Role of Remittances in Consumption Smoothing: The Case Study of South Asia

Submitted by

Mohsin Rasheed

Supervisor

Dr. Nazia Bibi

Registration No

PIDE2017FMPHILEAF43

Department of Business studies

Pakistan Institute of Development Economics, Islamabad

PAKISTAN INSTITUTE OF DEVELOPMENT ECONOMICS, ISLAMABAD

CERTIFICATE

This is to certify that this thesis entitled **"Role of remittances in consumption smoothing: The case study of south Asia."** submitted by **Mr. Mohsin Rasheed** is accepted in its present form by the Department of Business Studies, Pakistan Institute of Development Economics (PIDE) Islamabad as satisfying the requirements for partial fulfillment of the Degree of Master of Philosophy in Economics and Finance.

Supervisor:

Dr. Nazia Bibi
Assistant Professor,
PIDE, Islamabad

Internal Examiner:

Dr. Junaid Ahmed
Senior Research Economist,
PIDE, Islamabad.

External Examiner:

Dr. Javed Iqbal
Assistant Professor,
SOE, QAU Islamabad

Head, Department of Busniss Studies:
MPhil Economics and Finance

Dr. Nadeem Ahmad Khan
Assistant Professor,
PIDE, Islamabad.

December 31, 2019

DEDICATION

Every challenging task needs self-effort as well as support from those who are very close to us. From core of my heart, I dedicate my thesis to my sweet and loving parents.

ACKNOWLEDGEMENT

First and foremost, I praise Allah, who is the strength of my everything, the almighty for providing me this opportunity and granting me the capability to proceeds successfully. This thesis in its current form would not have been possible without the support and guidance of several people. I would therefore like to offer my sincere thanks to all of them.

I would like to express my sincere gratitude to my Supervisors, Dr. Nazia Bibi for the continuous support, hand holding in tough times and for the counseling to keep me motivated.

I would also like to thanks my family members, my father Abdul Rasheed, brothers Hafiz Muhammad Mansab Rasheed and Zubair Rasheed as well as my sister and prestigious mother for continuous supporting me spiritually throughout my life.

Last but not the least, I would like to say special thanks to my fellows specially Nasir Hamid Rao for this support to complete my M. Phil program and also thanks to Saheem Khanzada, Awais khan for their support during the course work as well as in thesis work. They have been my best cheerleaders.

Mohsin Rasheed

List of Acronyms

CD: Cross Sectional Dependence

CE: Consumption Expenditure

CCEMG: Common Correlated Effect Mean Group

CS: Consumption Smoothing

EU: European Union

FDI: Foreign Direct Investment

FEM: Fixed Effect Model

GDP: Gross Domestic Product

GMM: Generalized Method of Moments

M2: Broad money

MG: Mean Group

OECD: Organization for Economic Co-operation and Development

PCA: Principal Component Analysis

PCI: Per Capita Income

PMG: Pooled Mean Group

REM: Random Effect Model

SAR: South Asian Region

SBP: State Bank of Pakistan

US: United States

WDI: World Development Indicator

Table of Contents

Abstract

This study examines the impact of remittances on household consumption smoothing in South Asia region. Consumption smoothing is analyzed by employing Common Correlated Effect Mean Group (CCEMG) over period of 1980 to 2017 for substantially larger group of countries. The Common Correlated Effect Mean Group technique incorporates the problem of structural breaks and cross sectional dependence. Traditional techniques like Fixed effect method and Random effect method as well as Generalized movement method do not incorporate the problem of structural breaks and cross sectional independence and were considering the homogeneous slope for whole panel data. This study also examined the role of several other socio-economic variables like judicial system, governance, globalization and financial development to be scrutinized in the consumption smoothing framework. There are two major finding of this paper. First, this study confirms the consumption smoothing via remittances. Secondly, the coefficient of per capita income is found to be deteriorating by improving the governance, globalization and financial development indicators. The contribution of remittances in consumption smoothing is higher than other socio-economic variables like globalization, governance and financial development. However, our main objective is confirmed in this study that remittances ultimately enhance the consumption smoothing. By improving the flow and channel of remittances, the consumption may smooth. Some policy recommendations are being suggested based on empirical and theoretical findings. People will send more remittances to home countries if macroeconomic conditions are good enough. High black market premiums, adverse exchange rates and inflation adversely affect the flow of remittances.

***Keywords:* Remittances, Consumption smoothing, CCEMG, Governance, Financial development.**

CHAPTER: 1

Introduction

1.1. Background of the study

People living in developing countries, often face the massive risk from both idiosyncratic[1] and covariate shocks[2]. These both shocks may lead to instability in consumption pattern, some people living with low standards of living, which in turn, acutely threatens their subsistence. Their earning stems, either formal or informal, from either agriculture sector[3], industrial sector or services sector. Consequently, their incomes are highly unpredictable due to changes in weather, diseases, earthquake, disasters, pest attacks[4] and price volatility and some other shocks also affect the consumption pattern.

