \sum_{i=0}^k \beta_5 \Delta INST_{it-1} + \sum_{i=0}^k \beta_6 \Delta FINOP_{it-1} + \sum_{i=0}^k \beta_7 \Delta TO_{it-1} + \\
& \sum_{i=0}^k \beta_8 \Delta ICT_{it-1} + \sum_{i=0}^k \beta_9 \Delta POPD_{it-1} + \sum_{i=0}^k \beta_{10} \Delta (POV * TO) + \delta_1 FD_{it-1} + \delta_2 POV_{it-1} + \\
& \delta_3 GDPC_{it-1} + \delta_4 SAV_{it-1} + \delta_5 INST_{it-1} + \delta_6 FINOP_{it-1} + \delta_7 TO_{it-1} + \delta_8 ICT_{it-1} + \\
& \delta_9 POPD_{it-1} + \delta_{10} (POV * TO) + \mu_{it}
\end{aligned} \tag{3.14}$$

Model 3:

$$\begin{aligned}
FD_{it} = & \beta_0 + \sum_{i=0}^k \beta_1 \Delta FD_{it-1} + \sum_{i=0}^k \beta_2 \Delta POV_{it-1} + \sum_{i=0}^k \beta_3 \Delta GDPC_{it-1} + \\
& \sum_{i=0}^k \beta_4 \Delta SAV_{it-1} + \sum_{i=0}^k \beta_5 \Delta INST_{it-1} + \sum_{i=0}^k \beta_6 \Delta FINOP_{it-1} + \sum_{i=0}^k \beta_7 \Delta TO_{it-1} + \\
& \sum_{i=0}^k \beta_8 \Delta ICT_{it-1} + \sum_{i=0}^k \beta_9 \Delta POPD_{it-1} + \sum_{i=0}^k \beta_{10} \Delta (POV * ICT) + \delta_1 FD_{it-1} + \delta_2 POV_{it-1} + \\
& \delta_3 GDPC_{it-1} + \delta_4 SAV_{it-1} + \delta_5 INST_{it-1} + \delta_6 FINOP_{it-1} + \delta_7 TO_{it-1} + \delta_8 ICT_{it-1} + \\
& \delta_9 POPD_{it-1} + \delta_{10} (POV * ICT) + \mu_{it}
\end{aligned} \tag{3.15}$$

Model 4:

$$\begin{aligned}
FD_{it} = & \beta_0 + \sum_{i=0}^k \beta_1 \Delta FD_{it-1} + \sum_{i=0}^k \beta_2 \Delta POV_{it-1} + \sum_{i=0}^k \beta_3 \Delta GDPC_{it-1} + \\
& \sum_{i=0}^k \beta_4 \Delta SAV_{it-1} + \sum_{i=0}^k \beta_5 \Delta INST_{it-1} + \sum_{i=0}^k \beta_6 \Delta FINOP_{it-1} + \sum_{i=0}^k \beta_7 \Delta TO_{it-1} + \\
& \sum_{i=0}^k \beta_8 \Delta ICT_{it-1} + \sum_{i=0}^k \beta_9 \Delta POPD_{it-1} + \sum_{i=0}^k \beta_{10} \Delta (ICT * TO) + \delta_1 FD_{it-1} + \delta_2 POV_{it-1} + \\
& \delta_3 GDPC_{it-1} + \delta_4 SAV_{it-1} + \delta_5 INST_{it-1} + \delta_6 FINOP_{it-1} + \delta_7 TO_{it-1} + \delta_8 ICT_{it-1} + \\
& \delta_9 POPD_{it-1} + \delta_{10} (ICT * TO) + \mu_{it}
\end{aligned} \tag{3.16}$$

The above equation describes both long and short run specifically. The estimated $(\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8, \beta_9, \beta_{10})$ coefficients are for the short-run while the long-run is shown by $(\delta_1, \delta_2, \delta_3, \delta_4, \delta_5, \delta_6, \delta_7, \delta_8, \delta_9, \delta_{10})$. In the above equations, equation 3.13 shows the impact of poverty on financial development, while the rest of the equations include the moderating term.

For empirical analysis, the study uses both linear and nonlinear approaches.

3.6 Nonlinear Autoregressive Distributive Lag Test (NARDL)

The non-linear analysis is increasingly significant in today's environment since macroeconomic variables are vulnerable to cyclical fluctuations. The NARDL-PMG allows us to divide the primary variable into its positive and negative shocks, allowing us to individually capture the influence of these factors on our dependent variable.

Non-linear approaches are used in the study because the simple ARDL model does not capture the asymmetric impact of the independent variable on the dependent variable. The non-linear model checks the hidden co-integration among the dependent and independent variables, avoiding ignoring any relationship which is not noticeable in the linear model and a better performance in a small sample.

NARDL technique applications, like the basic ARDL model, do not need all variables in the model to be integrated into the same direction. We employed the NARDL approach to capture the asymmetric connection (non-linear relationship) among the variables by following the method of (Allen et al., 2014). To do so, we used the current estimations in the following model:

$$POV_{it}^+ = \sum_{i=1}^k \Delta \ln POV_{it}^+ = \sum_{i=1}^k \max(\Delta \ln POV_{it}, 0)$$

$$POV_{it}^- = \sum_{i=1}^k \Delta \ln POV_{it}^- = \sum_{i=1}^k \min(\Delta \ln POV_{it}, 0)$$

$$TO_{it}^+ = \sum_{i=1}^k \Delta \ln TO_{it}^+ = \sum_{i=1}^k \max(\Delta \ln TO_{it}, 0)$$

$$TO_{it}^- = \sum_{i=1}^k \Delta \ln TO_{it}^- = \sum_{i=1}^k \max(\Delta \ln TO_{it}, 0)$$

$$ICT_{it}^+ = \sum_{i=1}^k \Delta \ln ICT_{it}^+ = \sum_{i=1}^k \max(\Delta \ln ICT_{it}, 0)$$

$$ICT_{it}^- = \sum_{i=1}^k \Delta \ln ICT_{it}^- = \sum_{i=1}^k \max(\Delta \ln ICT_{it}, 0)$$

$$\begin{aligned} \ln FD_{it} = & \beta_0 + \sum_{i=0}^k \beta_1 \ln \Delta FD_{it-1} + \sum_{i=0}^k \beta_2 POV_{it-1}^+ + \sum_{i=0}^k \beta_3 POV_{it-1}^- + \sum_{i=0}^k \beta_4 ICT_{it-1}^+ + \\ & \sum_{i=0}^k \beta_5 ICT_{it-1}^- + \sum_{i=0}^k \beta_6 \Delta \ln GDPC_{it-1} + \sum_{i=0}^k \beta_7 \Delta \ln SAV_{it-1} + \sum_{i=0}^k \beta_8 \ln \Delta INST_{it-1} + \\ & \sum_{i=0}^k \beta_9 \Delta \ln FINOP_{it-1} + \sum_{i=0}^k \beta_{10} \Delta \ln TO_{it-1} + \sum_{i=0}^k \beta_{11} \Delta \ln POPDS_{it-1} + \sum_{i=0}^k \beta_{12} TO_{it-1}^+ + \\ & \sum_{i=0}^k \beta_{13} TO_{it-1}^- + \delta_1 FD_{it-1} + \delta_2 POV_{it-1}^+ + \delta_3 POV_{it-1}^- + \delta_4 ICT_{it-1}^+ + \delta_5 ICT_{it-1}^- + \\ & \delta_6 \ln GDPC_{it-1} + \delta_7 \ln SAV_{it-1} + \delta_8 \ln INST_{it-1} + \delta_9 \ln FINOP_{it-1} + \delta_{10} \ln TO_{it-1} + \\ & \delta_{11} \ln POPD_{it-1} + \delta_{12} TO_{it-1}^+ + \delta_{13} TO_{it-1}^- + \mu_{it} \end{aligned} \quad (3.16)$$

- 1) Short-run asymmetry will have existed if $\beta_2 \neq \beta_3$, $\beta_4 \neq \beta_5$, $\beta_{12} \neq \beta_{13}$
- 2) long-run asymmetry is built up in cases $\delta_1 \neq \delta_2$, $\delta_3 \neq \delta_4$, $\delta_{11} \neq \delta_{12}$

3.7 Qualitative Approach

In this procedure the discussion is mainly focused on qualitative assessment of the research and the underlying objective by interacting with relevant stakeholders and experts from the industry. Moreover, different policy documents and regulations were also put to a review. This helped the author to broaden the policy horizon by understanding the real situation on the ground, policy dynamics if the problem and view of different stake holders.

