Remittances, Financial Inclusion and Poverty Linkages

An Empirical Study from Pakistan

By

MUHAMMAD SALMAN
Reg. No. 26/M.Phil-EAF/PIDE/2012

Supervised By

Dr. Attiya Yasmin Javid

A Dissertation Submitted in Partial Fulfillment of the Requirement for the Degree of Master of Philosophy in

Department of Economics and Finance

Pakistan Institute of Development Economics

2015

DEDICATION

This thesis is dedicated to my father "Riaz Ahmed", for his intimate love and efforts for providing me well education. He is suffering with "Lymphoma", May ALLAH (swt) bless him with sound health soon. "Ameen"

ACKNOWLEDGMENTS

In The Name of Allah, the Most Gracious, the Most Merciful

Firstly, I would like to start this page with my heartfelt, deepest gratitude presented to Allah Almighty "Praise be to Allah, the Lord of the worlds". His benevolence, affection, generosity, and blessings are even beyond our imaginations and deeds. The completion of this dissertation would have been entirely a dream without the strength and guidance provided by Allah Almighty. I thank to God for bestowing me with wisdom and perseverance as we are able to turn impossible into possible through His strength.

Secondly, I am thankful to my supervisor Dr. Attiya Y. Javed who helped me a lot whenever I got stuck during my work on this thesis. I thank her for her dedication, valuable guidance, scholarly support, and solicitous commitment of time throughout this process. Without her help, it would have been very difficult to get through. I am also thankful to Dr. Azmat Hayyat who time by time helped me and supported me in my thesis.

Thirdly, I could not have completed this thesis without the help of Ali Raza Cheema and Sana Javed who sacrificed their valuable time to guide me in completion of this thesis. Finally, my special gratitude goes to my parents and brothers because without their support and prayers, the compilation of this thesis would have been an impossible thing.

Muhammad Salman

ABSTRACT

Financial inclusion is considered as wide-ranging delivery of financial/banking services at very affordable rate to the every section of population including poor and small enterprises. Lack of the availability and use of financial services are seemed as key reasons of poverty. This study analyses both long run and short run association between the financial inclusion and poverty & remittance and financial inclusion by using the annual time series data of Pakistan's economy by applying ARDL (Auto Regressive Distributive Lag) technique. Most striking result revealed by this study is that financial inclusion does not have statistically significant impact on poverty. The reason might be due to lack of availability of credit facilities in poor areas, lack of culture of entrepreneurship, religious factor and profit oriented banking sector in Pakistan. Inflation and income inequality hurt the poverty in long run which implies that higher price level and low equal distribution of income increase the poverty head count, where increase in average income of whole population leads to reduce poverty head count in Pakistan. Furthermore, results of this study reveal that remittances have positive significant impact on financial inclusion in long run but not in short run might be due to higher cost of transaction. Higher literacy rate and population density raise the financial inclusion by demanding more financial services.

Key Words: Financial Inclusion, Poverty, Remittances, GDP, ARDL

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

1.1 Background

Economic and social advancement are highly dependent on the social inclusion of which financial inclusion is the main element. Financial and social exclusion are the main reasons of poverty linked deprivations in education, health and asset ownerships. These deprivations are ingrained in least developing countries which urgently need fully financial inclusion. Financial inclusion is the way to combat poverty by opening the opportunities for deprived poor and improving their creative energies to drive themselves out of vicious circle of poverty in terms of income (Rahman, 2009).

Inclusive financial system has defined in literature by many researchers. Sinclair (2001) has defined the financial exclusion (or inclusion) as unavailability (or availability) of basic financial services in proper way to the all segments of people. According to the Thrift and Leyson (1995), financial exclusion refers to prevent the availability of financial services to the certain social community and individuals. *Inclusive financial system can be defined as an economic condition where all the firms and individuals have access to the basic financial services without any discrimination.*

Concept of poverty is ambiguous means there is not a single agreed and correct definition (Alcock, 2006). Theoretically poverty is considered in the context of distributional concerns means lack of disposable resources for a household to make well sustained standard of life. Many researchers tried to define the poverty on the basis of living standard, containing food and clothing. According to the United Nations; A person is poor who has not enough income to buy basic necessities of life i.e. food

and clothing. Internationally, a person having income below the $1 per day is considered as extremely poor.

Poverty reduction has remained the hottest issue for the researchers, analysts and policy makers in previous and current era. Many researchers and policymakers believe that financial inclusion plays an important role in growth enhancement and poverty reduction. Stiglitz (1998) has argued that basic reason of poverty is market imperfection or failure. He has addressed that the causes of market imperfection are high fixed cost of lending money and asymmetric information. Developed financial system, access of the low income group to the banking services, increase their productivity, productive assets and also raise their potential to get higher and stable income (World Bank 2001). Financial Inclusion not only reduces poverty directly but also indirectly through economic growth.

Literature suggests that different indicators of financial deepening i.e. credit to GDP ratio help to lessen poverty. These indicators reduce the income inequality by improving the financial position of lowest quintile (Beck et al, 2007). Perez-Moreno (2011) has found that financial development reduces poverty through McKinnon Conduit effect which is contrasting to the credit channel. McKinnon effect (2013) suggests that even financial branches do not offer the credit opportunities; these institutions may offer the lucrative opportunities of saving and easily deposit. This may boost the investment which leads to development and welfare of overall economy.

Financial Inclusion is much more than the financial development (deepening) which also contains the access to the financial services and usage of these services. Due to less availability of data on financial services usage and breadth of financial franchises, financial deepening remained main focus of the researchers. Many studies in literature are available which explored that financial deepening has positive impact on growth and negative on poverty. There are also

some evidences that banking sector breadth and depth eliminate poverty (Burgess and Pande, 2005). This study finds some interesting results from the rural branch expansion program in India about reduction in rural poverty by 17 percent and rural borrowing accounts increased to twenty five million and deposit accounts increased by one hundred million.

Flow of remittances to the developing countries is attracting attention because of their rising volume and their impact on recipient countries. Role of migrant remittances in economic development continues to be an important issue for researchers and policymakers. Both groups are attracted to remittances because they represent substantial flow of financial resources, predominantly from developed to developing countries. These flows are considered very beneficial for growth enhancing or poverty reduction.

Remittances to the developing countries are projected to cross the half trillion dollars in 2016 which was expected $414 billion in 2013 with growth rate of 6.3 percent (World Bank, 2013). From south Asia, there are three countries India, Pakistan and Bangladesh in top 10 largest receiving remittances. In Pakistan, flow of remittances has sharply increased in this decade that is $13.92 billion in 2013 which was $7.811 billion in 2009.

This high amount of remittances plays an important role to support the economy of Pakistan by improving foreign reserves, trimming down the budget deficit and eradication of poverty. These are officially recorded remittances and bulk of remittances is remitted through the informal ways due to the high cost of formal channels. This high cost of formal channels leads the remittances to be utilized least for development purpose (World Bank, 2013).

Remittances through the formal way are done through the post offices, banks and currency transfer institutions (Englama, 2009). Transfer of remittances through the formal financial system is the safest way to receive income from abroad. On the other hand transfer of money through other channels is enormously risky and costly. Transfer of remittances through the

formal channel may lessen these risks and help to crush poverty. Formal channel leads to financial inclusion because receiving family have to open at least one bank account.

Literature contains many studies which analyzed the impact of official recorded remittances on education, health, economic growth, infant mortality and economic development. But few studies have been done to check the impact of remittances on financial inclusion. Aggarwal et.al (2006) examined in their study that remittance have positive impact on bank deposit and bank credit to the private sector of receiving countries but they did not analyzed the impact on availability of the financial services to the recipient and other members of the society.

Link between the emigrant remittances and financial sector breadth and depth has become the important for the policy makers because the remittances have become the major source of income in least developing countries like Pakistan. There are both arguments proved in the literature that remittances have positive and negative impact on financial sector development Aggarwal *et al.* (2008) proved the hypothesis that remittances have positive effect on financial development but Acosta *et al.* (2010) suggested that there may be the inverse relation.

Generally, financial sector development and specifically banking sector development has positive impact on growth (Levine 2003). Existing literature also suggest that remittances may enhance the growth through this greater financial inclusion. There are very few empirical studies that tested this hypothesis that remittances may improve the financial inclusion. This is the main motivation to examine the relationship between remittance, financial inclusion (breadth and depth of formal financial or banking sector) and poverty reduction for Pakistan.

1.2 Objectives of the Study

General research question of the study is that whether financial inclusion may help in poverty reduction in Pakistan or not? And impact of migrant remittances to promote financial inclusion in Pakistan. The analysis involves the following specific objectives.

1. *To examine the effect of financial inclusion on poverty reduction.*

2. *To examine the impact of remittances on financial Inclusion.*

1.3 Significance of Study

Poverty reduction has been remained the first priority of the researcher and policymakers in developing countries in every era. This study would help us to come up may be with a robust relationship between remittance, financial inclusion and poverty reduction in Pakistan. The objectives are appropriate because they would indicate the components of capital inflows (remittances) through the banking sector, raises the bank's loan able funds and other financial products available to the people. This enhanced financial inclusion may help to achieve the main goal of poverty reduction.

Research on remittance, financial inclusion and poverty nexus is important to conduct because it would induce policy makers of Pakistan economy to give more emphasis to policies on financial sector reforms. If there is a negative relation between financial inclusion and poverty reduction then it would allow an urgent need for research on legal, regulatory, political and policy determinants of financial inclusion and remittances in Pakistan.

1.4 Contribution to the Literature

Although much empirical work is being available to check the link between remittances, financial development and poverty reduction but present study is first one (in my knowledge), intended to measure ―impact of financial inclusion on poverty and impact of remittances on financial inclusion by incorporating relevant controlled variables for the economy of Pakistan. Financial inclusion index is also first time used over the time period for Pakistan economy.

1.5 Organization of the Study

The remaining study will be organized as: Chapter 1 explores the Overview of economy of Pakistan in the context of remittances, financial inclusion and poverty linkages. Review of the existing related literature is discussed in Chapter 3. Chapter 4 is consisted of the theoretical framework. Sources of data and empirical methodology of study is given in Chapter 5. Chapter 6 includes the presentation and interpretation of empirical results. Conclusion and policy recommendations are presented in Chapter 7.

CHAPTER 2

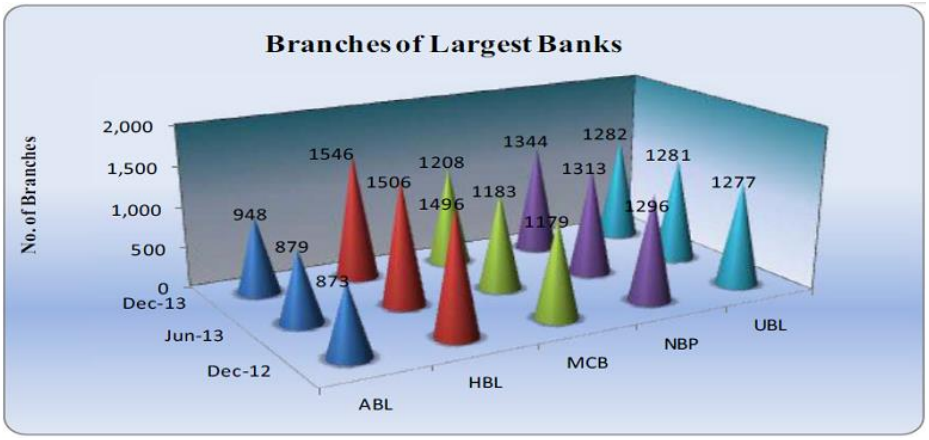
OVERVVIEW OF THE BANKING SECTOR AND FINANCIAL INCLUSION OF PAKISTAN'S ECONOMY

There was not an efficient banking system in the very beginning years of Pakistan. Pakistan's central bank was established in 1948 with the name of "State Bank of Pakistan" which transformed the banking sector to the liquid, profitable and well-capitalized. It has international standard norms, practices and supervisory framework (World Bank, 2010). Many of the changes have been seen in the banking history of Pakistan especially in early 1970s. Banking sector of Pakistan became much regulated after the nationalization of banks in 1974 which turned in to the negative effect on investment environment on both agriculture and industrial sector. There was more than enough involvement of public sector in the decisions of financial institutions from 1974 to 1991. These nationalized financial institutions preserved their hold on financial services and products till early 1990s. This chapter put a brief light on the current banking statistics of Pakistan.

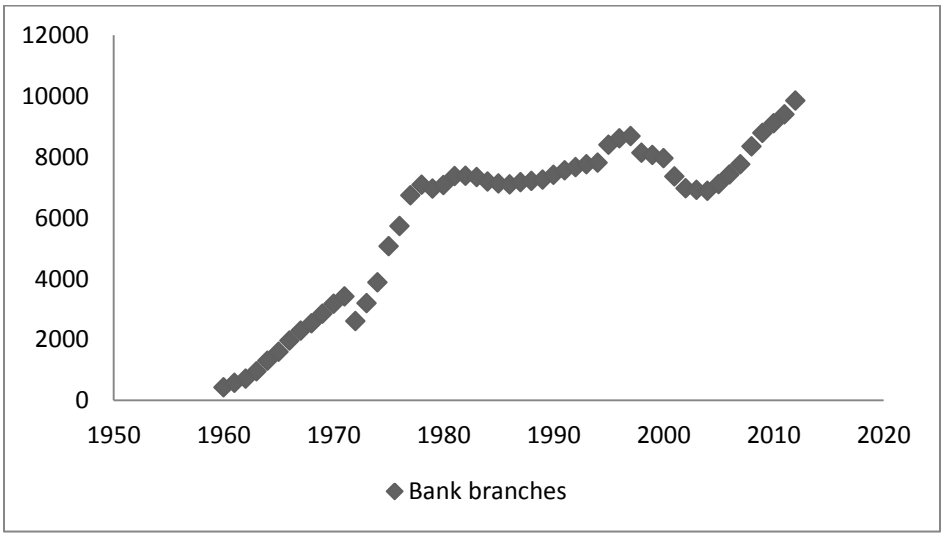
According to the state bank of Pakistan in 2013, scheduled banks and their branches are reported in the Table 1. Commercial banks are classified in to foreign, local private and public sector commercial banks. In Pakistan five major banks have 6328 branches which are 58% of the domestic commercial banks.