Consumption smoothing is widely acknowledged topic in economic literature since the great financial crises of 2008 (Balli *et al*., 2013). It is a multidimensional phenomenon based on idiosyncratic shocks to multi-level socio economic determinants. Developing countries where poverty is dominant up to some extent do not have ample measures to manage economic shocks. In this backdrop, people adopt different measures to maintain a stable path of consumption. If managed felicitously, these variations in consumption tend to have drastic impact on living

---

[1] Idiosyncratic shocks affect individuals or households. Micro in nature; illness, jobless and crop failure etc.

[2] Covariant shocks affect groups of household, communities, regions or even entire countries. Macro in nature; armed conflict, financial crisis and social unrest etc.

[3] Farming as occupation.

[4] Harmful insects and other animals attack on crops, agriculture fields, foods etc. Those destructive animals and pests are harmful for crops.

standard and it becomes vital to adjust the means of income and expenditures in optimum way during idiosyncratic crises. Regarding consumption smoothing[5] , a high degree of capital mobility implies that agents are able to fully smooth their consumption pattern at the verge of shock (Ghosh and Ostry, 1995).

Consumption smoothing has highly correlated with aggregate output and disposable income because individuals try to maximize their utility by using their disposable income heads the idiosyncratic shocks. It is widely accepted fact that consumption smoothing is done by adjusting alternative heads of income and expenditures (Skoufias and Quisumbing, 2005). Stability in consumption is enhanced with the help of income insurance (Kazianga and Udry, 2006).

Income is used as a factor to determine the household's consumption pattern, whereas income is a reasonable measure used by households in order to smooth out their consumption. Spending level and consumption pattern does not remain the same during hard times (Peersman *et al.*, 2004). Consumption smoothing (CS) through livestock[6], grain storage and intra household transfers is assessed and researches show that little consumption smoothing has almost no risk sharing and households rely solely on self-insurance in form of adjustment in grain storage and other windfall gains.

---

[5] In this paper, the term of "consumption smoothing" refers to the empirical ability of a household to smooth its consumption expenditures that is the extent to which it actually succeeds in isolating its consumption expenditures from all kinds of recorded income shocks (Notten and Crombrugghe, 2012).

[6] Farm animals included beef, dairy cattle, sheep, goats etc. as an asset.

In this way, consumption path affected often by variations in income level and these variations might happen at individual level, at household's level or at aggregate level. The wide ranging possibilities to mitigate the concerned shocks regarding consumption smoothing provide deep insights within the context of consumption pattern of households. That's why all previous studies focused this economic phenomenon because unstable consumption pattern generates uncertainty in the economy which further deteriorate the optimum decision making. In everyday life, each individual endeavors to maximize the utility under given budget in face of socio-economic shocks, adjust the way of spending to lessen the disastrous effects. Developing countries, due to poor formal and informal financial sector are massively affected by the waves of socio-economic shocks (Bracke and Schmitz, 2008). So, it is much needed to cater the problem of fluctuations in maintaining stable consumption.

Ibanez and Moya (2006) explained that intra state conflicts and forced displacement due to weak institution and intra state regulation and judiciary put heavy burden on household and generate severe welfare losses. Domestic conflicts and political instability tend to deteriorate the existing living standard and people are unable to maintain the strategic ends in their stable patterns of income and expenditures. The domestic conflict and political factors may lead to instability in household consumption pattern because of weak regulations and judiciary of institution of countries. The weak judiciary and regulation lead to destabilize the pattern of household consumption because whenever the institutions take insurgency in regulations, any variation in prices of goods and judiciary effect the pattern of consumption like force displacement rules and regulations.

International migration is a global dynamic phenomena that has been captured the immense attention from both researchers and policymakers because international labor (diaspora) community is one of the aspect of globalization that has been increasing significantly in last few years mainly due to global economic integration, communication revolution and free movement of labor in many region. Due to global economic integration and free movement of labor (people worked abroad to earn reasonable income to assist families at home country). Globalization has a drastic impact on consumption smoothing due to the free movement of labor, global economic integration and communication revolution. The risk has mitigated through global economic integration[7] (Kaijage and Siegel 2008).

In developing countries, consumption stability against income uncertainty is well recognized and observed, and welfare can be achieved through stability of aggregate consumption which is main determinant of aggregate output and employment. Idiosyncratic consumption pattern is beneficial for the growth of concerned country and across the globe. Informal risk sharing like transfer payment and gifts help in crops harvesting and sowing seasons and in other livestock's in rural areas. Previous studies show that consumption smoothing is largely determined through international financial markets: financial market, bonds and other equities which are non-contingent in nature (Gillani, 1996; Furstenberg, 2004; Parker and Preston, 2005; Bracke and Schmitz, 2008; Jappelli and Pistaferri, 2011; Du *et al.*, 2011).