Many different types of data are collected for qualitative work rather than just one, such as interview transcripts, field notes and other documents. Qualitative research is based on the idea that the best way to learn about a problem or issue is to speak with people who have firsthand experience with it.

3.8 Variable Description and Source

We use panel data set of five south Asian countries. The sample of countries includes Pakistan, Bangladesh, India, Nepal, and Sri Lanka. The selection of these countries is based on data availability (1984-2020).

Table 3. 1: Sources of Variable

S. No	Variable	Source
1	Financial Development	IMF
2	Poverty	WDI
3	GDP Per Capita	WDI
4	Saving Rate	WDI
5	Institution Quality	IMF
6	Financial Openness	http://web.pdx.edu
7	Trade Openness	WDI
8	ICT	WDI
9	Population Density	WDI

3.8.1 Financial Development

The financial system incorporates the instruments, institutions, markets, and the legal and regulatory framework that extends the credit by providing the transactions. There are different dimensions of financial development that have been described in the empirical literature, but the researcher used the data that was available for long series of a broad range of countries, for instance, M2 as a share of GDP, liquid liabilities as a share of GDP, and domestic non-state subsidies to bank sector as a share of GDP.

In most studies, a single indicator is used as a proxy for financial development. To overcome this problem in the current study, we will use the number of indices that summarizes the financial market's development and financial institutions' access, depth, and efficiency.

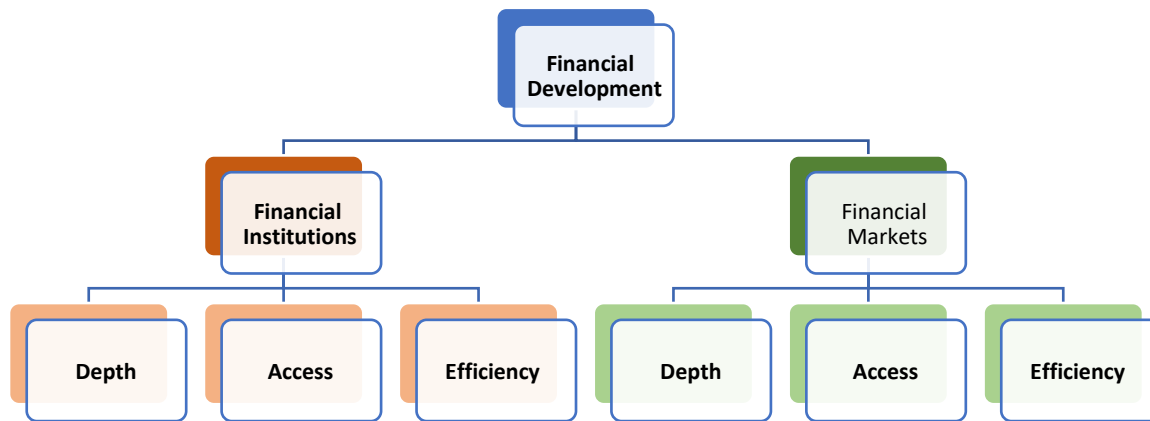


Figure 3. 1: Financial Development Pyramid

The financial market and financial institutions have three main features to measure the financial system.

3.8.1.1 Financial depth

Which describes the level of monetary institutions and market; however, it also guides how much the sources are available from monetary institutions. For instance, non-state credit proportion to GDP, M2, and included widening money proportion to GDP.

3.8.1.2 Financial access

It describes how much an individual can enter to get monetary institutions and monetary market facilities. For example, how much proportion of the people owned accounts in banks, and the number of sub-branches per 10000 young.

3.8.1.3 Financial efficiency

It defines how much monetary institutions and markets can provide services to the people. It includes the return on equity and returns on assets.

Table 3. 2: All indicators of Financial Development

CATEGORY	INDICATOR
Depth	Private-sector credit to GDP
	Pension fund assets to GDP
	Mutual fund assets to GDP
	Insurance premiums, life, and non-life to GDP
Access	Bank branches per 100,000 adults
	ATMs per 100,000 adults
Efficiency	Net interest margin
	Lending-deposits spread
	Non-interest income to total income
	Overhead costs to total assets
	Return on assets
	Return on equity
Depth	Stock market capitalization to GDP
	Stocks traded to GDP
	International debt securities of government to GDP
	Total debt securities of financial corporations to GDP
	Total debt securities of nonfinancial corporations to GDP
Access	Per cent of market capitalization outside of the top 10 largest companies
	Total number of issuers of debt (domestic and external, nonfinancial and financial corporations)
Efficiency	Stock market turnover ratio (stocks traded to capitalization)

The main four approximate variables, depth, stability, effectiveness and inclusion, are the main part of the monetary system. Moreover, incorporating a single variable may be inefficient in defining the financial system because it does not imply the essential higher level of financial

access. Essentially, analyzing just proficiency can't be adequate because a very proficient monetary area is not more secure than the less effective one. In this manner, a well-working monetary framework should catch each of the four intermediaries.

3.8.2 Poverty

Poverty is the measure of the poverty rate. Studying literature on the determinant and effects of poverty, we will use the most used indicator, i.e., poverty headcount ratio. The current study uses a poverty headcount ratio of \$3.20 per day. It is the percentage of the total population living on less than \$3.20 per day at 2011 international prices. This variable used as a macro variable by the following researchers (Ali & Ali, 2018; Mamoon et al., 2018; Yousaf & Ali, 2014) in the past as a proxy of poverty.

3.8.3 GDP Per Capita

GDP per capita measures a nation's total production that divides gross domestic product (GDP) by the number of people living in the country. GDP per capita is very valuable when comparing one nation to another since it reveals the relative performance of the countries. This research utilized GDP per capita growth as a proxy for economic growth. GDP per capita is used as a proxy of economic growth (Li et al., 2015)

3.8.4 Trade Openness

Openness incorporates exports plus imports of goods and facilities and divides this total by GDP. If the country has more ratio, then it is more exposed to international Trade. However, the economic policies can be observed by measuring the trade openness, whether they have limited or flexible Trade between the economies. Most developed and developing countries heavily depend on international Trade to achieve economic goals.

(Pham et al., 2021) find out that the contribution of trade openness is very important in developing countries and better institutions. Trade openness has a positive and significant effect on financial development (Nabila & Zakir, 2014). However, (Muhsin et al., 2014) find out the strong causal relationship between financial development, trade liberalization, and economic growth. There is bi-directional causality between economic growth and Trade, which causes financial development.

3.8.5 Institutional Quality

To evaluate the performance of a country's institutions, researchers rely on data from International Country Risk Guides (ICRG) to determine the factors that impact different variables. In particular, we use a method developed by Keefer and Knack (2002) that examines six key indicators of institutional quality: government stability, democratic accountability, law and order, quality of bureaucracy, investment profile and corruption levels. This approach gives us a comprehensive understanding of the country's institutional environment.

3.8.5.1 Voice and Accountability

This measure assesses the level of citizens' participation in public elections, which is an indication of the level of democracy in the country, as well as the freedom of the media and speech which are essential elements of a democratic society. It is a way to gauge the level of freedom and political engagement of citizens in a country, and how well the government is promoting and protecting democratic values and human rights.