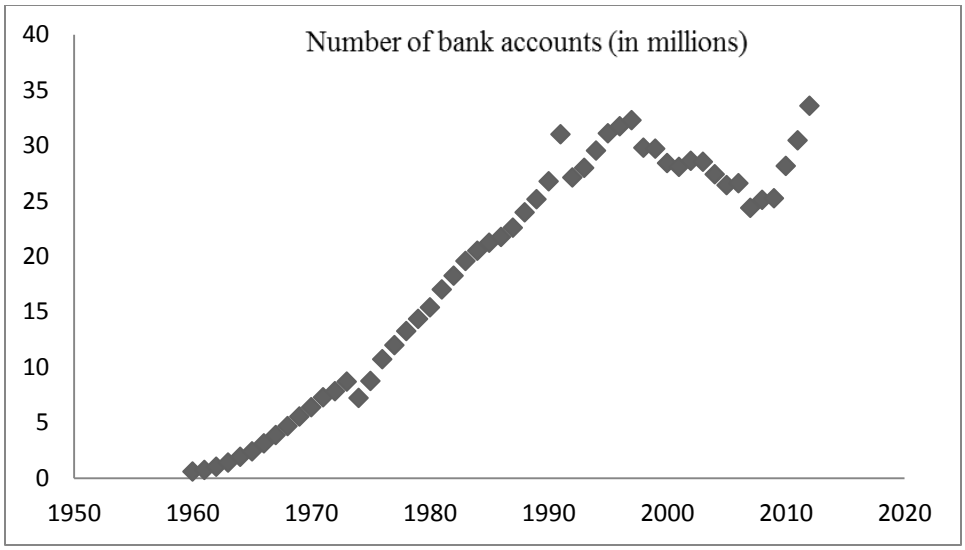
Type	Banks	Branches
1. Foreign Banks	7	27
2. Pakistani Banks	31	10913
i) Public Sector • Commercial • Specialized	9 5 4	2559 2011 548
ii) Private Domestic	22	8354
Total	**38**	**10,940**

Finscope (2008) also found that Pakistan's five major banks have 90% penetration among account holders. Bank branches of five major banks are shown in the following graph (SBP, 2013). **Figure 2.1** also proves the results of survey by Finscope.



Outlets of the formal banks has much increasing trend in pakistan as shown in following **Figure 2.2**. In 1960's there was not even two bank branches in one 1000 square kilo meter. But a sharp increase in banking sector breadth reached to almost 9 bank branches in last decade of 20th century and first decade of 21st century.





Number of deposit bank accounts has also increasing trend which was approximately half million in 1960 and reached to 33.5 millions in 2012. There was a decline in the very end of the previous century but sharp increase was started in end of the first decade of this modern century. Fig 3 shows the time trend of number of deposit bank accounts.

2.1 Financial Inclusion in Pakistan

Pakistan has very lucrative and buoyant banking sector which has international standard supervisory and regulatory structure. Having this strong banking sector, financial inclusion in Pakistan is approximately 12 point only which is much lower than the neighboring countries like India, Bangladesh and Sri Lanka (Global Findex Database 2011). Pakistan and Morocco has equal literacy rate but later has the financial inclusion about to 40 percent. Banking sector in Pakistan is mostly limited to the urban areas and earns the income from interest based services.

Survey was conducted by the Finscope during 2008 in Pakistan that discovered interesting results about financially developed system of Pakistan. Results showed that only 12 percent population is served by formal financial system and 32 percent are served through other ways

like friends, family, committee and money lenders. Remaining 56 percent population are not served by formal or informal channel means they are financially excluded. 56 % adult population saves and from them only 3 % saves through formal channel and remaining 53 percent saves informally. These 53 percent savers save mostly for precautionary measures not for investment purpose.

2.2 Financial Inclusion Program (FIP) in Pakistan

State bank of Pakistan (SBP) has started national financial inclusion program (FIP) with the help of department for international development (DFID) in 2008 to achieve the MDG (Millennium Development Goals) of inclusive growth and financial inclusion. Main goal of this program is to capture the all segments of people especially poor and small enterprises so that inclusive growth may be achieved. Government of Pakistan also took many other initiatives for financial inclusion and poverty reduction i.e. a strategy paper of poverty reduction (PRSP) was issued by the Government of Pakistan to improve governance, financial access to poor and investment in human capital in 2003. Benazir Income support program and A2F (access to finance) was also started to improve the financial position of poor population.

CHAPTER 3

Literature Review

A large body of research is undertaken to examine (evaluate) the association between financial depth and poverty, remittances and financial depth. But there is not extensive literature on financial breadth, remittances and poverty linkages. This chapter reviews the most relevant literature in this area; Chapter is further separated in three sections. Section (3.1) describes literature review of financial inclusion (breadth and depth) impact on Poverty and Section (3.2) describes literature review about Remittances impact on Financial Inclusion. Section (3.3) describes summary of literature review.

3.1 Literature Review on Effect of Banking Sector Breadth and Depth on Poverty:

Park and Mercado (2015) examine the impact of financial inclusion on income inequality and poverty reduction in Asian economies. Financial inclusion index for 37 (Asian) economies is computed including the indicators of both availability and usage dimension of financial services. Data is collected from WDI (World development Indicator) containing time period (2004-12). By taking the average of all variable from 2004 to 2012, simple regression analysis is conducted by controlling other variable and heteroscedasticity robust standard error is used. Results reveal that financial inclusion reduces poverty and also reduces the income inequality.

Gupta *et al.* (2014) analyze the level of financial inclusion that prevails in the 28 states of India. Financial inclusion index is constructed for these states and 6 other regions by using the multidimensional approach. Three dimensions (Penetration, usage and availability of financial services) of financial inclusion are used to construct a composite index of financial inclusiveness. After that correlation analysis is done between the financial inclusion and human development.

Findings reveal that there is positive and significant correlation between these two variables which means that financial inclusion may determine the human development and vice versa.

Kuri and Laha (2011) explore the degree of financial inclusion and human development in 31 states in the India by computing the financial inclusion index in human development index. Three dimensions of financial inclusion (Penetration, availability and usage of the financial services) and human development (standard of living, healthy life and knowledge) are used to compute the indices. Findings reveal that ranking/level of financial inclusion tracks the same pattern as the human development index which shows that there is positive affiliation between the financial inclusion and human development.

Bruhn and Love (2009) conduct a unique study by taking the municipality data from Mexican economy to explore the effect of branch expansion on different economic activities. Banco Azteca (renowned financial institution of Mexican economy) opened 800 branches overnight to capture low income group of people and enterprises in 2002. By using the data of 19 quarters (2000-II to 2004-IV) from Mexican survey (ENE), they introduce the dummy of post 2002 (Quarter-III) interacted with dummy equal to one of municipality having at least one branch of Banco Azteca to check the impact on different economic activities. Results suggest that due to opening of Banco Azteca, informal business raised by 7.6 percent, employment generated by 1.4 percent and overall average income level raised by 7 percent.

Jeanneney and Kpodar (2011) explore the way in which financial development (M3/GDP) reduced poverty (average per capita income) by increasing services of banks or availability of credit, instead of indirect effect by economic growth. Data of 75 developing countries over the period 1966-2000 is used for empirical study. McKinnon 'conduit effect' is also channel through which poor are benefited from financial development. OLS and GMM estimator at first

differenced GMM is used. Results show that financial development decrease poverty. Direct effect of financial development on poverty reduction is stronger than indirect effect. While financial instability is detrimental for poor.

Jalilian and Kirkpatrick (2002) examine the relation among financial development, poverty reduction and economic growth by using data from both developed and developing countries. Bank Deposit Money Asset (BDMA) over GDP and Net Foreign Asset over GDP (NFA) are used as proxy of financial development. Panel data set is used and different data sets are used for growth-poverty and growth-accounting analyses. For growth accounting analyses data set included 304 observations for 42 countries while for full model 147 observations for 26 countries is used. OLS panel and 2SLS techniques are used. Results reports that financial development contributes in reduction of poverty.

Odhiambo (2009) try to inspect the nexus between economic growth, financial development and reduction in poverty head count ratio by using the tri-variate causality model. Annual data is used from 1960-2006 of South Africa to estimate the co-integration based error correction model. Different tests of unit root suggested that all three variables are non-stationary at level but stationary at first difference. Results of the model suggest that financial development (M2/GDP) granger cause the poverty (head count ratio) and economic growth (real GDP per capita) in South Africa. While economic growth also causes the poverty reduction and financial depth.

Pardhan (2010) examine the causal and long run connection between growth, poverty and financial development. He used the time series data (1951-2008) for Indian economy. Johnson co-integration test is used to check the long run rapport and granger causality test is conducted to check the causal effect. Johnson co-integration test indicts that long run relationship exists between poverty, growth and financial development. Unidirectional causality is seen from

poverty to per capita growth, per capita growth to financial development, financial development to the poverty reduction and per capita growth to poverty. No causality is seen from financial development to growth and poverty to financial development.

Burgus and Pande (2003) explore the impacts of bank branch expansion program (1977-90) in India. Study investigates that bank branch expansion program in rural or unbanked areas is highly beneficial for poverty reduction in rural areas. By using the data (1961-2000) of sixteen states of India, they started with OLS technique and then different instrumental variables are used to check the impact of expansion of bank branches on the poverty reduction and total output. Results suggest that one percent increase in bank branches in rural or unbanked areas will lead to decrease in 0.36 percent in poverty reduction and increase by 0.55 percent in output in non-agricultural sector. Robustness of results is also checked by two ways and both suggest that poverty reduction rate is higher in the era (1977-90) of bank expansion program then the other eras (1961-76 & 1990-2000).

Beck *et al.* (2007) reconnoiter the effects of financial development or deepening (Private credit as percentage of GDP) on income inequality and poverty reduction in 68 developing countries. Income of lowest quintile group and growth in head count ratio are used as the proxy of poverty. Generalized method of movement (GMM) is used to capture econometric issues i.e. erogeneity and data is used from 1960 to 2005 except poverty head count (1980-2005). Results reveal that credit to private sector helps more the lowest income group then the aggregate growth. Further results show that financial deepening effect the lowest income quintile 60 percent through aggregate growth and 40 percent through the reduction in income inequality. Financial development also has significant impact on poverty (head count) reduction.

INOUE and HAMORI (2010) explore the impact of financial depth on poverty by using the data (1973-2004) of 28 states of India. Dynamic GMM (Generalized Method of Movement) is used to estimate the unbalanced panel. By controlling the other variables, results show that credit to output ratio and deposit to output ratio has negative impact on poverty head count ratio (FD improves the poverty) in both rural and urban areas. Same results are seen in the aggregate equation for whole economy. On other hand, results suggest that inflation and trade openness leads to increase the poverty. Both proxies of financial deepening are used but access to finance is not taken to check the impact on poverty.

Bhandari (2009) evaluates the relationship between access to financial services from banks and poverty reduction in India by using the state level data. Study evaluates the growth of banking sector before, after and between the reform periods. Correlation analysis is done between the financial inclusion and poverty reduction. Findings reveal that there is very week negative correlation between growth in deposit account and growth in poverty reduction in both rural and urban areas. Moreover this spearman rank correlation is not statistical significant which means that there is no relation between access to finance and poverty reduction.

Fowowe and Abidoye (2012) investigate the effect of financial deepening (Domestic credit as share of GDP) on poverty in Sub Saharan African (SSA) countries. GMM (Generalized method of Movement) technique is used to measure the panel. Results suggest that credit to private sector has neither significant impact on population earning below neither $1.25/day nor poorest quintile group of people. Furthermore domestic credit also does not impact on income inequality in Sub Saharan African region.

Uddin *et al.* (2014) explore the links between growth (GDP per capita), poverty (per capita consumption) and financial development (Index of financial development) by using the quarterly

data (19750-2011) of Bangladesh economy. By using ARDL (Auto Regressive Distributive Lags) bound test approach to test the long run nexus and VECM (Vector Error Correction Model) granger causality test was used to see the direction of causality. Results suggest that there exist long run nexus between per capita consumption, growth and financial deepening. Overall results show that financial development is explained by poverty reduction.

Shahbaz *et al.* (2013) empirically investigates the relationship between domestic savings, financial development and poverty reduction by using the data (1971-2005) of economy of Pakistan. To check the long run relation ARDL bound test approach is used and VECM is applied to check the way of causality. Results confirmed that financial development, domestic savings and poverty reduction has causal relationship. Results showed that there is bidirectional causality between poverty and financial development and increase in domestic saving also causes poverty reduction. Per capita consumption is used as proxy of poverty in this study which is not a good measure of poverty.

Shahbaz and Rehman (2013) investigate the causal relationship between growth, financial deepening and poverty reduction by using the data (1972-2011) of Pakistan economy. First, different unit root tests are applied to check the order of integration of all the variables. Second, ARDL bound test is applied to check long run association between the variables. Granger causality test (VECM approach) is employed to check the direction of causality. Results show that bidirectional causality exists between the index of financial deepening and poverty (head count). But there is unidirectional causality from financial deepening index to poverty when per capita consumption was used as proxy of poverty.

Shahbaz (2009) empirically explore the impact of financial development on the poverty growth (income of poorest people). While using the ARDL approach, study uses the data period from

1971 to 2005 of Pakistan economy. Results suggest that financial deepening improve the life of poorest quintile through both ways (growth and direct effect). This direct effect suggests that "conduit effect" prevails in economy of Pakistan. However, results also suggested that monitory instability dampens this effect by worsening the income of poor.