3.8.5.2 Political Stability and Absence of Violence/Terrorism

This variable is an important tool for evaluating the public's perception of the political climate in a country. It looks at the level of public trust in the government's ability to maintain stability, security, and peace and the potential for politically motivated violence or terrorism. Additionally, it assesses the level of public understanding and awareness of the political situation in the country and how it may impact overall social and economic development. This information helps to provide a comprehensive understanding of the general public's perception and concerns regarding the country's political climate and any potential risks it may pose.

3.8.5.3 Government Effectiveness

This metric evaluates the effectiveness of social and economic systems, freedom from political barriers, government's role in protecting citizens' rights, efficiency of the economy, access to resources and opportunities, political and social stability, level of corruption and state of rule of law to understand the overall well-being of a country and its citizens.

3.8.5.4 Regulatory Quality

This variable assesses the degree of economic openness in a country, which refers to government's ability to design and enforce regulations that promote economic growth and development, openness to foreign trade and investment, level of government intervention in economy, efficiency of regulatory system, protection for property rights and state of legal system to understand the overall economic environment of a country.

3.8.5.5 Rule of Law

This measure displays data on the level of trust and adherence to the law among citizens, including respect for legal authority, willingness to follow laws and regulations, trust in justice system, public awareness and understanding of legal rights and responsibilities to understand the overall level of law and order in a country.

3.8.5.6 Control of Corruption

This measure reflects public opinion on the extent of government officials using power for personal gain, mainly including corruption, by assessing public trust in government officials, transparency and accountability in government, level of corruption in public sector, economic and political stability, and effectiveness of anti-corruption measures.

Enhancing the institutional and governance quality can contribute to increasing financial development through several paths like the protection for creditors and investors (Rafael La et al., 1997). Political interference in lending decisions can reduce the efficiency of debt distribution in countries with fewer barriers to executive power (Tressel & Detragiache, 2008). Other studies

(Adjei & Matthew, 2018; Atif et al., 2020) find out a significant positive impact of the institutional and governance quality on financial development.

3.8.5.7 Institutional Index: Construction

As all the components discussed above are likely to be strongly correlated with each other, we have constructed an index of institutional quality to avoid estimation problems. Given the merits and demerits of all the components of institutions, we feel that an index generated using the six components will better reflect the role of institutions in economic growth. The institutional quality index has been generated using the Principal Component Analysis. This is the most commonly used technique for aggregating social indicators.

3.8.6 Financial Openness

Financial openness is measured by the financial policy, i.e., de jure financial openness. This index has been calculated by (Chinn & Ito, 2006). Its value ranges from 0 to 1. When checking the impact of financial openness on financial development (Chengsi et al., 2015) found that financial openness is inversely related to financial development in China. While (Raghuram & Luigi, 2003) observed that the enhancement in financial development depends on consecutive openness of Trade and capital flow. (Karimu & Marbuah, 2017) re-examine the relationship between financial development, financial openness, and Trade openness and find out that both openness positively impacts financial development. However, (Baltagi et al., 2009) confirm that financial openness can give rise to financial development without high trade openness.

3.8.7 Information and Communication Technology (ICT)

Although the ICT has no single definition, but widely accepted definition of ICT is, the term is generally recognized to mean all devices, networking components, applications, and systems that combined allow people and organizations to interact in the digital world.

In the current study, we will use following determinant as a proxy of ICT:

- Fix broadband subscription
- Mobile cellular subscription
- Individual using the internet (% of the population)
- Computer communication and other services (% of commercial services import)

The index of ICT will be formed from the above proxies through primary component analysis (PCA).

While studying the impact of ICT on financial development (Alshubiri et al., 2019), ICT exert a positive and significant impact on financial development. Thus, an increase in ICT increases the financial development. The expansion of the internet and telephone raises financial development, whereas mobile-cellular growth positively impacts financial development. (Mei-Se et al., 2020).

3.8.8 Population Density

Population density measures the total population per square kilometer of land area. When the financial development is in its earlier stages, countries, focus on the financial activities in those geographical areas with a larger population. Most financial services benefit from economies of scale. This is especially true in countries where high population density is accompanied by

comparatively higher average earnings and low levels of poverty (Allen et al., 2014; Aluko & Adebayo, 2018; Shahbaz et al., 2018)

CHAPTER 04

Results and Interpretation

This chapter illustrates the estimated analysis of the current study. The influence of poverty, trade openness and ICT on financial development for the selected sample countries, namely Pakistan, India, Sri Lanka, Bangladesh, and Nepal, for the period of between 1984 to 2020. We apply the Levin Lin Chu (LLC) and Im Pesaran and Shin (IPS) unit root test for stationary of the data to avoid the spurious regression. Then we select the optimal lags and correlation matrix after that we apply the Panel ARDL co-integration techniques to check the short and long-run association among the targeted variables. To achieve the study's second objective, we will check the moderating role of the selected variable in our model. After that, we also checked the asymmetric effect of the independent variable on the dependent variable by using PMG-NARDL.

4.1 Descriptive Statistics

Descriptive statistics provide basic features of data used in a study. These statistics summarize and describe data in a meaningful way so that it becomes easy to understand the nature of data. Statistics that commonly used are central tendency (mean and median) range (maximum and minimum) and standard deviation. Mean is the average value of the variable and median is the value situated in the middle of observations. Closer values of mean and median depict symmetry distribution. The maximum and minimum values show the range of data, and the standard deviation gives the estimated value of dispersion.

Table 4. 1 Descriptive statistics of variables for South Asian countries (1984-2020)

	Mean	Medi	Max	Min	Std. Dev.	Skewne ss	Kurtos is
FD	0.2232	0.2043	0.4957	0.07696	0.098	0.9400	3.0798
POV	60.646	63.262	93.250	8.9000	21.601	-0.522	2.4432
TO	0.4086	0.3792	0.8863	0.1221	0.1678	0.6944	3.0571
GDPC	2.7965	2.727	3.610	2.1914	0.3447	0.4538	2.534
FINOP	1.0945	0.4261	1	0	0.4419	-1.541	4.3256
INST	0.0034	0.1333	1.6305	-2.9100	0.999	-0.709	3.5107
POPD	2.5038	2.4667	3.1021	2.0615	0.2871	0.6381	2.4733
SAV	25.257	23.702	42.603	10.334	7.7410	0.3310	2.1761
ICT	0.9945	0.5584	8.8348	0.0007	1.5276	0.1970	12.785

The table above includes the summary statistics that is the mean, standard deviation, skewness and kurtosis of the study's dependent, independent, and other variables. Where is the elaborated value of mean of financial development as 0.2232 and the standard deviation is 0.098. Furthermore, the mean value of poverty is 60.646 and the standard deviation is 21.601. As stated in the study that, more than 33 percent of people living in extreme poverty globally reside in south Asia. The highest value of poverty is 88.5,88.7,67.3,83.2,84 for Pakistan, India, Sri Lanka, Bangladesh, and Nepal. Therefore, the mean value for poverty is around 60 percent .Next are the values of the skewness and the kurtosis, and the acceptable range, according to the statisticians, is from (-1.96 to 1.96) and (-3 to 3) (Khan, 2020), so our values given in the above table are lies within the range of acceptable range shows that there is no noise in the data.