Abosedra *et al.* (2015) empirically examine the causal affiliation between the financial deepening (M2/GDP and credit/GDP) and poverty reduction (Infant mortality and head count ratio) by using the quarterly time series data (1975Q1-2011Q4) of economy of Egypt. Structural break ARDL co-integration is used to test the long run affiliation. Results reveal that credit from financial institutions negatively cause the poverty which mean that credit leads to poverty reduction but money supply do not has cause the poverty. Furthermore, financial deepening has also indirectly caused the poverty through improved economic growth in Egypt.

Ho and Odhiambo (2011) explore the causal affiliation between the financial deepening and the level of poverty (per capita consumption) by using the data (1978-2008) of Chinese economy. ARDL bound test is employed to reveal causal affiliation in the long run. Two proxies of financial deepening are used against the poverty reduction. Results of Granger causality tests reveal that causality runs in both sides between the credit to private sector and poverty only in short run. While using the M2/GDP as proxy of financial development, causality also run from poverty to money supply but not from money supply to poverty in long run. There is bidirectional causality between money supply and per capita consumption in short run.

Odhiambo (2009) empirically explore the causal affiliation between the poverty and financial sector development of Zambia. Three proxies for financial sector deepening are used against the per capita consumption. ARDL bound test approach is employed to check the long run affiliation between these described variables. Results of Granger causality test expose that causal relation is

sensitive to the use of proxy of financial development. Causality runs from Credit to private sector and domestic bank assets to poverty reduction in Zambia. But in case of Money supply, causality runs from poverty reduction to the money supply.

Odhiambo (2009) empirically explore the causal affiliation between the poverty, financial sector development and saving rate in Kenya by using the data period 1968-2006. Error correction based tri-variate Granger causality test is used to check the causal association between the concerned variables. Results divulge that causality run from saving and money supply to per capita consumption but saving and poverty do not cause financial development. There is also causality run from poverty and money supply to the saving. Results are irrespective of long run or short run.

Daly and Akhter (2009) empirically examine the impact of financial development on poverty alleviation by using the unique technique fixed effect vector decomposition. Data of 54 developing countries is used to estimate the panel. Results are in favour of both channels direct and Mckinnon conduit effect and the direct channel. Monetary assets and aggregate credit to GDP ratio has negative coefficient which means that increases in financial development leads to reduce in poverty. While by entering the financial instability, coefficient of financial development reduces from −.04868 to −.0371 and coefficient of financial instability is also positive which shows that instability of financial sector is determinant of poverty.

3.2 Literature Review on Effect of Remittances and on Banking Sector Breadth and Depth

Toxopeus and Lensink (2007) explore the impact of remittances on financial inclusion and economic growth through financial inclusion. While analyzing the cross-country analysis, Single equation is estimated to check the impact of remittances on financial inclusion but 3SLS

estimation is used to explore the impact of remittances on growth through the improve financial inclusion. Results show that not only remittances has positive impact on financial inclusion but also enhance the per capita growth through financial inclusion. One main deficiency of this study is that only banked population is used as a proxy of financial inclusion and access to banking services is not considered.

ANZOATEGUI *et al.* (2014) evaluate the impact of remittances on financial inclusion (use of deposit account and access to credit services). Primary data is used which is collected by household survey by FUSADES from the economy of El Salvador. All the required information is collected from the four survey year (1996, 98, 2000 and 2002). Findings reveal that remittances have positive impact on the likelihood of a household to have a deposit account but there is no strong evidence that remittances have significant impact on credit available from the financial institutions. These results are robust when two stage regression is used to avoid the different econometric problems.

Demirguç-Kunt *et al.* (2011) investigate the impact of remittances on banking sector breadth and depth by using the municipality level data of Mexico. Results show that remittances have statistically and economically significant impact on financial inclusion at municipality level. Further findings reveal that remittances have strongly positive impact on per capita accounts, per capita branches and deposit to GDP ratio. Results further show that impact of remittances on credit is positive sometimes but less robust as compared to the others.

Cooray (2012) examine the effect of remittances (as ratio of GDP) on both dimension of the development of financial sector: efficiency and size in 94 (Non- OECD) economies. By using the data period 1990-2010, OLS and system GMM technique is used to estimate the equation. Results find that remittance has positive and significant influence on financial development

(Credit/GDP, Deposit Assets/ GDP and liquid assets as ratio of GDP) but negative impact on net interest margin and overhead cost. Further results suggest that remittances has greater influence on efficiency of banks where government ownership of banks is higher but opposite in case of size of financial sector.

Aggarwal *et al.* (2011) examine the impact of remittances on financial development by using the data of 109 countries containing time period of 1975-2007. This study investigates the impact of remittances on bank deposit to GDP ratio and credit to GDP ratio. Country size, economic development, foreign direct investment, exports, inflation and dual exchange rate were used to control the omitted variable biasness. Findings explore that remittances have positive and significant impact on both proxies of banking sector development. To check the robustness of the results, different estimation techniques were used to account for reverse causation, measurement error and omitted variable biasness which becomes the causes of endoginiety biases.

Sami (2013) analyze the relationship between remittance, banking sector development and economic growth by using the data from 1980-2010 of Fiji economy. Two tests were used to check causality between these variable: First, vector error correction model (VECM) and second, Toda Yamamoto test. Findings show that remittances do not only cause the economic growth but also banking sector development. Although findings reveal that causality run from remittances to economic growth and banking sector development but this study do not analyze that how remittances affect the economy through banking sector development.

Bettin and Zazzaro (2011) develop a new indicator of financial sector development to measure the banking sector inefficiency and examine the growth effects of remittances through financial sector development by using the annual data (1991-2005) of 66 developing countries. Findings suggest that there is not clear impact of remittances on growth through financial sector

development. Their results suggest that very few countries having developed banking sector has potential impact of remittances on economic growth. Results further show that lack of corruption within the institutions and fortification of property rights not only enhance the economic growth but also boost up the impact of remittances.

Chowdhury (2011) explore the impact of immigrant remittances on financial sector development of Bangladesh. By using the annual data from 1975-2010, two different specification are used to explore the impact of remittances on financial development. Firstly, JML (Johansen Maximum Likelihood Co-integration) and VECM (Vector Error Correction Model) is used and secondly PcGets is used to estimate error correction model equation. Results reveal that remittances have positive and significant on banking depth and size. Further results suggest that financial development does not affect the immigrant remittances.

Mundaca (2009) develop the theoretical model to explore the impact of financial sector development, remittance and their interrelationship on economic growth. This theoretical model is tested by using the data of 66 Latin American countries. Study find three main results: one, immigrant remittances has positive and significant impact on economic growth. Two, when the proxy of financial intermediaries is introduced in the growth equation, remittances have strong effect on growth and coefficient of financial development is also more statistically significant. Three, remittances has larger growth effect in poor countries having larger remittances in relation to capital stock. To check robustness sample is divided in to 4 sub-groups and used the first difference generalized method of movement (GMM) to analyze the relationship.

Adenutsi (2011) investigate the relationship between financial sector development, endogenous growth and migrant remittances using the quarterly series from 1987(3)-2007(4) of Ghana. He used Johnson co-integration method to estimate equilibrium correction mechanism model.

Annually data is transformed in to quarterly by using the approach of Gaynor and Kirkpatrick (1994). Findings show that causality runs from both side in financial sector development and migrant remittances but there is a uni-directional causality run from remittances to endogenous growth. Results further suggest that although financial development hinders growth but causes remittances which have positive impact on growth of Ghanaian economy.

Brown *et al.* (2013) examine comprehensively the relationship of financial sector development and remittances at both micro and macro level. At macro level, annual data of 138 countries is used containing sample period 1970-2005. By using 2SLS estimation technique, results show that in developing countries remittances has negative and significant impact on banking credit to private sector as opposed to the developed countries. At micro level, study use the household data of two countries Kyrgyzstan and Azerbaijan to investigate the effect of remittances on financial literacy. Findings are different in both countries. Remittances have positive effect on financial literacy in Kyrgyzstan as opposite in Azerbaijan. Different techniques are applied to re-estimate the equation but the results are robust to the first model.

Giuliano and Arranz (2009) investigate the impact of remittances on economic growth and investment. New cross country data set for remittances of 100 developing countries covering the period 1975-2002 is developed in this study. Findings explore that remittances have positive and significant impact on economic growth. But when *interaction term of remittances with financial development* is introduces, findings reveal that remittances and financial development are substitutes of each other in economic growth. Further explore that remittances has greater impact on growth in those countries who have less developed financial system as compared to the countries having highly developed financial system.. To check robustness of the results sample is divided in to two ways. First, endogenously determined threshold and secondly

according to the median. Study does not explain in detail why remittances have negative impact on growth through financial sector development?

Gupta *et al.* (2009) assess the impact of growing remittances on poverty reduction and financial sector development for the Sub-Saharan African countries. While assessing the impact of remittances on poverty, data of 76 countries is used of which 24 countries are from the sub-Saharan Africa. Sign of coefficient remittances is negative but coefficient of remittances interaction with sub-Saharan was positive. After that results show that there exists reverse causality which show that increase in poverty also leads to increase in remittances. Using the unbalanced pane of 44 sub-Saharan countries and data from 1975 to 2004, contain six time periods average of five years, they find that remittances has positive and significant impact on financial sector development.

Acosta *et al.* (2009) empirically investigate the links between remittance, financial deepening and real exchange rate. Panel data (1990-2003) of 109 economies (developing and transition) is used. Results show that remittances pushes the real exchange rate upward but countries having deep and stable financial system do not allow remittance to push upward pressure on exchange rate. This shows that deep financial system helps to convert remittance in to effective investment opportunities.

Hunte (2004) empirically examine the hypothesis of remittances decay (Decrease in remittances due to increase in household income level) and remittances impact on financial deepening. Data of eighteen developing economies containing time period 1983-2001 is used. Results of fixed effects model suggest that remittances decrease by 0.8% due to the one percent rise in income of households. Results of second equation suggested that remittances lead to improve financial

development (M2/GDP). These results are statistically significant in all four equations of both models.

Ahamada and Coulibaly (2011) empirically examine the impact of remittances on volatility of growth in the presence of developed financial system. Data of 87 emerging and developing economies is collected from WDI (World Development Indicator) and IFS (International Financial Statistics) containing time period 1080-2008. Advanced and lately developed technique PSTR (Panel Smooth Transition Regression) is used to estimate the econometric model. Results show that there is non-linear impact of remittances on volatility of growth of emerging and developing countries. Furthermore results reveal that developed financial system helps the remittances to have smooth and stable impact on growth volatility.

Noman and Uddin (2011) investigate the interrelationships between the financial development (credit to GDP ratio), personal remittances and GDP growth by using the panel data (1976-2005) of south Asian economies (Pakistan, Bangladesh, India and Sri Lanka). Multivariate and panel granger causality test is used to observe the way of causality between the concerned variables. Remittance and financial development found to have causal effect on GDP growth in south Asia. Panel causality test explore that remittances have positive impact on development of financial sector of south Asia but results are different in individual causality test. Individually, remittances positively cause the domestic credit only in case Pakistan and Bangladesh.

Gheeraert *et al.* (2013) made a theoretically model to see remittance impact on domestic investment in the presence of roll of financial development. Empirical model is tested by taking the data of 157 countries including 122 developing countries. Both cross-sectional and panel analysis is done by taking the data period 2002-2004 and 1975-2004 respectively. Overall results of empirical analysis show that marginal effect of remittances on deposit to GDP ratio and

investment is positive. Further, results show that lower cost of access to deposits raises this impact of remittances on both deposits and saving which is only possible in the developed financial systems. In sum, results prove that easily access to finance and remittances are compliments to raise the investment domestically.

Chia Yee Ee (2014) empirically explores the long run affiliation between remittance, financial depth and growth of Malaysian economy by taking the data time period 1984-2013. Unit root tests suggest that Johnson co-integration technique will be applied to check the long run association between the concerned variable. Interaction term in growth model of remittances and credit to GDP ratio is introduced to check the impact of remittance on growth through financial deepening. Results show that there is long run relationship exists between remittance financial deepening and growth of the Malaysian economy. Interaction term is also significant which reveal that there is positive impact of remittance through financial depth on growth and error correction term was also significant.

Akkoyunlu (2013) empirically checks the causal affiliation between financial development (Deposit and Credit by the banks) and personal remittances of Turkish workers from Germany. Time series data (1963-2009) of deposit and remittances is used but data of credit by the banks is used from 1970 to 2009 to apply the Toda and Yamamoto technique to check the direct link. Results show that neither remittances nor deposit in banks has causal association between each other. Same results are there in case of credit by the banks. He gave many reasons to support his results. One main reason is that flow of remittances is very small in the Turkey from Germany.

Ambrosius *et al.* (2008) explore the impact of remittances on financial sector development by taking many examples and regulation in consideration. They argued that developing countries has week and less efficient financial sector and remittances impact on financial development

(Bank deposits and Credit by the banks) depends on many other factors i.e. cost of transfer of remittances and access of relievers and senders to the financial system. This study provides the strong policy implication to the developing countries to make remittances a capital for banks.

Esteves and Castéras (2012) evaluate the remittances impact on financial sector before the World War I by using the data of eight European countries. Argument is given in this study that although transfer of remittances is through informal channel but increase in remittances lead the financial sector to expand his services in remittance market. Pooled OLS regression is estimated by using the robust standard error. Their empirical results showed that remittances have positive and significant impact on financial sector (Deposit/GDP and M2/GDP). Robustness tests show that results were accurate that remittances have significant and positive impact on financial sector spread and depth.

Masuduzzaman (2014) empirically investigate both short run and long run links between remittance, financial development (M2/GDP, Deposit/GDP and Credit/GDP) and economic growth measure as GDP per capita growth by using the data (1980-2013) of Bangladesh economy. Unit root tests suggest that Johnson co-integration technique will be applied to test the short run and long run impact of remittance on financial development and growth of the economy. Results reveal that remittances have positive impact on growth and all three measure of financial development. Error correction term in the financial development model (in all three measures) has a negative sign but not significant only in case of M2/ GDP. This showed that short run adjustments will take place in case of deposit and credit to GDP ratio and not for money supply.