4.1.1 Time plots:

The following are the time plots of the main variables of the study:

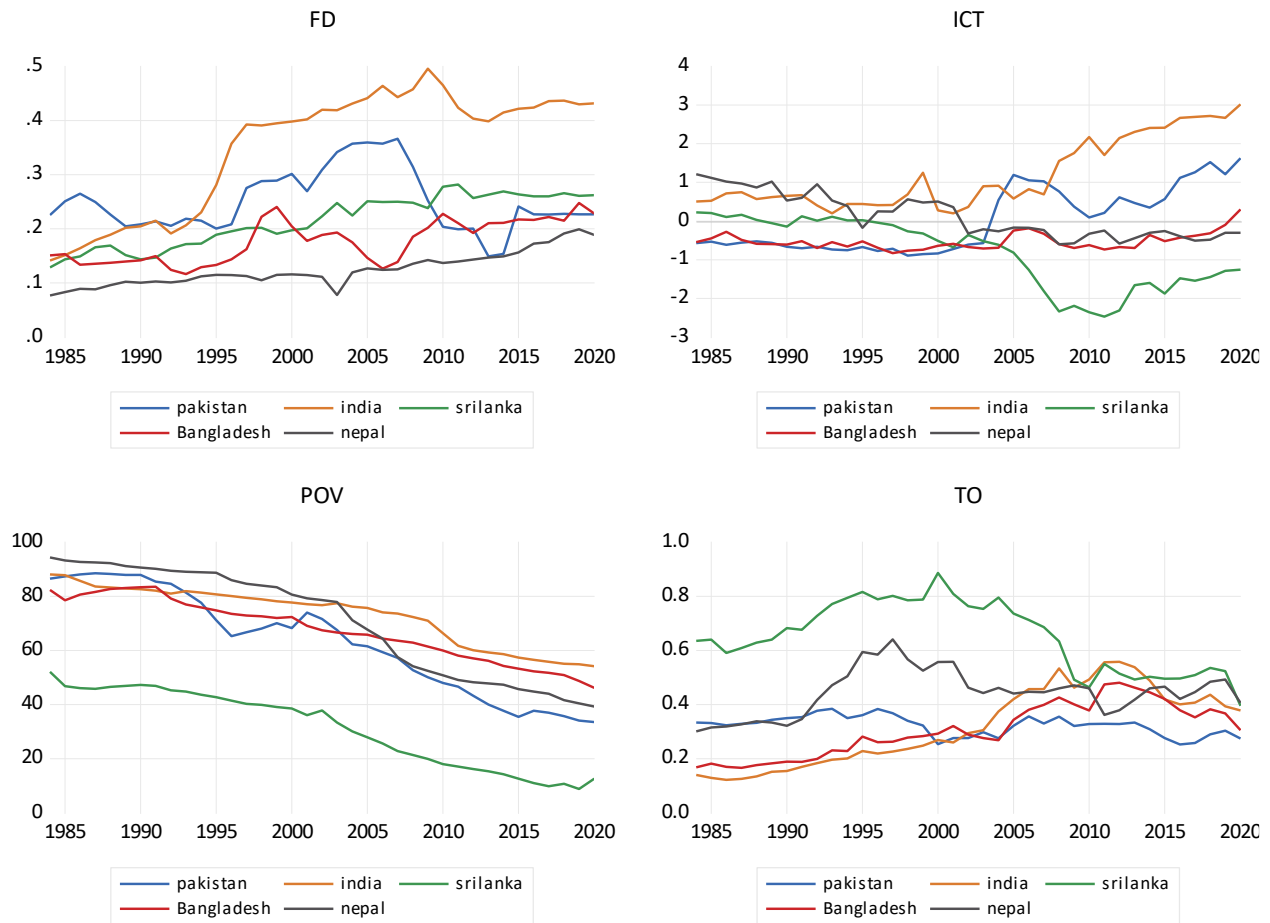


Figure 4. 1: Time plots for the main variable of the study

A time plot is a type of graph used to visualize how a variable change over time. By looking at above graph we can see that in financial development, ICT and trade openness there are **random trend**. But overall, in financial development and ICT there are increasing trend over the time. In Poverty there is a continuous decreasing trend mean that poverty is reduced with the time.

4.2 Correlation Matrix

A correlation matrix is used to investigate the interdependence of numerous variables over a certain time period. The output includes a table with coefficients for each main variable and the others. The pairwise (Pearson) correlation matrix is the most often used measure for examining the relationship between several variables.

Table 4. 2 Correlation Matrix

	FD	POV	TO	GDPC	FINOP	INST	POPD	SAV	ICT
FD	1.000								
POV	-0.343	1.000							
TO	0.523	-0.633	1.000						
GDPC	0.276	-0.789	0.294	1.000					
FINOP	-0.021	0.530	-0.554	-0.301	1.000				
INST	0.340	-0.289	0.323	0.333	-0.391	1.0000			
POPD	-0.23	0.083	-0.173	-0.040	0.136	-0.142	1.000		
SAV	0.356	-0.076	0.199	0.247	-0.048	0.348	0.632	1.000	
ICT	0.139	-0.550	0.123	0.856	-0.110	0.123	-0.108	0.127	1.000

The table shows that poverty, financial openness, and population density are inversely correlated with financial development. While Trade openness, GDP per Capita, Institutional Quality, Population density, saving, and ICT are positively associated with the financial development.

4.3 Unit Root Tests

Before going to the co-integration test, it is obligatory to test the stationary of the variable. Estimating the phenomenon without checking the stationary level will give the spurious results. However, different tests have been used to check the stationarity in the panel data. The Levin Lin Chu (LLC) an Im pesaran and Shin (IPS) test will be applied for every variable because it is mostly used in the empirical literature.

Table 4.3 Panel Unit Root of Selected South Asian Countries

Variables	Test Name	t Statistic at level	Probability	T Statistic at First Difference	Probability	
FD	LLC	0.6588	0.9666	-7.0110	0.0092	I(1)
	IPS	-1.4095	0.5850	-5.3556	0.0000	I(1)
POV	LLC	-2.7383	0.1402	-8.6857	0.0001	I(1)
	IPS	-0.5078	0.9966	-4.3587	0.0000	I(1)
TO	LLC	-2.9330	0.3112	-8.9997	0.0000	I(1)
	IPS	-1.3521	0.6500	-5.0918	0.0000	I(1)
GDPG	LLC	0.7268	0.9776	-7.1834	0.0025	I(1)
	IPS	0.4931	1.0000	-4.7487	0.0000	I(1)
FINPOL	LLC	-5.2661	0.0294	-9.3650	0.0000	I(0)
	IPS	-3.8082	0.0001	-8.8846	0.0000	I(0)
INST	LLC	-3.7482	0.3759	-9.8817	0.0000	I(1)
	IPS	-0.7525	0.2259	-7.3345	0.0000	I(1)
POPD	LLC	-6.0691	0.0000	-4.1362	0.0045	I(0)
	IPS	-0.1620	0.4363	-0.1457	0.0099	I(1)
ICT	LLC	0.1096	0.9643	-6.7788	0.0005	I(1)
	IPS	0.3742	1.0000	-5.2015	0.0000	I(1)
SAV	LLC	-0.959	0.1686	-2.4664	0.0068	I(1)
	IPS	-0.0836	0.4667	-6.5751	0.0000	I(1)
INST	LLC	-0.0031	0.4984	-5.0212	0.0000	I(1)
	IPS	-0.5485	0.2916	-4.8552	0.0000	I(1)

In the current study, two different types of unit root tests are applied. The first one is the Levin and Lin Chu (LLC); this test assumes a common unit root process across the cross-section. The second one is the Im pesian and Shin (IPS), and this test assumes individual unit-roots across the cross-section. The null hypothesis for both tests is that the data is non-stationary or has the problem of

unit root. The alternate hypothesis is that the data are stationary and do not have a unit root problem.

When the probability value is less than 0.05, we will reject the null hypothesis, which means that the variable is stationary, but when the probability value is greater than 0.05, then we will accept the null hypothesis means the variable has a unit root. All the variables are tested with intercept and trend.

In table 4.3 the first column shows that some variables have the problem of unit root, while all the variables are stationary at the first difference. It is concluded that some variables have the problem of unit root on the level, while all the variables at the first difference become stationary.

4.4 Selecting Lag Length Criteria

Before going to the ARDL model, choosing the lag length criteria in the analyses is compulsory. Different model have been use in the literature like AIC and SC. We have selected this because it is also applicable for small samples and provides more suitable results than lag selection methods such as SC. The results of the lag selection criteria is shown in the below table.