Gani and Sharma (2013) examine the impact of remittances on credit provided by the financial institutes (Banking sector). They divide their sample (1995-2008) of developing countries into

sub groups (Low, lower income and upper middle income). Random and fixed effect m odels were to estimate the effect of remittances on credit provided from banks by controlling other variables (Per capita income, inflation, economic growth, real interest rate and technology) Results show that in the sample of low and upper middle income, remittances has strong positive impact on the credit provided by banks but opposite in case of lower income group. But in combined sample remittance has highly significant impact on credit provided by the banks in all three models (Panel corrected standard error, random effect and fixed effect models).

Oke *et al.* (2011) evaluate the link between the financial development and remittances flow to the economy of Nigeria. Two estimation techniques OLS (Ordinary Least Square) and GMM (Generalized Method of Movements) were used to check remittances impact on financial depth by taking the data period 1977-2009. OLS estimates indicate that remittances have positive and significant influences on both credit to private sector and money supply in Nigeria. While GMM estimates indicate that remittances has not significant impact on credit to private sector but has positive and significant impact on money supply which reveal that remittances are not used for productive purposes in the economy of Nigeria but for consumption purposes.

Nyamongo *et al.* (2012) empirically evaluate the link between remittances, vitality of remittance, financial development and economic growth by taking the data from 36 African countries. They used two econometric models: OLS and 2SLS pooled fixed effects and random effects model by taking the data period 1880-2009. Overall results show that financial development work as compliment for remittances to help economic growth and volatility of remittances has negative impact on growth but remittance have positive impact on growth.

Rao and Hassan (2011) examine the direct and indirect effect of remittances on growth. Data (1960-2007) of 40 countries was used to estimate the newly developed technique SGMM.

Results show that remittances have not direct impact on growth in long run but have short run impact on growth. Results also reveal that remittances have indirect impact on growth through improving investment and development of financial services and products. There may be other channels of remittance growth effect.

2.3 Summary and Conclusion

All the literature in section (2.1) elaborates the relation between the remittances and financial inclusion (availability, breadth and depth of financial services). Only few studies describe the impact of remittance on financial inclusion and these available studies are not country specific. It would be interesting and motivating to explore the relationship between the remittances and financial inclusion in specific country or region like Pakistan.

Literature in section (2.2) describes the relationship between the financial inclusion (availability, breadth and depth of financial services) and poverty reduction. Most of the studies explore the relationship between the financial depth and poverty reduction. Only few studies describe the impact of financial inclusion on poverty in specific country like Pakistan. So, it would also be interesting and motivating to explore the relationship between the financial inclusion and poverty in specific country or region like Pakistan.

CHAPTER 4

THEORETICAL FRAMEWORK

This chapter is divided into three parts. Section 4.1 describes conceptual framework, 4.2 model specification whereas Section 4.3 hypotheses.

4.1.1 Conceptual Framework for Financial Inclusion and Poverty

In literature, researchers have much stressed on the effects of financial development on growth (Levine 1997), development (Greenwood *et al.* 2013) and poverty (Gupta *et al.* 2009). But very few of the researchers have put light on the impact of financial outreach or financial inclusion on poverty reduction of a country. Financial outreach is the key reason of poverty (Burgess and Pande, 2003). They empirically supported the hypothesis that expansion of the rural bank branches leads to reduce the poverty. Financial deepening and poverty reduction has strong and the robust relationship (Ayyagari, Beck & Hoseini, 2013; Uddin, Kyophilavong & Sydee, 2012) Financial development can play a vital role in poverty reduction by lowering the cost of landing to small borrowers who has not financial excess already (Jalilian and Kirkpatrick, 2001). Banking sector facilitates the poor to borrow the aggregated savings of people to open very small businesses (DFID, 2004). Overall the impact of financial inclusion on poverty reduction depends upon the availability of financial services to poor people and usage of these services.

"Inflation or increase in overall price level affects the population below poverty line through the impact on real wage" (Cardoso, 2002). Many studies found that inflation has positive impact on poverty by lowering the purchasing power of people living below the poverty line. Increase in food and energy prices lead to increase in poverty (Chaudhary and Chaudhary, 2008). There are three arguments of impact of inflation on economy in existing literature. One, Inflation reduces the living standard of the poor people then the riches (Shiller, 1996). Second, inflation and

poverty are positively associated with each other (Powers, 1995; Braumann, 2004). Third, inflation does not have any association with poverty (Blank and Blinder, 1985). There are also evidences that moderate inflation is good for the welfare of people (DeLong and Summers 1992; Summers 1991).

In literature, relationship between economic growth and poverty seems to be different in different phases of development. "Decline in poverty depends on the rate at which average income grows and level of income inequality" (Bourguignon, 2003). "Poverty reduction trend is higher in those countries where average income growth is higher" (Dollar and Kraay, 2002). "Economic growth has negative and significant impact on poverty means growth helps in poverty reduction" (Ghani *et al.* 2011). "Economic growth plays vital role in poverty reduction through growth in employment, development in labor market and other productive opportunities" (Islam, 2004).

Lower income inequality can help the poor by two ways. One, by encouraging faster growth and second, by increasing the average income of people. In contrast, countries having the higher income inequality face the slower growth and the slower poverty reduction (Ravallion, 1997). "Income distribution and economic growth are the major determinant of improvement in the living standard of poorest quintile of the population" (Kamal, 2006). "Poverty is highly elastic with respect to the measure of income inequality" (Jamal, 2006). "Income inequality increases the poverty head count" (Qayyum *et al.* 2008).

4.1.2 Conceptual Framework for Remittances and Financial Inclusion

In literature, researchers have assessed the impact of increasing amount of remittances on development (Chami *et al.* 2003), education (Yang, 2005), poverty (Adams, 2004) and even financial deepening (Aggarwal *et al.* 2006) but very few studies look inside the effect on

financial inclusion (financial outreach, usage and penetration). “Remittances play vital role in promotion of financial inclusion and have significant impact on financial inclusion through improving the use of deposit accounts but not through the use of credit accounts” (ANZOATEGUI *et al.* 2013). Remittances also lead to the development of economy through the improved financial inclusion (Toxopeus and Lensink, 2007).

People remit the money back for the self-interest motives to save their higher incomes and invest in the home country where return is higher due to the higher risk (Lucas and Stark, 1988). Remittances increase the financial access as they are transferred through the formal way i.e. Post offices, banks and currency transfer institutions (Englama, 2009). Receivers of remittances have to contact at least one branch of financial institution to get payment and this contact may create the demand for saving, credit and insurance products. Orozco and Fedewa (2005) have found that 10 percent of remittances are invested, saved and used in business opportunity. Remittances also raise the capital availability for consumption and may enhance the multiplier effects on income, investment, and job creation (De Vasconcelos 2005; Stahl and Arnold, 1986).

Population density attracts more facilities in higher danced areas. As it is supposed that population density is positively associated with financial inclusion. Low density means people living at longer distance from any branch of financial institution. Longer distance means long travel time and high cost of using a financial product by any branch of financial institution. This argument reveals that the higher population density attracts the more financial or bank branches and increases the usage of the financial products of those branches. Population density has positive and significant impact on bank branches, credit to GDP ratio and deposit to GDP ratio (Demirgüç-Kunt *et al.*, 2011).

Literacy has vital role to play in facilitating people to access and use the financial products appropriately. Financial literacy gives the information of the financial products to the consumers and people will not demand the unknown product to them. Financial literacy mainly relate with the personal finance which facilitate the people to take actions to improve their wellbeing and evade the distress from financial problems (Ramakrishnan, 2011). "Lower/Higher level of financial inclusion is affiliated with the lower/higher level of financial literacy" (Atkinson and Messy, 2013).

4.2.1 Specification of Model for Impact of Financial Inclusion on Poverty

Before empirical analysis, this study starts with the development of empirical model. Empirically and theoretically, model of this study base on the Dollar and Kraay (2000) & Jeanneney and Kpodar, 2005. Dollar and Kraay (2000) has contributed in last decade by following Deninger and Squire (1996) that economic growth benefits the poor. Their contribution developed the interest in empirical evidences of association between growth and poverty. By using the available up to date data of lowest income quintile group, they reveal that poor are benefited by growth.

They used the following generic model:

$$P_{it}^{y} = f(Y_{it}, X_{it})$$

Where P_{it}^{y} signifies average income of lowest quintile group of people and Y_{it} denotes the per capita income of whole population. Vector X_{it} contains the other controlled variables which have association with poverty. It is rational to think that there is positive association between average income and per capita income of poorest quintile. Variable of financial deepening and access is not included in this model by Dollar and Kraay (2000).

Jeanneney and Kpodar, 2005 extended this work by using the little transformed model of (Dollar and Kraay, 2000) by incorporating the financial development and poverty in the model to see the impact of financial depth on poverty. They estimated the different equations of the panel of 92 and 75 countries according to availability of data of the variables. Base line functional form of their model is as following:

$$P_{it} = f(lY_{it}, FD_{it}, l(1 + inf_{it}), X_{it})$$

Where P_{it} signifies poverty indicator and Y_{it} denotes the per capita income of whole population. Moreover, FD_{it} signifies the depth of financial sector and inf_{it} is the inflation rate. Vector X_{it} contains the other controlled variables i.e. initial income of the people and financial instability which have association with poverty. Variable of financial access is not included in this model by Jeanneney and Kpodar (2005).

This study modeled the poverty as a function of financial inclusion and other controlled variables which is transformed form of (Jeanneney and Kpodar, 2005).

$$POV_t = \alpha_0 + \alpha_1 finincl_t + \alpha_2 gdp_t + \alpha_3 iie_t + \alpha_4 \inf_t + \varepsilon_t$$

Where POV_t is taken as head count ratio means population living below the poverty line which has already used as the poverty measure by (Jeanneney and Kpodar, 2005; Qayum *et al.* 2012 & Shahbaz and Rehman, 2013).

4.2.2 Specification of Model for Impact of Remittances on Financial Inclusion

Financial inclusion is modeled as a function of migrant remittances which is similar to that of Demirguç-Kunt *et al.* (2011) and Toxopeus and Lensink (2007).

$$finincl_t = \beta_0 + \beta_1 rem_t + \beta_2 pdncty_t + \beta_3 literacy_t + \varepsilon_t$$

Where $finincl_t$ is taken as measure of financial inclusion (Access and use of financial services). Financial inclusion index is developed for Pakistan and has discussed in above model.

4.3 Hypotheses Development

The following hypotheses are framed based on the empirical literature presented in chapter three and in theoretical framework.

(i) H_1^B: There is negative relationship between financial inclusion and poverty head count by remaining all other variables constant.

(ii) H_1^A : There is Positive relationship between emigrant remittance and financial inclusion by remaining all other variables constant.

CHAPTER 5

DESCRIPTION OF VARIABLES AND METHODOLOGICAL FRAMEWORK

This chapter will provide the methodological framework, description of variables and data sources. Section 5.1 is related to the description of variables. Section 5.2 describes the cointegration methodology. However, section 5.3.discusses the various diagnostic tests.

5.1 Empirical Specification of Model

5.1a Empirical Specification of Model for Impact of Financial Inclusion on Poverty

This study uses the following empirical model which is transformed form of Jeanneney and Kpodar, 2005 to estimate the impact of financial inclusion on poverty in Pakistan as discussed in previous chapter of theoretical framework.

$$POV_t = \alpha_0 + \alpha_1 finincl_t + \alpha_2 gdp_t + \alpha_3 iie_t + \alpha_4 \inf_t + \varepsilon_t$$

Where POV_t is taken as head count ratio means population living below the poverty line which has already used as the poverty measure by (Jeanneney and Kpodar, 2005; Qayum *et al.* 2012 & Shahbaz and Rehman, 2013).

Where $finincl_t$ is taken as measure of financial inclusion and financial inclusion index is developed by using the methodology of HDI (Human development Index). Financial inclusion index has already developed by (Sarma, 2008) by using the cross-sectional data. Different proxies of financial access and financial deepening has been used to see the impact on poverty but no one has captured all dimensions of financial inclusion to see this relationship. Both financial development and financial access has negative impact on poverty (Shahbaz and

Rehman, 2013 & Burgess and Pande, 2003) and it is expected that financial inclusion has also negative impact on poverty.

GDP (gross domestic product) is expected to have negative impact on poverty means helps in poverty alleviation because as economy grows poor people might get some share from this enhanced income. Technically, it is rationale that as the average income of whole population grows it leads to increase in per capita income of the poor at least share of the poor quintile. In literature, sign of GDP growth seems to be positive as (Qayum *et al.* 2012 & Adam and Page, 2005) find that increase in average income leads to reduction in poverty.

Income inequality (iie) is captured by Gini coefficient and expected to has positive impact on poverty as this already used by (Qayum *et al.* 2012 & Adam and Page, 2005). Lower income inequality reduces the poverty by increasing the average income of people and boosting economic growth. Lower income inequality indicates equal distribution of wealth in the country. Equal distribution of wealth always breaks the vicious circle of poverty.

Inflation is expected to have positive impact on poverty means that higher prices hurt more to lower income group because when overall increase in prices takes place it will reduce s the purchasing power and real wage of poor people. This indicates that inflation hits poor people more than the riches. It has also used by (Cardoso, 2002 & Chaudhary and Chaudhary, 2008).

5.2b Empirical Specification of Model for Impact of Remittances on Financial Inclusion

This study uses the following empirical model which is transformed form of Toxopeus and Lensink (2007) to estimate the impact of remittance on financial inclusion in Pakistan as discussed in previous chapter of theoretical framework.

$$finincl_t = \beta_0 + \beta_1 rem_t + \beta_2 pdncty_t + \beta_3 literacy_t + \varepsilon_t$$

Where $finincl_t$ is taken as measure of financial inclusion (Access and use of financial services).Financial inclusion index is developed for Pakistan and has discussed in above model.

Remittances (rem) are expected to have positive impact on financial inclusion by providing more of financial services through improve capital availability. Remittances effect the financial inclusion because receiver has to use one account to receive the money and this increased capital allowed the banks to increase their other financial services. This is already used by (Toxopeus and Lensink, 2007 & ANZOATEGUI *et al.* 2013) and found that remittances have positive impact on financial inclusion.