Table 4.4 Suitable Lag Length

Variable	FD	POV	TO	GDPC	FINPOL	INST	POPD	ICT	SAV
Lag order	0	1	1	0	0	0	1	0	1

We have selected the 5lags in our autoregressive process. The most repeated lags are included from every country in this table, which are 1 and 0.

4.5 Co-Integration Tests

The diagnoses of the above unit root tests show that some variables contain unit root at level, but at the first difference, they became stationary. After unit root checking, Pedroni and Kao co-integration tests are applied to check the existence of a long-run relationship between the variables.

The null hypothesis was to check whether there is no co-integration, while the alternate is that the variables are co-integrated.

Table 4.5 Result of the Pedroni Co-Integration Test

	statistic	p-value
Modified Phillips-Perron t	4.642	0.004
Phillips-Perron t	2.631	0.048
Augmented Dickey-Fuller t	3.638	0.050
H ₀ = No Co-integration	H ₀ is rejected	

Table 4.6 Result of the Kao Co-Integration Test

	Statistic	p-value
Modified Dickey-Fuller t	-7.5486	0.0000
Dickey-Fuller t	-4.3732	0.0000
Augmented Dickey-Fuller t	-4.7031	0.0000
Unadjusted Modified Dickey-Fuller t	-7.4558	0.0000
Dickey-Fuller t	-4.3627	0.0000
H ₀ = No Co-integration	H ₀ is rejected	

The result from the Kao and Pedroni test give suitable test statistics. In both tests, null hypotheses of no co-integration are rejected, which is described by the probability value of greater than 0.05. we accepted the alternate co-integration hypothesis, which means that in the long-run these

indicators have a significant impact on the financial development, ultimately increasing the financial development in the long-run.

4.6 PMG Pooled Mean Group:

The pool mean group tells us the short-term and long-term relationship between the variables. In our analysis, the short-run relation differs in every country while the long-run is the same, and poverty negatively affects financial development.

Table 4.7 Panel ARDL Result

Panel ARDL Estimation Results			
Variables	Coefficients	T-Statistics	Prob*
Long-run Coefficients			
Poverty	-0.1233	-2.299	0.0239
Trade Openness	0.1588	4.5336	0.0000
ICT	0.0888	4.7629	0.0000
GDP per Capita	0.0811	4.2769	0.0000
Financial Openness	0.0015	1.1116	0.2693
Population Density	0.2072	1.5151	0.1333
Inst. Quality	0.0130	5.0150	0.0000
Saving Rate	0.0027	4.3488	0.0000
Short run Coefficients			
ECT	-0.671	-2.0033	0.0482
D(Financial Develop (-1))	0.5333	8.0079	0.0000
D(Poverty)	0.4762	1.8622	0.1159
D(Trade Openness)	-0.0511	-0.5924	0.5551
D(ICT)	-0.0474	-0.8781	0.3823
D(GDP per Capita)	-0.0757	-0.5952	0.5532
D(Financial Openness)	-1.854	-1.0000	0.3201
D(Population Density)	6.583	1.0043	0.3180
D (Inst. Quality)	0.0037	0.3118	0.7559
D(Saving Rate)	4.4834	0.0324	0.9742
C	-0.8408	-1.890	0.0619

Table 4.7 shows both the short and long-run results of panel ARDL. In the short run, changes in macroeconomic variables are the time-taking processes that affect other variables. In this case study, we looked at the aggregate influence of GDP, TO, POV, etc. on FD in South Asian economies. Since these variables are considered as macroeconomic variables and the transmission of the effect from one variable to another occurs through various channels and mechanisms, which may be slow and time-consuming. Due to such reasons, macroeconomic variable(s) may not be capable to obtain equilibrium at an appropriate speed of adjustment. As a result, the influence of such variables may be very slow or insignificant in the short run.

Based on the finding of our analysis, we confirm that Poverty has a significant impact on financial development. Financial development is denoted by the FD and is the dependent variable, so first of all, the relationship with the independent variable is poverty. In the short run, poverty is insignificant to financial development, while, in the long run, the T statistics value [-2.2991] indicates that the poverty has a significant and negative relationship with financial development, and the case is further strengthened by the probability value of the (0.0239). From the coefficient value, 1% decrease in poverty increases the financial development by 0.12%. The average value of financial development is 0.22 which lies between 0.07 and 0.49 the maximum and minimum value of financial development. When the poverty is reduced by 1 percent it will enhance the financial development by 0.12 if we add this to the mean value it will become 0.34 mean approaching to the maximum value. But if the poverty is increased it will reduce the financial development by the same amount and will become 0.1 which indicate that it is approaching toward the minimum value, mean that financial development is reducing. This implies that people have enough money to invest or save in banks when poverty is reduced. Moreover, it will increase their access to financial services and will increase the financial development.

The second independent variable, trade openness (TO), has an insignificant impact on the financial development in the short run. In the long run, it has a significant relationship with financial development, while having the T statistics value [4.5336] and P statistics value (0.0000) indicate that it significantly impacts the financial development. A 1% increase in trade openness will increase the financial development by 0.15%. Our results are supported by (Dong-Hyeon et al., 2010).

GDP per capita, denoted by the GDPC as a proxy of economic growth, is insignificant in the short run but it has a significant and positive impact on financial development in the long run, as shown by the T statistic and P-value [4.2769] (0.0000). Increasing GDP Per capita by 1% will increase financial development by 0.08%. It shows that GDPC is contributing to financial development. Some authors have theoretically and experimentally demonstrated that economic growth causes financial development. When the economy grows, increasing demand for financial services induces an expansion in the financial sectors. The result is in line with (Goldsmith, 1969; Gurley & Shaw, 1955; Jung, 1986; Khan, 2001), who hypothesize that economic growth in developing countries leads to financial development because of increasing demand for financial services.

Next in the row is the institutional quality which is also insignificant in the short run, while in long-run, by looking at the T statistic and P statistic [5.0150] (0.0000) gives us a clear indication that the institution quality has a positive and significant impact on the financial development which mean that a country having strong institution quality will result in greater financial development. A 1% increase in the coefficient of institution quality will increase financial development by 0.013%. Enhancing institutional quality can lead to growth in several ways, like protection for creditors and investors. Political interference in lending decisions can reduce the efficiency of debt distribution in countries with fewer barriers to executive power (Detragiache et al., 2008). Some

other studies (Adjei & Matthew, 2018; Atif et al., 2020) find out the positive effect of the institutional and governance quality on financial development.

The information and communication technology is insignificant in the short run, while in the long-run, the T statistic (4.7629) and P statistic (0.0000) indicate that the ICT has a positive and significant impact on the financial development as previously investigated in the literature. According to the coefficient value, a 1% rise in ICT will increase the financial development by 0.08%. The result of our study is in line with the (Alshubiri et al., 2019; Mei-Se et al., 2020; Rudra et al., 2015), who find out that ICT favourably affects the financial development, especially when there is a rise in internet connection and mobile-cellular subscription.

Saving, like above all other variables, has an insignificant impact on financial development in the short-run but has a positive and significant effect on the financial development, as we will clearly say by looking at the value of the T statistic, which is [4.3488] and the value of the P statistic is (0.0000). The result suggests that saving positively impacts financial development; a 1% rise in the saving rate will enhance the financial development by 0.002%. Our result is supported by the (Holst, 1990; Hussain & Rostom, 2017; Zhang et al., 2021). They find that saving is also important for financial development because the low saving rate causes economic volatility. In contrast, inadequacy in financial development is due to economic volatility.

The financial openness is statistically insignificant both in short and long run. financial openness is the integration of the country financial system with the global financial system. As the financial integration of the South Asian countries are not very well developed therefore financial openness can be insignificant to financial development in our study.