Sign of literacy is also expected to be positive because more the literate people will demand more the financial services. This variable is already use in (Atkinson and Messy, 2013) which reveals that financial literacy boosts the financial inclusion but Gupta and Singh, 2013 finds that there is no association of literacy and financial inclusion. .

Sign of population density is also expected to be a positive because more danced areas attract more the financial branches and more use of financial services takes place. More banks open their franchises in the danced areas where more business activities take places and more expected clients are available. People use more bank services as they don't have to go far to the banks and services are available at their door steps. This variable is already used in the study (Demirgüç-Kunt *et al.*, 2011) which find that population density has positive impact on poverty.

5.2 Description of Variables

Pov =Poverty (Head count ratio)

Finincl = Index of Financial inclusion

GDP = per capita GDP at constant rate

Inf = Inflation

IIE = Income inequality

Rem = Remittances

Popd = Population Density

Literacy = Literacy Rate

Index of financial inclusion is computed over the time period. Remittances are taken as the ration of gross domestic product and population density is captured by total population divided by total area. Adult literacy rate is used for education level. Consumer price index is used as the proxy for inflation and GINI coefficient is used for income inequality.

5.2.1 Computation of Financial Inclusion Index

Measuring financial inclusion is tough and complicated job because people have their own preferences or choices toward the access and use the financial services. Particularly, in less developed and developing countries, major part of the finance and financial services is not permitted to the consumers or people who have actual basic need of it.

In literature there are many indicators used for financial inclusion. Mostly used indicators are banked population, availability of banking/financial services to the people and usage of the financial services. Sarma (2008) used the following three dimensions to compute the cross-country financial inclusion index. One, banking penetration (total no of the bank accounts/total adult population), two, Availability of financial services (number of bank offices/branches and ATMs per one million population), third, Usage of the financial services (total amount of deposit and credit/GDP of country). Availability of banking services or banking outreach and usage of these services are also used by Chakravarty and Pal (2012) and Amidžić *et al.* (2014).

Similar methodology will be used here as Sarma (2008) and UNDP methodology to compute popular indices (IFI, HDI and HPI) to compute the financial inclusion index for Pakistan. Only the difference is that this index will be computed for Pakistan over the time period similar to the index of education developed and used by Afzal *et al.* (2011).

It is difficult to combine the variables having different ranges and units of measurement. Firstly they need to be normalized and then compute the aggregate index. There are many approaches to normalize the variable but here we use the min-max approach to normalize the variable of any dimension.

Financial inclusion consists of many directions as discussed above. Firstly, I will compute the indices of dimensions or normalize the variables and then aggregate index will be computed. Each dimension index will be computed by the following formula.

$$\text{Dimension } I = \frac{At - \min}{Max - \min}$$

Act = Actual value of Dimension I for period t.

Max = Maximum value (Pre-determined)

Min = Minimum value

Aggregated index will be computed by using the similar methodology as the UNDP methodology to compute HDI index. Principal component analysis technique is used to give the weights to each dimension.

For availability of banking services, total number of the bank branches per one thousand people is used. Proxy of Usage of the financial services will be total deposit and credit as ratio of GDP of Pakistan. Data of all above mentioned variables is collected from the site of State bank of Pakistan (SBP) and International Financial Statistics (IFS). Here we can use the minimum value

0 or empirical observed of any dimension i.e. for availability of financial services, total no of bank branches per one thousand people, this study will use the minimum observed value in sample of Pakistan means maximum exclusion from availability dimension. But to determine maximum value is difficult task because it is difficult to determine optimum level of credit, deposit and bank branches to any specific nation that's why this study will also use the empirical observed maximum figure as the maximum value. Empirical observed minimum and maximum value has already been used in existing literature (Sarma, 2008).

5.2.2 Data

Data of all the variables is collected from the WDI, website of SBP (State Bank of Pakistan) and Pakistan bureau of statistics except poverty and Income Inequality. Data of these variables is borrowed from Rehman and Shahbaz (2014) and Munir et al (2013) respectively and extended the later variable from taking the values from Economic survey of Pakistan and WIID.

5.3 Methodological Framework

5.3.1Cointegration

The purpose of this study is to examine the cointegration relationship between financial inclusion, poverty and remittances along other control variables. Autoregressive distributed lag (ARDL) approach will be applied to check the long run relationship. This technique assumes that one set of variables are level stationary i.e. I(0) and other are stationary at first difference i.e. I(1). However, the fundamental assumptions of the ARDL approach are violated if the integration order of any variable is larger than 1 (Ouattara, 2004). For this purpose, in this research, we start by testing for the integration order of the included variables, before to estimation of the ARDL model.

5.3.2 Unit Root Test

In time series data there is a possibility of spurious results. Therefore, it is necessary to address the problem of non-stationary to avoid these spurious results. Stationary properties of the variables are examined by the augmented Dickey-Fuller (ADF) test. The augmented DF test is the modified form of the standard Dickey-Fuller (DF) test. The ADF test augmented the Dickey-Fuller equation by including the lagged difference term of the dependent variable as independent variables so as to remove the problem of auto-correlation. The ADF test has been applied with or without intercept and/ or a time trend to determine the non-stationary of variables. The ADF test is expressed in the following model

$$\Delta y_t = \alpha + \beta t + \rho y_{t-1} + \sum_{i=1}^{p} \Delta y_{t-i} + \mu_t \qquad (5.1)$$

Where y_t shows time series, α represents constant term, t is the time trend, Δ is the first difference operator, β *and* ρ are the parameters to be estimated, p represents the optimal lag length and μ_t is the white noise error term. The null hypothesis $H_0 : \rho = 0$ (series is non-stationary) is tested against the alternative hypothesis $H_0 : \rho < 0$ (series is stationary) based on τ -statistic. Since test statistic does not based on the student's t-distribution. Therefore, critical values provided by Dickey and Fuller (1979) and Mackinnon (1996) are used for analysis.

5.3.3 ARDL Cointegration Approach

The main purpose of the study is to check how remittances effect financial inclusion and how financial inclusion effect poverty in the short and long run. To obtain the objectives of the study, we will estimate our model by utilizing the *ARDL* (autoregressive distributed lag) methodology proposed by Pesaran and Shin (1999) and further proposed by Pesaran *et al.* (2001). This methodology is preferred to the Engle-Granger (1987) two-step methodology and

Johansen (1988) and Johansen and Juselius (1990) approach to co-integration, and have many advantages. By using ARDL approach the long and short run impacts of variables could be found out at the same time. With the ARDL model, co-integration analysis can be done without identifying of whether the underlying independent variables are purely I(0), purely I(1) or a mixture of both, while the other approaches such as the Johansen as well as Engle-Granger methodology are concerned with the long run association among I(1) variables. In this approach the long run relationship to be assessed by OLS method once the lag order of the variables is known.

This methodology makes progress upon the other approaches since it is superior at controlling small samples and dynamic causes of bias. Pesaran *et al.* (2001), Pesaran and Shin (1999), and Haug (2002) show that the short-run parameters of the OLS estimators in the unrestricted error correction model (UECM) are consistent and the long-run parameters are super consistent in small samples. This approach also controls for endogeneity problem. As we have been using four explanatory variables and data period is from 1976-2012. In this situation ARDL approach is an appropriate technique because it captures the small sample bias.

5.3.3a ARDL Model Specification

To estimate the financial inclusion model with remittances and other control variables such as literacy rate and population density, the unrestricted error correction model under ARDL methodology given as follows:

$$\begin{aligned}\Delta finincl\,(t) &= \alpha_0 + \theta_{finincl}\, finincl_{t-1} + \theta_{literacy} LITERACY_{t-1} \\ &+ \theta_{pdncty} \ln PDNCTY_{t-1} + \theta_{rem} REM_{t-1} + \sum_{i=1}^{r} \phi_{1i} \Delta finincl_{t-i} \\ &+ \sum_{n=0}^{w} \phi_{2n} \Delta LITERACY_{t-n} + \sum_{o=0}^{x} \phi_{3o} \Delta PDNCTY_{t-o} + \sum_{p=0}^{y} \phi_{4p} \Delta REM_{t-p} + \varepsilon_t\end{aligned} \qquad \textbf{(5.2)}$$

Where, finincl(t), LITERACY, PDNCTY and REM are respectively financial inclusion, literacy rate, population density and remittances. $\theta_{finincl}$, $\theta_{literacy}$, θ_{pdncty} *and* θ_{rem} are long-run coefficients, α_0 is the drift term, ε_t is white noise error term and r, w, x, y are optimal lag length.

To estimate the poverty model with financial inclusion and other control variables, the unrestricted error correction model under ARDL methodology given as follows:

$$\Delta POV(t) = \alpha_0 + \theta_{pov} POV_{t-1} + \theta_{gdp} GDP_{t-1} + \theta_{\inf} INF_{t-1} + \theta_{iie} IIE_{t-1} + \theta_{finincl} finincl_{t-1} + \sum_{i=1}^{r} \phi_{1i} \Delta POV_{t-i} + \sum_{n=0}^{w} \phi_{2n} \Delta GDP_{t-n} + \sum_{o=0}^{x} \phi_{3o} \Delta \inf_{t-o} + \sum_{p=0}^{y} \phi_{4p} \Delta iie_{t-p} + \sum_{L=0}^{Z} \phi_{5L} \Delta finincl_{t-L} + \varepsilon_t \quad \textbf{(5.3)}$$

The AIC (Akaike Information Criterion) or *SBC* (Schwarz Bayesian Criterion) will be followed to choose the orders of the lags in ARDL model. ARDL technique will be applied in following three steps.

5.2.3b Bound Testing Approach

In ARDL bound testing approach, the first step is to find the values of the parameters of equation (5.1) by OLS (ordinary least square) method. A long run association among the financial inclusion and other independent variables exists if lagged level coefficients are jointly significant. The null hypothesis of the absence of cointegration relationship represented by $H_0 : \theta_{finincl} = \theta_{literacy} = \theta_{pdncty} = \theta_{rem} = 0$, if it is rejected against the alternative hypothesis of long run relationship represented by $H_a : \theta_{finincl} \neq \theta_{\text{literacy}} \neq \theta_{pdncty} \neq \theta_{rem} \neq 0$, then it can be concluded that a long run connection present among financial inclusion and with other control variables. Similarly a long run association among the poverty and other independent variables

exists if lagged level coefficients are jointly significant. The null hypothesis of the absence of cointegration relationship represented by $H_0 : \theta_{pov} = \theta_{gdp} = \theta_{\inf} = \theta_{iie} = \theta_{finincl} = 0$, if it is rejected against the alternative hypothesis of long run relationship represented by $H_0 : \theta_{pov} \neq \theta_{gdp} \neq \theta_{\inf} \neq \theta_{iie} = \neq \theta_{finincl} \neq 0$, then it can be concluded that a long run connection present among poverty and with other independent variables. The existence of long run relationship is tested by using F-statistic and compared with the critical values proposed by Pesaran *et al.* (2001). These critical values are available for different number of explanatory variables and different combinations of deterministic part that is whether the model include drift or trend term.

Two types of asymptotic critical values have been provided by Pesaran *et al.* (2001) to test for co-integration. The lower critical bound (LCB) and upper critical bound (UCB) are applied to check either the variables included in the model are co-integrated for long run association or not. We apply LCB to test the long run association among the variables when all the variables are level stationary i.e. I (0) and we use UCB when all the variables are stationary at first difference i.e. I (1). If the calculated value of F-statistic is larger than the UCB that is $F > UCB$ the null hypothesis of no cointegration relationship can be rejected irrespective of the orders of integration of the variables and hence we can conclude that the long run relationship exists between financial inclusion and explanatory variables.

Conversely, if the observed value of F-test is lower than LCB that is $F < LCB$ then we fail to reject the hypothesis of no co-integration and hence conclude that the long run relationship does not exist among financial inclusion and explanatory variables.

Lastly, if the calculated value of the F-test falls between LCB and UCB that is, $LCB < F < UCB$ the result is questionable and the integration order of the essential variables has to be studied more deeply.

After checking the presence cointegration among the relevant variables, the second step of the investigation is to find out the estimated coefficients of the long run relation. In this regard we will estimate the following equations

$$FININCL_{t-1} = \pi_1 LITERACY_{t-1} + \pi_2 PDNCTY_{t-1} + \pi_3 REM_{t-1} + \nu_t \qquad (5.4)$$

$$POV_{t-1} = \beta_1 GDP_{t-1} + \beta_2 INF_{t-1} + \beta_3 IIE_{t-1} + \beta_4 FININCL_{t-1} + \nu_t \qquad (5.5)$$

Where $\pi_1 = \frac{\theta_{literacy}}{\theta_{fininc l}}$, $\pi_2 = \frac{\theta_{pdncty}}{\theta_{fininc l}}, \pi_3 = \frac{\theta_{rem}}{\theta_{fininc l}}$

$\beta_1 = \frac{\theta_{gdp}}{\theta_{pov}}$, $\beta_2 = \frac{\theta_{\inf}}{\theta_{pov}}, \beta_3 = \frac{\theta_{iie}}{\theta_{pov}}, \beta_4 = \frac{\theta_{fininc l}}{\theta_{pov}}$

In last stage, we find the short-run dynamic coefficients by estimating an error correction model related with the long-run estimators. The equation for this purpose is represented as follows:

$$\Delta fininc l(t) = \alpha_0 + \sum_{i=1}^{r} \phi_{1i} \Delta fininc l_{t-i} + \sum_{n=0}^{w} \phi_{2n} \Delta LITERACY_{t-n} + \sum_{o=0}^{x} \phi_{3o} \Delta PDNCTY_{t-o} + \sum_{p=0}^{y} \phi_{4p} \Delta REM_{t-p} + \varphi ECM_{t-1} + u_t \qquad (5.6)$$

$$\Delta POV(t) = \alpha_0 + \sum_{i=1}^{r} \phi_{1i} \Delta POV_{t-i} + \sum_{n=0}^{w} \phi_{2n} \Delta GDP_{t-n} + \sum_{o=0}^{x} \phi_{3o} \Delta INF_{t-o} + \sum_{p=0}^{y} \phi_{4p} \Delta IIE_{t-p} + \sum_{L=0}^{Z} \phi_{5L} \Delta FININCL_{t-L} + \varphi ECM_{t-1} + u_t \qquad (5.7)$$

Where ECM shows error correction term and is represented as follows:

$$ECM = \Delta finincl(t) - \alpha_0 - \sum_{i=0}^{r} \phi_{1i} \Delta finincl_{t-i} - \sum_{n=0}^{w} \phi_{2n} \Delta LITERACY_{t-n} - \sum_{o=0}^{x} \phi_{3o} \Delta PDNCTY_{t-o} - \sum_{p=0}^{y} \phi_{4p} \Delta REM_{t-p} \quad (5.8)$$

$$ECM = \Delta POV(t) - \alpha_0 - \sum_{i=0}^{r} \phi_{1i} \Delta POV_{t-i} - \sum_{n=0}^{w} \phi_{2n} \Delta GDP_{t-n} - \sum_{o=0}^{x} \phi_{3o} \Delta INF_{t-o} - \sum_{p=0}^{y} \phi_{4p} \Delta IIE_{t-p} - \sum_{L=0}^{Z} \phi_{5L} \Delta FININCL_{t-L} \quad (5.9)$$

And φ shows the speed of adjustment coefficient and its absolute value indicates how quickly the equilibrium is reached in the short run model. The expected sign of this coefficient should be negative and highly significant. The negative sign with high significance level ensure whenever the shock occur, the dependent variable convergent to its long run equilibrium value.

5.4 Diagnostic Tests

As serial correlation, heteroskedasticity and non-normality all violate the important assumption that errors follow the normal distribution with mean equal to zero and constant variance i.e. $N(0,\sigma^2 I)$. For this purposes the diagnostic tests are also applied. The Jarque-Bera (JB) test is applied to test the normality assumption. First this test finds the skewness and kurtosis measures of the OLS residuals. Under this statistic the null hypothesis is that the errors follow the normal distribution. JB test statistic has the chi-square distribution with 2 degree of freedom.

In time series, the successive values of the dependent variable or error terms are likely to exhibit inter-correlate. This problem in econometrics is named as serial correlation or autocorrelation. The presence of serial correlation in the data set leads to inconsistent standard

errors which in turn affect statistical inference. Breusch Godfrey LM test is used to detect autocorrelation. This test follows the chi-square distribution.

The error variance σ^2 at time t is likely to found correlate with the squared error term in period (t-1). This problem is known as autoregressive conditional heteroskedasticity (ARCH). Ignoring ARCH affects may lead inefficiency in estimated results. So, ARCH test is used to detect the problem of heteroskedasticity.

In order to determine the structural stability of the parameters of the model, the CUSUMSQ test (cumulative sum of squares of residuals) is applied. CUSUMSQ test depends on and plots the cumulative sum of square of the recursive residuals along with the 5% straight critical lines. The parameters are found to be instable if the cumulative sum square of the recursive residuals cross or goes outside the two critical lines.

CHAPTER 6

EMPERICAL RESULTS

This chapter provides and analyses the empirical results of the econometric model using the econometric methodology explained in chapter 5. Section 6.1 covers the unit root to identify the stationary property of the variables. Section 6.2 provides the Bounds testing approach to check the cointegration between the variables employed in the model. 6.3 section discuses short run dynamics of both models by applying error correction mechanism. Diagnostic tests and CUSUMQ test are presented in section 6.4.

6.1 Unit Root Test

Stationarity of all variables, such as financial inclusion, literacy rate, population density remittances, inflation, income inequality and per capita gross domestic product are identified to confirm that some variables are co integrated of order *I (0) while others are I (1)*. As the bounds test is applicable only for the variables that are either *I (1)* or *I (0)*, and the computed critical values of upper and lower bounds given by Pesaran *et al. (2001*) are not valid for the variables stationary at second difference i.e. *I (2).* Therefore, it is necessary to ensure that none of the variable is stationary at second difference or more before applying the ARDL approach.

The Augmented Dickey-Fuller (ADF) test is applied to all the variables to test the null hypothesis of non-stationary. Table 6.1a and 6.1b reports the results of ADF unit root test for all the variables. The different order of integration of the variables suggests that ARDL co-integration approach provided by Pesaran *et al. (2001)* is an appropriate methodology for estimation. Therefore, the presence of long run cointegration among the variables is identified by using ARDL approach. Results of table 6.1a and 6.1b show that some variables are *I (1)* and others are *I (0).*

Table 6.1a: ADF Unit Root Test

Variables	Intercept	Trend	Level	Intercept	Trend	First Difference	Conclusion at level	Conclusion at first difference
finincl	Yes	No	-0.99(0)	Yes	No	-5.68***	I(1)	I(0)
LITERACY	Yes	No	-0.08(0)	Yes	No	-7.58***	I(1)	I(0)
PDNCTY	Yes	No	-3.99(0) ***	Yes	No	…	I(0)	I(0)
REM	Yes	No	-1.48(0)	Yes	No	-5.63***	I(1)	I(0)

Note: ***,** and * implies significance at 1%, 5% and 10%, respectively. Numbers of lag are shown in parenthesis.

Table 6.1b: ADF Unit Root Test

Variables	Intercept	Trend	Level	Intercept	Trend	First Difference	Conclusion at level	Conclusion at first difference
POV	Yes	No	-0.87(0)	Yes	No	-4.82***	I(1)	I(0)
GDP	Yes	No	-0.45(0)	Yes	No	-4.01***	I(1)	I(0)
INF	Yes	No	4.35(0) ***	Yes	No	…	I(0)	I(0)
IIE	Yes	No	-0.97(0)	Yes	No	-5.32***	I(1)	I(0)
finincl	Yes	No	-0.99(0)	Yes	No	-5.68***	I(1)	I(0)

Note: ***,** and * implies significance at 1%, 5% and 10%, respectively. Numbers of lag are shown in parenthesis.

6.2 Bound Testing Approach

To find the long run association between the variables of financial inclusion model and poverty model, in ARDL model, it is necessary to determine the optimal lag length of the variables at first difference. For this purpose Akaike Information Criterion (AIC) and Schwarz Bayesian Information Criterion (SBC) is followed. Tables 6.2a and 6.2b report the results for

optimal lag length. AIC exhibits smallest value corresponding to lag 2 and SBC has minimum value at lag 2. However, we prefer to choose lag length according to AIC as other criterion LR, FPE and HQ also provides minimum value corresponding to lag 2.

Table 6.2a: Appropriate Lag Length Selection Results for financial inclusion model

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-267.5128	NA	64.30061	15.51502	15.69277	15.57638
1	-42.23966	386.1825	0.000415	3.556552	4.445322	3.863355
2	20.62473	93.39851*	2.97e-05*	0.878587*	2.478374*	1.430833*

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

Table 6.2b: Appropriate Lag Length Selection Results for poverty model

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-423.7391	NA	30033.49	24.49938	24.72157	24.57608
1	-177.3581	408.2884	0.097954	11.84904	13.18219	12.30924
2	-115.4109	84.95627*	0.013016*	9.737764*	12.18188*	10.58147*

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

The ARDL cointegration equation is estimated using Ordinary Least Squares (OLS) approach for both models. The hypothesis of the absence of cointegration relationship among the variables of both models is tested by using F-statistic. After computing the F-statistic the

observed value of F-test is compared with the two types (upper and lower bounds) of critical values given by Pesaran *et al.* (2001).

Table 6.3a: Bound Test Results

	F-statistics	I (0)	I (1)	Cointegration
$F\ fininc(LITERACY, PDNCTY, REM)$				
	7.48	2.79	3.67	Yes

Note: critical values are given only at 5% significance level.

Table 6.3b: Bound Test Results

	F-statistics	I (0)	I (1)	Cointegration
$F\ POV(GDP, INF, IIE, fincl)$				
	4.01	2.56	3.49	Yes

Note: critical values are given only at 5% significance level.

6.2.1 Bound Test on Financial Inclusion Model.

The calculated value of F-statistic in the financial inclusion model with remittances and other control variables for the joint null hypothesis of no cointegration is found to be 7.48 and is larger than the upper side critical value at 95 percent (Table 6.3a). The larger value of F-statistic than the upper side critical value supports to reject the joint null hypothesis of no long run relationship and confirms the existence of long run association between financial inclusion and remittances along other control variables.

6.2.2 Bound Test on Poverty Model.

The calculated value of F-statistic in the poverty model with financial inclusion and income inequality by including other control variables for the joint null hypothesis of no

cointegration is found to be 4.01 and is larger than the upper side critical value at 95 percent (Table 6.3b). The larger value of F-statistic than the upper side critical value supports to reject the joint null hypothesis of no long run relationship and confirms the existence of long run association between poverty, financial inclusion and income inequality along other control variables.

6.2.3 Long Run Empirical Results of Financial Inclusion Model

The long run empirical results of financial inclusion model are shown in Table 6.4a

Table 6.4a: Long Run Results of Financial Inclusion Model

Variable	Coefficient	Std. Error	t-statistic	Prob.
C	0.221973***	0.084650	2.622242	0.0163
LITERACY	0.013574***	0.003827	3.546947	0.0020
PDNCTY	0.005953***	0.001326	4.489666	0.0002
REM	0.009122***	0.003015	3.025337	0.0067

Note: *, ** and *** implies significance at 10%, 5% and 1% respectively.

Remittances have positive and significant impact on access and usage of financial services in long run in Pakistan as shown in table 6.4a and has negative impact in short run may be due to the higher transaction costs. Remittances improve the financial inclusion by providing the financial services from improved and stable capital availability to the people in developing countries (Toxopeus and Robert Lensink, 2007). This is as according to the expected sign because remittance increases the capital availability of financial institutions and it is necessary for the receiver to visit any one financial franchise to receive money. Results are also consistent with the (Anzoategui *et al.* 2013).

Result from table 6.4a reveals that coefficient of literacy rate has positive sign. This means that education level is positively associated with financial inclusion which explores that as the literacy rate increases; people will demand more and more financial services. This sign is according to the theory. Financial literacy boosts the financial inclusion (Atkinson and Messy, 2013).

Table 6.4a also reveals that population density also impacts positively on the access and usage of financial services (financial inclusion) in long run. This is as expected and according to the theory that danced areas attract more financial services and banks provide more services in the urban danced areas. This coefficient support the argument of Demirgüç-Kunt *et al.* (2011) that populated area demands more financial services and banks also open more branches in the danced areas.

6.2.4 Long Run Empirical Results of Poverty Model

The long run empirical results of poverty model are shown in Table 6.4b

Table 6.4b: Long Run Results of Poverty Model

Variable	Coefficient	Std. Error	t-statistic	Prob.
C	105.6480**	44.16258	2.392252	0.0294
GDP	-0.074176***	0.027376	-2.709563	0.0155
INF	0.387281***	0.116792	3.315987	0.0044
IIE	1.477583**	0.779549	1.895432	0.0762
finincl	-19.68439	14.58711	-1.349437	0.1960

Note: *, ** and *** implies significance at 10%, 5% and 1% respectively.

Long run coefficient of the GDP per capita is both significant and negative which is exactly as expected and according to theory that as average income level will increase poverty will go to

decrease directly. This shows that as the average income of population of Pakistan increase it leads to reduction in poverty head count. These results are consistent with (Qayyum *et al.* 2012 & Adam and Page, 2005).

Income inequality (GINI) has positive and significant impact on poverty which means that as the income inequality decrease (increase), poverty will also decreases (increase) in Pakistan in long run but significant at 10% only. This indicates that poverty reduces more in Pakistan income inequality is lower. This is the consistent with (Qayum *et al.* 2012 & Adam and Page, 2005) that poverty reduces more in those countries where income inequality is low at given growth rate.

Inflation captured as CPI has positive and highly significant effect on poverty of Pakistan in long run which reveals that inflation hurt the poor through lowering the real wages (Cardoso, 2002) and reducing the purchasing power of poor (Chaudhary and Chaudhary, 2008). This is exactly according to the theory that inflation reduces the purchasing power of the poor segment of the society. Results are also consistent with (Powers, 1995 & Braumann, 2004).

Although the sign of the coefficient of financial inclusion is negative but it is not statistically significant, neither in long run nor in short run in case of Pakistan's economy. It is opposite to the theory that financial inclusion helps to alleviate poverty. But this is consistent with Bhandari (2009) that expansion of banks is not successful poverty reduction strategy in India across the states as he found out that there is no connection between development of banks and easing of poverty. There may be several reason as to why financial inclusion is not associated with poverty. Some ground realities are described as under:

Firstly, People living below the poverty line are not encouraged or even not allowed to use the financial services by the existing conventional banking system of Pakistan. Major part of poverty

belongs to the rural areas where most of the private banks are not encouraged to open their bank branches. Banks which open (rarely) the branches in rural areas or even in sub urban and urban areas do not give the credit facilities to the poor people because they do not have any guarantee of repay the credit. Facility of deposit account is also not availed by the poor because they do not have enough money to deposit.

Secondly, the lack of connection between the two above discussed variables can be explained with the fact that there is no culture of entrepreneurship in Pakistan. There have been instances where soft-loans have been provided by banks and Govt. to youth with expectation that people would use those loans to create new businesses and hence the poverty would be reduced as new businesses usually create new employment opportunities for poor. Due to lack of culture of entrepreneurship in Pakistan, people start investing those loans in real-estate and other ------- ventures---- rather than creating new businesses.

Thirdly, Pakistan is an Islamic country and most of the people strongly believe that interest is strongly prohibited in Islam in both receiver and payer cases. Banks which are considered as the Islamic banks in Pakistan also do not offer the facility of Qarz e Hasna (Loan according to Islamic obligation) and do not have any special financial products for the poor people.

Fourthly, existing banking system in Pakistan has major part of private banks and the main goal of private banks is profit maximizing not to target poverty.