The above table Contain the ECT term which represents the speed at which deviations from the long-run equilibrium relationship are corrected in the short-run. The error correction term is the

coefficient on the lagged dependent variable in the error correction model, which is included to capture the long-run equilibrium relationship between the variables in the model. A higher absolute value of the error correction term suggests that the dependent variable adjusts faster to deviations from the long-run equilibrium, indicating a stronger short-run relationship between the variables in the model. In our model the ECT term has a significant negative coefficient, implying if there comes a shock in the system, the long-run coefficients would return to equilibrium with a speed of 0.67% per year.

4.7 Panel Non-Linear ARDL(NARDL) Result

Table 4. 8 Panel Nonlinear ARDL estimation results

Panel Nonlinear ARDL estimation results			
Variables	Coefficients	T-Statistics	Prob*
Long-run Coefficients			
Poverty_POS	-0.3353	-1.9040	0.0613
Poverty_NEG	0.1816	3.7735	0.0004
trade openness_POS	0.0336	1.7459	0.0470
trade openness_NEG	-0.0455	-2.5306	0.0138
ICT_POS	0.0044	3.8415	0.0003
ICT_NEG	-0.0017	0.5613	0.6130
Financial openness	-0.0010	-1.4459	0.1530
Population Density	-0.4547	-2.4178	0.0184
Inst. Quality	0.0116	5.6467	0.0000
GDP Per Capita	0.0598	2.2451	0.0282
Saving Rate	-0.0002	-0.5048	0.6154
Short run Coefficients			
ECT	-0.7742	-1.9620	0.0387
D(financial develop)	0.5752	3.7252	0.0004
D(Poverty_POS)	-0.0175	-0.0220	0.9820
D(Poverty_NEG)	0.3472	1.1752	0.2442
D(Trade Open_POS)	-0.1346	-1.9589	0.0544
D(Trade Open_NEG)	-0.0219	-0.1173	0.9069
D(ICT_POS)	-0.0739	-1.6896	0.0959
D(ICT_NEG)	-0.0066	-0.0737	0.9414
D(Financial Openness)	-2.1121	-1.0000	0.3210
D(Population Density)	-0.7037	-0.2870	0.7750
D(Inst. Quality)	0.0088	0.8287	0.4103
D(GDP per Capita)	-0.0365	-0.4043	0.6872
D(Saving Rate)	0.0023	1.4942	0.1399

The long-run and short-run results are presented in the table 4.8; the entire estimate coefficient is statistically significant and carried a correct sign as expected, except for financial openness and saving, which are statistically insignificant. The estimated long-run coefficient shows that financial development responds negatively to the positive shock of poverty and is statistically significant at 10%. The relationship implies that whenever there is an increase in the poverty, it will reduce the financial development. Whenever there is an increase in the level of poverty it will hinder the people to invest in the long-term return investment specifically in human and physical capital (World Bank, 2018), while at the same time human capital is directly related to the financial development (Cole et al., 2014; Nadeem, 2018). While negative poverty shock has a positive impact on the financial development in the long run. This result indicates that reduction in poverty increases financial development. When looking at the coefficient of the positive and negative shock of poverty it is clear that the positive shock impact is greater than the negative shock. This means that high poverty impedes financial development with a greater magnitude as compared to benefiting the financial development by the negative shock.

To check the non-linear effect between trade openness and financial development, the study clearly shows that the positive shock is positively associated with financial development. Our finding suggests that an increase in trade across the border acts as a mitigating factor in reducing poverty and income inequality by improving a country's overall economic activity. Moreover, a negative shock in trade openness is negatively associated with financial development. When there is a contraction in the trade openness, it worsens the economic activity and increases the level of poverty, as earlier shown that poverty is inversely associated with the financial development.

Last we checked the non-linear effect of Information and Communication Technology on financial development. The positive shock of ICT is positively related to financial development, while the

negative shock in our study is insignificant. The negative shock in the ICT occurs due to a continuous decrease in the ICT penetration, but in this case, there is very small or not significant decrease in the ICT variable. Because once appropriate ICT resources are provided to individuals or community, their access to ICT will increase with time. Due to the availability of such resources in the case study region, the negative shock of ICT is insignificant.

The significance of positive shock shows that an increase in ICT will increase the financial development. The result of the study is supported by (Alshubiri et al., 2019; Rudra et al., 2015).

4.7.1 Wald Test result for Asymmetric Effect

The asymmetric relationship can be observed from the size of the coefficient; however, we employed the Wald test to investigate the asymmetric relationship among the projected variable. The result of the Wald test is reported in the table.

Table 4.9 Wald Statistics Test Result

Wald Statistics Test Result						
	Long-run Asymmetry			Short Run Asymmetry		
Variable	Wald Value	Wald Prob. Value	Conclusion	Wald Value	Wald Prob. Value	Conclusion
POV	3.093	0.026	Asymmetric	4.975	0.341	Symmetric
TO	3.793	0.000	Asymmetric	2.656	0.229	Symmetric
ICT	-2.260	0.027	Asymmetric	6.473	0.052	Asymmetric

The result of the Wald test is reported in the above table, which indicates that poverty, trade openness, and the ICT shock effect are non-linear in the long term. On the other hand, the short-

run result indicates no asymmetry except in Information and communication technology. The result of the Wald test is also confirmed by the long-run coefficient size, which shows that the coefficient of the positive and negative shock is not the same, which means that there is an asymmetry in their effect.

4.8 Moderation Analysis

The following table contains the result of the moderating term estimated through Panel ARDL.

Table 4. 10 Regression Analysis with Moderating Effect

	Model 1	Model 2	Model 3	Model 4
POV	-0.1233 [-2.2991] (0.0239)	-0.0968 [-1.9252] (0.0576)	-0.1080 [-2.4045] (0.0184)	-0.1003 [-1.9810] (0.0509)
TO	0.1588 [4.5336] (0.0000)	0.0778 [0.5087] (0.6123)	0.1760 [3.8992] (0.0000)	0.2107 [4.0336] (0.0001)
ICT	0.0088 [4.7629] (0.0000)	0.0065 [3.1798] (0.0021)	0.0082 [3.5304] (0.0007)	0.0143 [1.1681] (0.2461)
POV*TO		-0.4586 [-1.8517] (0.0635)		
POV*ICT			0.062 [1.8447] (0.0400)	
ICT*TO				0.0406 [1.9471] (0.0343)
INST	0.0130 [1.1112] (0.0000)	0.0083 [3.4817] (0.0008)	0.0080 [3.0451] (0.0031)	0.0078 [3.1154] (0.0025)
GDPG	0.0811 [4.2769] (0.0000)	0.0377 [1.6699] (0.0987)	0.0401 [1.6814] (0.0964)	0.0274 [1.1740] (0.2437)
FINOP	0.0015 [1.1116] (0.2693)	-0.0003 [-0.2732] (0.7853)	-0.0015 [-0.9512] (0.3443)	-0.0001 [-0.0705] (0.9440)
POPD	0.2072 [1.5151] (0.1333)	0.5487 [3.7608] (0.0003)	0.5483 [-3.5304] (0.0013)	0.6186 [3.9338] (0.0002)
SAV	0.0027 [4.3488] (0.0000)	0.0030 [4.1568] (0.0001)	0.0033 [4.2164] (0.0001)	0.0029 [3.9097] (0.0002)
ECT	-0.6714 [-2.0033] (0.0482)	-0.6303 [-2.1150] (0.0374)	-0.5979 [-2.1388] (0.0354)	-0.6071 [-2.1410] (0.0352)

In model 1 explained earlier the moderating role of the trade openness and ICT was not measured because in those models, we were simply checking the impact of poverty on the financial development but now in these models, we are explaining the moderating role of the trade openness and ICT.

In the model 2, all the independent and control variables are same all the variable both Independent and control variables, except financial openness population density have a significant impact on the financial development but the main thing to explain in this model is the moderating role of the trade openness and poverty because it is trying to capture the intensity of the relationship poverty and trade openness looking at the result of interaction term one thing is clear that trade openness has a moderating role in between the poverty and financial development by looking at the value of the T and P statistic [1.751](0.083) and the moderating role is statistically significant. This mean that trade openness has positive impact on the financial development. The trade openness may also reduce the poverty But in the presence of high poverty rates the positive impact of trade openness is not very much effective because the high poverty rate is dominant over trade openness.

It reduces the magnitude of the inverse effect of poverty on financial development. In Model 2, when the poverty increases by 1%, it will reduce the financial development by 0.096% as compared to -0.123% in Model 1 without the interaction term. The whole effect of poverty on financial development depends on the direction in which trade openness is affected by poverty and on the direction of trade openness on financial development. One study (Gnangnon, 2021), empirically found a positive relationship between trade openness and poverty reduction. The literature has also shown that trade openness can significantly strengthen financial development (Ashraf et al., 2017; Baltagi et al., 2009; David et al., 2013; Dong-Hyeon et al., 2010).

Trade is among the important factor of poverty reduction. Countries with international trade will grow faster, improve their productivity, provide more opportunities along with higher income. Trade openness also benefits lower-income household by providing them the most affordable goods and services. Participating in the world economy with trade will help in faster economic growth and reduce local poverty.

After explaining the result of the $POV*TO$ interaction term we will move to next model in which the moderating role of ICT is checked on the effect of poverty on financial development. This should be worth mentioning that all the other independent and control variables significantly impact financial development. The $POV*ICT$ result suggests that moderating role exists by looking at the values of the T and P statistic [1.9147] (0.0400). This mean that at any given level of poverty when there is increase in ICT it will increase the financial development. Compared to Model 1 it also decreases the inverse effect of poverty on financial development from 0.123% to 0.108%. ICT plays an important role in poverty reduction, specifically in developing countries. Many poor people are deprived of ICT accessibility; however, many researchers suggest that accessibility and timely finance can drag out poor people from poverty because ICT is largely responsible for economic growth and social progress and significantly influences employment and productivity rates.

In the last Model 4 the moderation effect of ICT and trade openness is checked on the poverty and financial development. Like the above model, all the independent and control variables are significant except financial openness and GDP per capita. By looking at the T statistic [1.9471] and P statistics (0.0343) we can say that the statistics are significant and confirm that there exist moderation effect of ICT and trade openness. Both ICT and trade openness help in poverty alleviation by creating employment opportunity, availability of less costly products, reduction in

cost of transaction and easy access to information. ICT is also very important for the trade openness because ICT reduces cost of different trade component especially transactional cost which is the larger part of the total trade cost. When there is reduction in the trade cost, trade relation between the countries will expand.

To check the statistical significance of the interaction term, we will divide the standard error by the marginal effect (sum of coefficient of poverty and interaction term) and get the t-statistics value. The presence of high t-statistic value indicate that marginal impact is statistically significant.

Table 4. 11 Statistical significance of Moderating Variables

	POV*TO	POV*ICT	TO*ICT
Marginal effect	-0.5554	-0.046	0.0597
Standard error	0.2558	0.00735	0.0232
t-statistic	-2.1709	-6.2585	-2.5733

In the above table it is clear that all the three models have t-statistics value greater than 2, hence it proves that all the interaction term have significant impact on the relationship of poverty and financial development.

4.9 Conclusion:

This chapter provides the estimation procedure that is done through STATA and EViews. In the first step we performed the unit root tests and find out the mixed order of integration mean some variables are stationary at level while other are stationarity al first difference. Secondly, we test foe the existence of the co-integration and found out that there exists co-integration between the variables of the study. In the next step the Panel ARDL result with interpretation is listed and the statistics indicate that there exists inverse relation between the poverty and financial development.

After the Panel ARDL the results of Panel non-linear ARDL (NARDL) also show that there is an inverse relation between poverty and financial development, but the effect of a positive shock is greater than the negative shock, which means that an increase in poverty has a greater harsh effect on financial development. However, we also conducted a moderation analysis of selected variables and found that these variables have a significant moderating role in the relationship between poverty and financial development.

CHAPTER 5

QUALITATIVE ANALYSIS

Among the countries undergoing the process of development, Pakistan is the only country whose national constitution demarcates that social security is an unambiguous civil right of all the citizens. Pakistan's Constitution states in its 38th Article that:

“The State shall provide for all persons employed in the service of Pakistan or otherwise, social security by compulsory social insurance or other means; provide basic necessities of life such as food, clothing, housing, education and medical relief, for all such citizens, irrespective of sex, creed, caste, or race, as are permanently or temporarily unable to earn their livelihood on account of infirmity, sickness or unemployment; reduce disparity in the income and earnings of individuals”

In National Social Protection Strategy (NSPS), social protection notion is envisaged of social protection is envisaged as:

“a set of policies and program interventions that address poverty and vulnerability by contributing to raising incomes of poor households, controlling the variance of income of all households, and ensuring equitable access to basic services. Social safety nets, social insurance, community programs and labor market interventions form part of social protection.”

(GoP, 2007)

Pakistan has a long history of social protection and SSN Programs, merged both from public and private sector. Historically public social protection schemes in Pakistan have been implemented but not remained as part of a persuasive social protection framework.

The social protection program is divided into social security and social net safety net assistance. The social security scheme targets only the formal employee or the retirees, providing them benefits on contingencies of sickness, work related injury, old age and maternity etc. the example of social security scheme are Employee Old Age Benefits Institution (EOBI) and Worker Welfare Fund. The second category generally targets the extreme poor and vulnerable people. Benazir Income Support program (BISP), EHSAAS Program, Microfinance Institution (MFI) and Pakistan Bait-ul-Mal along with other programs run by the federal and provincial government are the part of social assistance. All these interventions play a significant role in social protection mechanism.

It is worth mentioning that the existing social protection programs run by the government, both social security and social safety nets in Pakistan do not target the agricultural workers and the workers involved in informal economy or temporary laid-off due to seasonal or contractual adjustments. The agriculture and informal sectors are the major constituents in terms of labor and GDP share in these sectors (Farooq, 2014). There are two common features of SSN in Pakistan: first, its inability to achieve its financial target and the second, people's perception that because of these initiatives there cannot be seen any drastic change in the livelihood of rural communities (Arif, 2006). Though not documented well, the volume and targeting of individual social giving through philanthropy is much higher than government coverage.

When interviewing the different Microfinance Institutions, we came to conclusion that the role of microfinance is also not significant in the case of poverty reduction. The loans taken from Microfinance institution are used in non-productive activities such as purchasing mobile phones or laptops, house construction, and wedding purposes. Some of them told me that due to collateral requirements, interest rates, and instalment return systems, most people are stuck in debt, and there is no easy way to get out of this debt web easily. Some are taking a loan from a new source and

paying to old institutions. Getting assistance from microfinance institutions is burdening them instead of eradicating poverty and making a healthy and high quality of life.

Pakistan recently announces its fourth Strategic Trade Policy Framework (STPF) since 2009, which allocates Rs 45 billion for its implementation in the next five years. The other four STPF was unsuccessful in attaining its goal specifically in term of the export target. In those SPTF aimed to increase the export level of the country to USD 35 billion, improve export competitiveness and to increase regional trade share. In 2017-18 economics survey of Pakistan the annual export was USD 17.1 billion less than the estimated level, this is due to procedural and budget deficiency. In the coronavirus outbreak Pakistan, over half of Pakistani's export goes to the corona virus effected countries. On one side corona virus cause damage but on other side it also created unexpected opportunities for specific products.

There is an 18% decline in the Pakistan export in the international market during the last decade, which clearly indicates incompetency in the global market. There are many reasons for the reduction; high cost of doing business, high tariff, lower productivity, and poor quality of product. In the recent SPTF the government focuses on the reduction of cost of doing business by efficient logistics, reduction in documents requirement, spending less time in ports, and low cast of financing facilities. If imports tariffs are employs efficiently can play an important role in allocating resources, protecting domestic industry, and improving competitiveness and balance of payment. In Pakistan the tariff policy in the past is used for revenue generation rather than a trade policy tool which create multiple distortion in industrial structure making export non-competitive. In recent SPTF the tariff policy will be implemented with major changes to achieve competitiveness, improve resource allocation, increase in employment, and removing anomalies in tariff structure.