6.3 Short Run Dynamics of Financial Inclusion and Poverty Models

Table 6.5a: Short Run Results of Financial Inclusion Model

Variable	Coefficient	Std. Error	t-statistic	Prob.
Δ(finincl(-1))	0.045385	0.144763	0.313510	0.7567
Δ(Literacy)	-0.002490**	0.001190	-2.091201	0.0478
Δ(Literacy(-1))	0.005678***	0.001780	3.189093	0.0041
Δ(Literacy(-2))	0.003467**	0.001254	2.764331	0.0110
Δ(PDNCTY)	-0.034384	0.084094	-0.408875	0.6864
Δ(PDNCTY(-1))	0.244647	0.165129	1.481548	0.1520
Δ(PDNCTY(-2))	-0.233168**	0.091954	-2.535691	0.0185
Δ(Rem)	0.000667	0.003239	0.205931	0.8387
Δ(Rem(-1))	-0.006708*	0.003589	-1.869309	0.0744
ECM(-1)	-0.094367***	0.016085	-5.866765	0.0000
R-squared	0.7768	F-statistic	8.01	
Adjusted R-squared	0.6798	Prob.(F-statistic)	0.000020	

Note: *, ** and *** implies significance at 10%, 5% and 1% respectively

Short run dynamic results are obtained from the error correction (ECM) approach. The coefficient of the ECM_{t-1} term shows the speed of adjustment and indicates how quickly the equilibrium is reached. The expected sign of the coefficient of the ECM_{t-1} term should be negative and highly significant. The high significance coefficient of ECM_{t-1} term confirms the presence of cointegration between the variables (Banerjee *et al.* 1998). In our analysis the speed

of adjustment coefficient is found to be -0.09436 which is highly significant at 5% level of significance. The negative sign of the coefficient of the ECM_{t-1} term clearly indicates that if the equilibrium deviates from its long run path, it will converge back to its equilibrium position with 0.09436 speeds of adjustment.

Table 6.5b: Short Run Results of Poverty Model

Variable	Coefficient	Std. Error	t-statistic	Prob.
Δ(Pov(-1))	0.191497	0.268847	0.712290	0.4845
Δ(GDP)	-0.010840	0.029207	-0.371151	0.7144
Δ(GDP(-1))	0.046887	0.036250	1.293440	0.2106
Δ(GDP(-2))	0.003516	0.035013	0.100422	0.9210
Δ(INF)	2.341388***	0.480114	4.876735	0.0001
Δ(INF(-1))	-1.381054***	0.415199	-3.326246	0.0034
Δ(INF(-2))	-0.866241***	0.256867	-3.372329	0.0030
Δ(IIE)	-2.006238**	0.727661	-2.757107	0.0122
Δ(IIE(-1))	3.711301***	0.776124	4.781842	0.0001
Δ(IIE(-2))	-1.796430*	0.907719	-1.979058	0.0617
Δ(finincl)	1.710487	9.978603	0.171415	0.8656
Δ(finincl(-1))	4.618764	9.534816	0.484410	0.6334
ECM(-1)	-0.075812***	0.016436	-4.612557	0.0002
R-squared	0.8775	F-statistic	11.02	
Adjusted R-squared	0.7979	Prob.(F-statistic)	0.0000020	

Note: *, ** and *** implies significance at 10%, 5% and 1% respectively

Short run dynamic results are obtained from the error correction (ECM) approach. The coefficient of the ECM_{t-1} term shows the speed of adjustment and indicates how quickly the equilibrium is reached. The expected sign of the coefficient of the ECM_{t-1} term should be negative and highly significant. The high significance coefficient of ECM_{t-1} term confirms the presence of cointegration between the variables (Banerjee *et al.* 1998). In our analysis the speed of adjustment coefficient is found to be -0.075812 which is highly significant at 5% level of significance. The negative sign of the coefficient of the ECM_{t-1} term clearly indicates that if the equilibrium deviates from its long run path, it will converge back to its equilibrium position with 0.075812 speeds of adjustment.

6.4 Diagnostic and Stability Tests

To determine the correctness of the models, the diagnostic tests and stability tests are also carried out. This section will provide diagnostic tests such as normality, serial correlation, heteroskedasticity and Ramsey test. Tables 6.6a and 6.6 b report the diagnostic tests of both financial inclusion and poverty models.

Table 6.6a: Diagnostic Tests of Financial Inclusion Model

Test	Test Statistic	Prob.	Critical value
Normality Test(Jarque Bera)	0.1416	0.9316	$\chi^2_{0.05(2)} = 5.99$
Serial Correlation LM Test	1.6495	0.1990	$\chi^2_{0.05(1)} = 3.84$
ARCH Test	0.2248	0.6387	$\chi^2_{0.05(1)} = 3.84$
Ramsey Reset Test	0.7825	0.3859	$\chi^2_{0.05(1)} = 3.84$

The results of certain diagnostic tests show that model does not suffer from the problem of heteroskedasticity, serial correlation, non-normality and instability of the parameters of the

both the models. While Figure 6.1(CUSUMSQ for financial inclusion model) shows that cumulative sum of square residuals (CUSUMSQ) does not cross the 5% critical straight line, consequently this shows that there is no significant structural instability in the parameters of the financial inclusion model.

Figure 6.1: Cumulative Sum of Square Residuals of Financial Inclusion Model (CUSUMSQ)

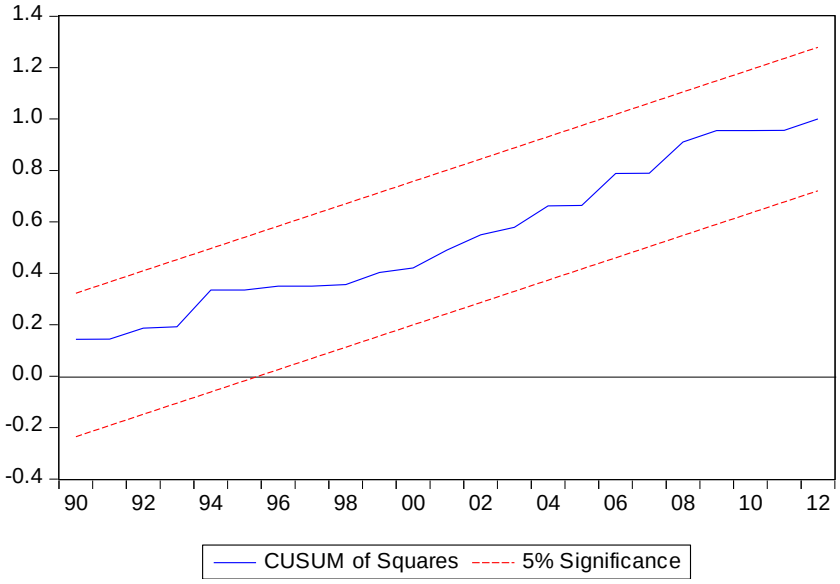
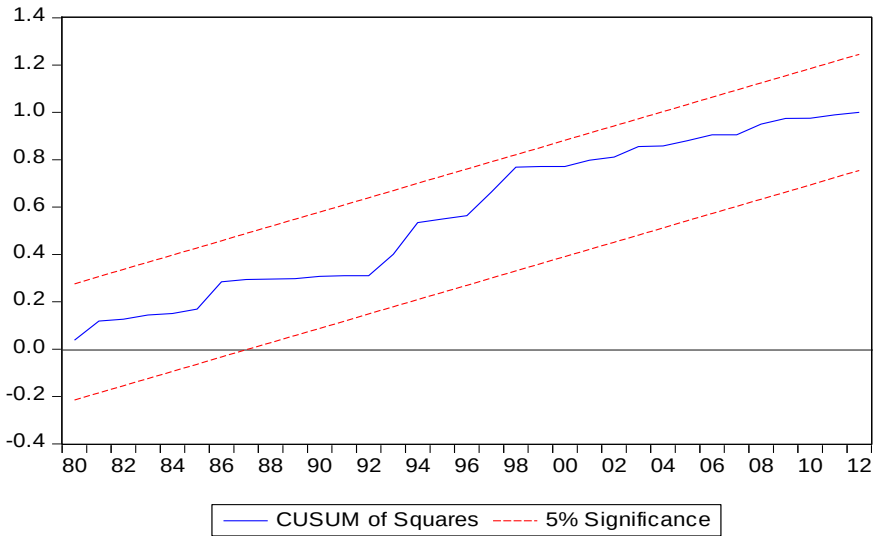


Table 6.6b: Diagnostic Tests of Poverty Model

Test	Test Statistic	Prob.	Critical value
Normality Test(Jarque Bera)	0.0504	0.9750	$\chi^2_{0.05(2)} = 5.99$
Serial Correlation LM Test	2.5065	0.1096	$\chi^2_{0.05(1)} = 3.84$
ARCH Test	1.2807	0.2664	$\chi^2_{0.05(1)} = 3.84$
Ramsey Reset Test	0.9876	0.4062	$\chi^2_{0.05(1)} = 3.84$

The results of certain diagnostic tests show that model does not suffer from the problem of heteroskedasticity, serial correlation, non-normality and instability of the parameters of the both the models. While Figure 6.2(CUSUMSQ for poverty model) shows that cumulative sum of square residuals (CUSUMSQ) does not cross the 5% critical straight line, consequently this shows that there is no significant structural instability in the parameters of the poverty model.

Figure 6.2: Cumulative Sum of Square Residuals of Poverty (CUSUMSQ)



CHAPTER 7

CONCLUSION AND POLICY RECOMENDATIONS

Poverty targeted research and policies have remained much focused areas of study in every era by the researchers and policy makers. Many of the studies have separately stressed that higher financial sector depth and access to the financial services are beneficial to target poverty. This is the first study which analyzed the impact of both financial access and depth (financial inclusion) on poverty in case of economy of Pakistan. Furthermore, this study also analyzed the effect of remittances on financial inclusion.

An autoregressive distributed lag (ARDL) approach is applied to check the long run association between financial inclusion and poverty & remittances and financial inclusion. Present study uses annual time series data (1976-2012). Short run dynamics are examined through error correction mechanism.

The most interesting and alarming result of this study is that although financial inclusion has negative impact on poverty but not statistically significant. Technically, it means that financial inclusion is not associated with poverty reduction. Sign of coefficient of financial inclusion is according to the theory but not significant. There might be several reasons but some ground realities are as follows:

- Pakistan's conventional banking system does not encourage or even allow the population below poverty line to use financial services.
- There is lack of culture of entrepreneurship in Pakistan which may help in poverty reduction indirectly by creating new businesses.
- Most of the people in Pakistan strongly believe that interest and interest based banking is strongly prohibited in Islam.

- Existing banking system has major part of private banks and the aim of these banks is profit generation not to target poverty.

The estimated coefficients of the long run relationship show that inflation and income inequality have positive and significant impact on poverty head count which means that these both variables increase the poverty in long run. While per capita income helps in poverty reduction in long run.

The most important result of one part of this study is that remittances have a positive significant effect on financial inclusion in the long run. More technically, this result reveals that financial inclusion is associated with increase in remittances in the long run. Moreover, population density has positive impact on financial inclusion and literacy has also positive sign in long run which are according to the theory.

The short run dynamics of the research are analyzed through the error correction modeling (ECM) approach. The high significance level of ECM_{t-1} *term* in our analysis confirms that there exists long run association between financial inclusion and poverty & remittance and financial inclusion with other control variables. The negative sign of the coefficient of the ECM_{t-1} term with high level of significance clearly indicates that if the equilibrium deviates from its long run path, it will converge back to its long run equilibrium position after some adjustment.

Policy Recommendations

This study has an important policy implication that government needs to encourage the overseas Pakistani to send their money through formal financial sector and cost of transaction should be minimized so that financial inclusion can be improved.

Following are some important policy implications to target poverty through financial inclusion:

- Financial resources must be made accessible to people by banking policies that make it easy for general public to get loans.
- Effective measures must be taken to create a culture of entrepreneurship in Pakistan so that banks are able to trust the general public that they will not misspend the loan-money on trivial and non-profitable activities.
- Efforts must be done by the government to ensure that even actively religious people have access to banking services that have been declared halal by credible religious authorities.
- Policies must be made to ensure that banks also open branches in remote and rural areas so that poor population has access to financial resources.

REFERENCES

Abosedra, S., Shahbaz, M., & Nawaz, K. (2015). Modeling Causality Between Financial Deepening and Poverty Reduction in Egypt. *Social Indicators Research*, 1-15.

Acosta, P. A., Baerg, N. R., & Mandelman, F. S. (2009). Financial development, remittances, and real exchange rate appreciation.

Adams, R., (2004). "Remittances and Poverty in Guatemala". World Bank Policy Research Working Paper 3418.

Adenutsi, D. E. (2011). Financial development, international migrant remittances and endogenous growth in Ghana. *Studies in Economics and Finance*, *28*(1), 68-89.

Afzal, M., Rehman, H. U., Farooq, M. S., & Sarwar, K. (2011). Education and economic growth in Pakistan: A cointegration and causality analysis.International Journal of Educational Research, 50(5), 321-335.

Aggarwal, R., Demirgüç-Kunt, A., & Pería, M. S. M. (2011). Do remittances promote financial development?. *Journal of Development Economics*, *96*(2), 255-264.

Aggarwal, R., Demirguc-Kunt, A., and Martinez Peria, M.S.,(2006). "Do Workers' Remittances Promote Financial Development?" World Bank Policy Research Working Paper 3957.

Ahamada, I., & Coulibaly, D. (2011). How does financial development influence the impact of remittances on growth volatility?. *Economic modelling*, *28*(6), 2748-2760.

Akhter, S., & Daly, K. J. (2009). Finance and poverty: Evidence from fixed effect vector decomposition. *Emerging Markets Review*, *10*(3), 191-206.

Akkoyunlu, Ş. Remittances and Financial Development: Is there a direct link? Evidence from Turkish Data.

Alcock, P., & Campling, J. (2006). *Understanding poverty* (pp. 190-198). Basingstoke: Palgrave Macmillan.

Ambrosius, C., Fritz, B., & Stiegler, U. (2008). *Capitalising on remittances for financial development–examples of regulations and policies*. mimeo.

Amidžic, G., Massara, A., & Mialou, A. (2014). Assessing Countries' Financial Inclusion Standing: A New Composite Index.

Anzoategui, D., Demirgüç-Kunt, A., & Pería, M. S. M. (2014). Remittances and financial inclusion: evidence from El Salvador. World Development, 54, 338-349.

Atkinson, A., & Messy, F. A. (2013). Promoting Financial Inclusion through Financial Education.

Beck, T., Demirgüç-Kunt, A., & Levine, R. (2007). Finance, inequality and the poor. *Journal of economic growth*, *12*(1), 27-49.

Bettin, G., & Zazzaro, A. (2012). Remittances and financial development: substitutes or complements in economic growth?. *Bulletin of Economic Research*, *64*(4), 509-536.

Bhandari, A. K. (2009). Access to banking services and poverty reduction: a state-wise assessment in India.

Blank, R. M. and Blinder, Alan S. (1985). Macroeconomics, Income Distribution, and Poverty. NBER Working Paper No.1567. Cambridge, MA.

Bourguignon, F. (2003). The growth elasticity of poverty reduction: explaining heterogeneity across countries and time periods. Inequality and growth: Theory and policy implications, 3-26.

Braumann, B. (2004). High Inflation and Real Wages. *IMF Staff Papers*, Vol. 51, No. 1, International Monetary Fund. Washington, D.C.

Brown, R. P., Carmignani, F., & Fayad, G. (2013). Migrants' Remittances and Financial Development: Macro-and Micro-Level Evidence of a Perverse Relationship. *The World Economy*, *36*(5), 636-660.

Bruhn, M., & Love, I. (2009). The economic impact of banking the unbanked: evidence from Mexico. *World Bank Policy Research Working Paper Series, Vol*.

Burgess, R., & Pande, R. (2003). Do rural banks matter? Evidence from the Indian social banking experiment. *Evidence from the Indian Social Banking Experiment (August 2003)., Vol*.

Cardoso, E. (1992). Inflation and poverty (No. w4006). National Bureau of Economic Research.

Chakravarty, S. R., & Pal, R. (2012). Measuring financial inclusion: An Axiomatic approach.

Chami, R., Connel, F., and Samir, J.,(2003). "Are Immigrant Remittance Flows a Source of Capi-tal for Development." Internationa Monetary Fund Working Papers 03/189.

Chani, M. I., Pervaiz, Z., Jan, S. A., Ali, A., & Chaudhary, A. R. (2011). Poverty, inflation and economic growth: empirical evidence from Pakistan. World Applied Sciences Journal, 14(7), 1058-1063.

Chauhary, T. T. and Chaudhary, A. A. (2008). The Effects of Rising Food and Fuel Costs on Poverty in Pakistan. The Lahore Journal of Economics, Special Edition (September). Lahore, Pakistan. pp. 117-138

Chowdhury, M. B. (2011). Remittances flow and financial development in Bangladesh. *Economic Modelling*, *28*(6), 2600-2608.

Cooray, A. (2012). Migrant remittances, financial sector development and the government ownership of banks: evidence from a group of non-OECD economies. Journal of International Financial Markets, Institutions and Money, 22(4), 936-957.

De Vasconcelos, P. (2005). 'Improving the Development Impact of Remittances'. Paper presented at United Nations' Expert Group Meeting on International Migration and Development, 6-8 July. New York.

Delong, J. B. and Summers, L. H. (1992). Macroeconomic Policy and Long-Run Growth. Federal Reserve Bank Of Kansas City Economic Review, Fourth Quarter, pp. 5-30.

Demirgüç-Kunt, A., Córdova, E. L., Pería, M. S. M., & Woodruff, C. (2011). Remittances and banking sector breadth and depth: Evidence from Mexico. Journal of Development Economics, 95(2), 229-241.

Dickey, D. A., & Fuller, W. A. (1979). Distribution of the estimators for autoregressive time series with a unit root. Journal of the American statistical association, 74(366a), 427-431.

Dollar, D., & Kraay, A. (2002). Growth is Good for the Poor. Journal of economic growth, 7(3), 195-225.

Englama, A. (2009). The Economics of Remittances: Theories and Issues. Paper presented at the High-Level Seminar on International Remittances for Economic Development, Banjul, The Gambia.

Engle, R. F., & Granger, C. W. (1987). Co-integration and error correction: representation, estimation, and testing. Econometrica: journal of the Econometric Society, 251-276

Esteves, R., & Khoudour-Castéras, D. (2011). Remittances, capital flows and financial development during the mass migration period, 1870–1913. *European Review of Economic History*, *15*(3), 443-474.

Fowowe, B., & Abidoye, B. (2013). THE EFFECT OF FINANCIAL DEVELOPMENT ON POVERTY AND INEQUALITY IN AFRICAN COUNTRIES*. *The Manchester School*, *81*(4), 562-585.

Gani, A., & Sharma, B. (2013). Remittances and Credit Provided by the Banking Sector in Developing Countries. *International Review of Business Research Papers*, *9*(3).

Gheeraert, L., Mata, R. S., & Traca, D. (2010). Remittances and domestic investment in developing countries: an analysis of the role of financial sector development. *Working papers CEB*, *10*.

Giuliano, P., & Ruiz-Arranz, M. (2009). Remittances, financial development, and growth. *Journal of Development Economics*, *90*(1), 144-152.

Greenwood, J., Sanchez, J. M., & Wang, C. (2013). Quantifying the impact of financial development on economic development. Review of Economic Dynamics, 16(1), 194-215.

Gupta, A. C., Varun Rao, NV Muralidhar (2014). "FINANCIAL INCLUSION AND HUMAN DEVELOPMENT: A STATE-WISE ANALYSIS FROM INDIA." International Journal of Economics, Commerce and Management II(5).

Gupta, S., Pattillo, C. A., & Wagh, S. (2009). Effect of remittances on poverty and financial development in Sub-Saharan Africa. World Development, 37(1), 104-115.

Ho, S. Y., & Odhiambo, N. M. (2011). Finance and poverty reduction in China: an empirical investigation. *International Business & Economics Research Journal (IBER)*, *10*(8), 103-114.

Hunte, C. K. (2004). Workers' Remittances, Remittance Decay and Financial Deepening in Developing Countries. *The American Economist*, 82-94.

Inoue, T., Hamori, S., 井上武, & 羽森茂之. (2010). How has financial deepening affected poverty reduction in India?: empirical analysis using state-level panel data.

Islam, R. (2004). The nexus of economic growth, employment and poverty reduction: An empirical analysis. Recovery and Reconstruction Department, International Labour Office.

Jalilian, H., & Kirkpatrick, C. (2002). Financial development and poverty reduction in developing countries. *International Journal of Finance & Economics*, *7*(2), 97-108.

Jamal, H. (2006). Does Inequality Matter for Poverty Reduction? Evidence from Pakistan's Poverty Trends. The Pakistan development review, 439-459.

Jeanneney, S. G., & Kpodar, K. (2011). Financial development and poverty reduction: Can there be a benefit without a cost?. *The Journal of Development Studies*, *47*(1), 143-163.

Johansen, S., & Juselius, K. (1990). Maximum likelihood estimation and inference on cointegration—with applications to the demand for money. Oxford Bulletin of Economics and statistics, 52(2), 169-210.

Johansen, Søren. "Statistical analysis of cointegration vectors." Journal of economic dynamics and control 12.2 (1988): 231-254.

Kemal, A. R. (2006). Income Inequalities in Pakistan and a Strategy to Reduce Income Inequalities. Background Paper for PRSP-II, PRSP Secretariat, Government of Pakistan.

Keynes, J. M. (2005). Finance and Growth: Theory, Evidence, and Mechanisms,". Handbook of Economic Growth.

Kuri, P. K., & Laha, D. (2011). Financial inclusion and human development in India: an inter-state analysis. *Indian Journal of Human Development*, *5*(1), 61-77.

Levine, R. (1997). Financial development and economic growth: views and agenda. Journal of economic literature, 688-726.

Leyshon, A., & Thrift, N. (1995). Geographies of financial exclusion: financial abandonment in Britain and the United States. *Transactions of the Institute of British Geographers*, 312-341.

Masuduzzaman, M. (2014). Workers' Remittance Inflow, Financial Development and Economic Growth: A Study on Bangladesh. *International Journal of Economics and Finance*, *6*(8), p247.

Mundaca, B. G. (2009). Remittances, financial market development, and economic growth: the case of Latin America and the Caribbean. *Review of Development Economics*, *13*(2), 288-303.

Munir, S., Kausar Kiani, A., Khan, A., & Jamal, A. (2013). The Relationship between Trade Openness and Income Inequalities: Empirical Evidences from Pakistan". In 3rd International Conference on Business Management (pp. 27-28).

Noman, A. M., & Uddin, G. S. (2012). Remittances and banking sector development in South Asia. *International Journal of Banking and Finance*, *8*(4), 3.

Nyamongo, E. M., Misati, R. N., Kipyegon, L., & Ndirangu, L. (2012). Remittances, financial development and economic growth in Africa. *Journal of Economics and Business*, *64*(3), 240-260.

Odhiambo, N. M. (2009). Finance-growth-poverty nexus in South Africa: A dynamic causality linkage. *The Journal of Socio-Economics*, *38*(2), 320-325.

Odhiambo, N. M. (2009). Financial deepening and poverty reduction in Zambia: an empirical investigation. *International Journal of Social Economics*, *37*(1), 41-53.

Odhiambo, N. M. (2010). Is financial development a spur to poverty reduction? Kenya's experience. *Journal of Economic Studies*, *37*(3), 343-353.

Oke, B. O., Uadiale, O. M., & Okpala, O. P. (2011). Impact of workers' remittances on financial development in Nigeria. *International Business Research*, *4*(4), p218.

Orozco, M., and R. Fedewa (2005). 'Leveraging Efforts on Remittances and Financial Intermediation'. Report commissioned by the Inter-American Development Bank. Washington, DC: Inter-American Dialogue.

Ouattara, B. (2004). Modelling the long run determinants of private investment in Senegal. Centre for Research in Economic Development and Internat. Trade, University of Nottingham.

Park, C. Y., & Mercado Jr, R. V. (2015). FInAncIAl InclusIon, Poverty, AnD Income InequAlIty In DeveloPIng AsIA.

Perez-Moreno, S. (2011). Financial development and poverty in developing countries: a causal analysis. *Empirical Economics*, *41*(1), 57-80.

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. Journal of applied econometrics, 16(3), 289-326.

Powers, E. T. (1995). Inflation, Unemployment, and Poverty Revisited. Economic Review, Federal Reserve Bank of Kansas City. Qtr III

Pradhan, R. P. P. (2010). The Nexus between Finance, Growth and Poverty in India: The Cointegration and Causality Approach1. *Asian Social Science*, *6*(9), p114.

Qayyum, A., Javid, M., & Arif, U. (2008). Impact of remittances on economic growth and poverty: evidence from Pakistan.

Rahman, A. (2009). Financial Inclusion as tool for Combating Poverty: Joesph Mubiru Memorial Lecture. *Bangladesh Bank Quarterly*.

Ramakrishnan, D. (2011). Financial Literacy-The Demand Side of Financial Inclusion. Available at SSRN 1958417.

Rao, B. B., & Hassan, G. M. (2011). A panel data analysis of the growth effects of remittances. *Economic modelling*, *28*(1), 701-709.

Ravallion, M. (1997). Can high-inequality developing countries escape absolute poverty?. Economics Letters, 56(1), 51-57.

Rehman, I. U., & Shahbaz, M. (2014). Multivariate-based Granger causality between financial deepening and poverty: the case of Pakistan. *Quality & Quantity*, *48*(6), 3221-3241.

Sami, J. (2013). Remmittances, Banking Sector Development and Economic Growth in Fiji. *International Journal of Economics and Financial Issues*, *3*(2), 503-511.

Sarma, M. (2008). Index of financial inclusion. Indian Council for Research on International Economics Relations.

Shahbaz, M. (2009). Financial performance and earnings of poor people: a case study of Pakistan. *Journal of Yaşar University*, *4*(16), 2557-2572.

Shahbaz, M., Afza, T., & Shabbir, M. S. (2013). Financial development, domestic savings and poverty reduction in Pakistan: using cointegration and granger causality analysis. *International Journal of Economics and Empirical Research (IJEER)*, *1*(5), 59-73.

Shiller, R. J. (1996). Why Do People Dislike Inflation? Cowles Foundation for Research In Economics, Yale University. Discussion Paper No. 1115.

Sinclair S. P. (2001). Financial exclusion: An introductory survey. Report of Centre for Research in Socially Inclusive Services, Heriot-Watt University, Edinburgh.

Stahl, C. W., and F. Arnold (1986). 'Overseas Workers' Remittances in Asian Development'. *International Migration Review*, 20 (4): 899-925.

Stiglitz, J. E. (1998, October). Towards a new paradigm for development. United Nations Conference on Trade and Development.

Summers, L. H. (1991). How Should Long-Term Monetary Policy Be Determined? Panel discussion. Journal of Money, Credit And Banking. pp. 625-31.

Toxopeus, H. S., & Lensink, R. (2007). Remittances and financial inclusion in development (No. 2007/49). Research Paper, UNU-WIDER, United Nations University (UNU).

Uddin, G. S., Shahbaz, M., Arouri, M., & Teulon, F. (2014). Financial development and poverty reduction nexus: A cointegration and causality analysis in Bangladesh. *Economic Modelling*, *36*, 405-412.

Wagh, S., & Pattillo, C. A. (2007). Impact of remittances on poverty and financial development in Sub-Saharan Africa. *IMF Working Papers*, 1-43.

Yang, D., (2005) ”International migration, human capital, and entrepreneurship : evidence from Philippine migrants'exchange rate shocks”. World Bank Policy Research Working Paper Series 3579.