While interviewing the relevant ministry of Commerce they said that trade openness is only effective in poverty reduction if it creates more job opportunity, industrialization, and proper allocation of resources. By increasing trade openness, we mean not only increase in the imports but also increase in the exports along with proper allocation of resources. When trade openness increases, it makes cheaper raw material availability to domestic firms. It increases the firm scale and competitiveness in the international market. When the firm is more competitive, there will be more export, creating more job opportunities, providing the least costly products to people and helps in poverty reduction.

In the case of Pakistan, the reasons for low trade are; high tariffs documentary requirement, trust issue, political issue and cross border movement. In case of Pakistan the high tariffs help to maintain its balance of payment because of high tariff Pakistan will import less and less outflow of dollar from Pakistan and helps the current deficits. While in case of fiscal deficit 50 percent of the tax are collected by the import's tariffs.

Over the time Pakistan has taken many steps toward trade rationalization

- 1) Under National Tariff policy imports duty are rationalize
- 2) Reduces the tariff for over the 2000 goods.
- 3) Pakistan single window, newly launched trade system which bring easement in trade, transport of goods and document verification at single entry point.

These trade liberalizations speed up the Pakistan trade and over the last decade Pakistan has an impressive trade.

Pakistan had a total export less than its total import which led to negative growth. Pakistan's trade growth rate for 2020 is -5.83 percent (WITS, 2022). The reason for the negative growth is that in

Pakistan the tariffs and other taxes are much higher as compared to the other developing countries along with anti-export and highly complex custom tariffs. The regulatory framework and inefficiencies in clearance procedures cause a potential loss of \$12 billion in exports. Pakistan possesses the best strategic location, but it does not take full advantage due to low regional and international trade. Due to incompetent import substitution policies, Pakistan is unable to compete in the international trade market due to the low quality and standard of the export good (PIDE, 2021)

Internet is now a day human right and must be a top priority of the government. In Pakistan, people have limited internet access and devices to use internet. When Pakistan is compared to those other countries which are same in the socioeconomic and demographic condition. We can see that Pakistan is well behind, either it is internet inclusive index, telecommunication infrastructure index, ICT development index or words economic forum index. Pakistan stands behind some south Asian countries like India, Sri Lanka, Bangladesh, and Nepal (Anwar & Qayyum, 2021). Internet availability remains a big issue in Pakistan for most consumers, and the devices are also not affordable. In Pakistan, internet is considered a luxury instead of necessity (Hassan, 2021).

A major issue faced is the release of the spectrum by the government via auction (PIDE, 2021). The last spectrum released in Pakistan was in 2014 which is the lowest in the world that is 1\2. The hoarding of the spectrum is the short-term money making for government to fulfill its budget deficit. Moreover, the highest and most efficient tax collector in the world, almost world thirty percent of the world's tax is collected from cellular operators, the highest and most efficient tax collector. Also, in Pakistan huge amount of tax is collected from these companies but on the other side they are also penalized for charging high fees. The government is sacrificing long-term economic growth for short-term money. The policy for the sector is not been revised for the last

fifteen years, government and policy makers should formulate policies that enable and encourage the companies to improve its services along with the availability of the mobile and other devices. Pakistan does not have policy goal concerning the spread and availability of the internet. Pakistan is the cheapest country with respect to revenue per user which is one dollar. For the revenue generation government should adopt policies like pay-as-you-go instead of charging high charges.

5.1 Key take away:

The main points of the chapter are as follow:

- 1) The social net safety program run by the government are unable to achieve its financial target.
- 2) The volume of needs of the individual are much higher than government stiffened.
- 3) Microfinance institutions are also not playing a significant role in the poverty reduction because the loan which are taken are usually used in the non-revenue generation activities.
- 4) The main points of the Pakistan fourth Strategic Trade Policy Framework (STPF) are reviewed to increase the Pakistan total export to USD 35 billion, improve export competitiveness, reduce cost of doing business, reduce documentation requirements, and lower the cost of financing facilities.
- 5) In Pakistan all people are not able to access the internet facilities because in Pakistan it is considered as a luxury instead of necessity.
- 6) In telecommunication and ICT development index Pakistan are behind other South Asian countries.
- 7) The main problem that ICT are facing is related to the release and auction of the spectrum.
- 8) The policy for the ICT sector has not been reviewed for last fifteen years.

CHAPTER 06

CONCLUSION

In this study, we investigated the impact of poverty on financial development by taking into account the moderating role of trade openness and Information and Communication Technology (ICT). For this purpose, we use balance Panel data analysis for South Asian selected countries from 1984 to 2020. In this context, the Im, Pasaran and Shin (2003) and Levin Lin Chu (LLC) test is applied to check the unit root of the variables. The unit root test results show that all the variables become stationary after converting them at first difference. Following the unit root procedure, to investigate the long-run relationship between Poverty and financial development, Pedroni and Kao's co-integration analysis is used. The Pedroni and Kao co-integration analysis findings indicate the existence of the co-integration between Poverty and financial development. In this scenario, it can be concluded that the long-run relationship is valid between Poverty and financial development.

Furthermore, we apply Panel ARDL to create a consistent estimate. The Panel ARDL revealed that in long-run Poverty has a negative and significant effect on financial development. The trade openness and ICT have positive and significant effects on financial development. In comparison, other control variables, institution quality, GDP per capita and saving, have positive and significant effects on financial development. The innovative aspect of the study is to check the moderating role of trade openness and ICT. According to the result, both variables have a moderating role in the relationship between Poverty and financial development. All the moderating variables have a statistically significant moderating role on Poverty and financial development.

In other words, financial development is expected to benefit from a lower rate of Poverty. GDP per capita and saving also positively and significantly affect financial development. Trade

openness and ICT positively affect financial development through several channels like access to advanced technology, greater access to foreign markets for domestically produced local goods, etc. Next, we find the asymmetric effect of Poverty, trade openness and Information and Communication Technology on financial development. In the last, we apply the Wald coefficient restriction test to confirm asymmetry between the targeted variables. These results confirm that there is an asymmetry between the variable of interest. The last we checked, the Error correction term, ECT, has a negative with a statistically significant value. It can be concluded that variables quickly converge to the equilibrium. The findings conclude that the short-run relationship is valid between then Poverty and financial development.

6.1 Policy Recommendation

Based on the finding of our study, the following are the policy recommendation

- 1) South Asian countries should start initiatives that will reduce poverty in the region, along with the existing poverty reduction initiative; if government increase the penetration of ICT and trade openness, there can be a trickledown effect resulting in both poverty reduction and enhanced financial development in the region.
- 2) Based on our study, we encourage high penetration of ICT in south Asia. Government should start an initiative to enhance the penetration of ICT in far-flung areas so that all people have internet access, and it will bring a revolutionary change in their life and financial development.
- 3) Trade openness can be an important agent for poverty reduction and financial development in South Asian countries. To increase total trade capacity, these countries should consider liberalizing their trade policies with neighboring countries.

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Appendix A

Detail of the interviewees

1. Waqas Javid, Ministry of commerce
2. Ayan Ali, Bank-al-Habib
3. Muhammad Nasir, Meezan Bank Limited
4. Junaid Haider, Trade section Bank-al-Habib
5. Khurram Irshad Trade manager Habib Bank Limited
6. Tayyaba Nair Trade Manager United Bank Limited
7. National Rural Support Program Microfinance Institution
8. Khushali Microfinance Institution
9. U-Bank Microfinance Institution
10. Kashaf Microfinance Institution
11. Akhuwat Microfinance Institution