The main objective of this study is to check the impact of remittances on consumption smoothing. Therefore, this study contributes in highlighting the importance of remittances in

[7] One of the United Nations report on international migration shows around about 190.6 million people or three percent of world population are living outside of their birth place.

South Asian countries. Remittances[8] are an important source of income for households, particularly in developing countries. The flow of remittances is least influenced by economic downturn and remains a stable source of income. Number of studies has shown that remittances leads to poverty alleviation in the country concerned. These are some of the reasons why remittances have been receiving increasing attention of households. The SAR region recently called for improved information of remittances which still remains weak as compared to other balance of payment components (Alfieri and Hvidsten, 2006).

Remittances might be affected through household consumption instability via two mechanisms. Firstly, remittances play role through risk management mechanism (like the remittances might be used to build housing concrete rather than mud and they are less prone to natural shocks). It has been observed that, household receiving remittances most of the time rely on keeping cash reserve as a backup during shock period such as food crisis period rather than the sale of productive assets (Mohapatra and Ozden, 2009). It highlights that individuals are able to stable their income, saving and consumption patterns by idiosyncratic consumption risk sharing. Individuals can get welfare from the stability in consumption pattern, income (in the form of remittances) and savings (Du *et al.*, 2011).

The findings of the study[9] regarding remittances tends to reduction of instability in household consumption and remittances are performing a role as an insurance when other factors destroy the inflow of income like disaster and agriculture shocks (Combes and Ebeke, 2010).

[8]The most authentic definition of remittances was developed by the International Monetary Fund (IMF). Remittances are international transfers of funds sent by immigrant workers from the country where they are working to people in the country from which they came from.

[9]The study on remittances and instability in consumption.

The study of cyclical properties of remittances to Pakistan entails that remittances are cyclical and counter cyclical corresponding to host countries depending on the economy (Ahmed, 2012). The effect of remittance on top international remittance receiving states is found to be significant and effective. Remittances are mainly used for smoothed out the consumption pattern like expenditure on education, health and small investment in business. It has been observed that people adjust their expenditures easily with the help of remittances and found to be effective in raising the living standard of the households (Rahman et al., 2014).

In global world, the remittances are second dominant way of reduction in the instability of consumption pattern. Hence, with in the context of South Asia the remittances have significant contribution in GDP, on average over 10 percent of remittances contribute to GDP of South Asian region which is a huge contribution to remittance in household's consumption and for the development of a concerned country (Rehman et al., 2014). Therefore, this is the important region to be studied in this scenario. Since this study examines the long run relationship between remittances and consumption smoothing. It is fact that developing countries mostly rely on remittances and foreign direct investment but there is lack of empirical research based on consumption smoothing through channel of remittances especially in South Asia.

The study of business cycle characteristic of remittances for South Asian countries identified by (Mughal and Ahmed, 2014) examined that two country's remittances are strongly cyclical corresponding to the host region business cycles and other counter cyclical with respect to home output. Ahmed (2012) sought out that the remittances to migrant household are temporary source of income and that is the reason household's spend their remittances on human capital development. Remittances enhance the household capital stock and assets and promote the motive to precautionary saving to individuals. Several other studies have been done on remittances in South Asian Region such as (Ahmed and Martinez-zarzoso, 2016) examined that remittances and other financial inflows which results that the remittances are better responded for economy. The flow of remittances in Pakistan observed to be strongly increased as compare to other financial flows like FDI.

Remittances are major inflows in the said panel of countries and play vital role in consumption smoothing as shown in other regions. The socio-economic conditions of the community have substantially improved due to the inflow of the massive remittances. This study examines that remittances are used either for productive purposes or for consumption smoothing. Hence, there are few studies which give insight regarding consumption stability through remittances and the literature does not gave reasonable answer regarding the relationship between remittances, international risk sharing and consumption smoothing (Hadzi-Vaskov, 2006). The current study tries to examine the impact of remittances on household's consumption smoothing in South Asian region.

It is surprising to see that in the existing literature, remittances are not being studied within the context of household consumption smoothing pattern while plethora of studies have analyzed the potential stabilizing impact on migrant remittances (IMF, 2005 and World Bank, 2006;Chami et al, 2008; Bugamelli and Paterno, 2009). Indeed, keeping these backdrops in view, the revisiting of consumption smoothing via remittances has much needed. Several studies are available on this topic with different measures, sample, estimation methodologies and time period. Importantly, the more recent studies are enhancing consumption stability with many different macroeconomic variables like exchange rate, capital market and many others. Conversely, none of the previous studies integrate the several issues of recent time. For example, the quality of institutions, the governances, globalization and remittances are ignored by almost all the studies. The present study attempts to fill this gap (Bibi and Jalil, 2016).

In many developing countries, the flow of remittances during last few decades has been growing rapidly and it becomes the largest source of external finance. According to World Bank report 2012, the flow of remittance to developing countries rise up to $406 billion. In South Asian Region, the remittances grew 12 percent to $131 billion in 2018, while in 2017 it grew about 6 percent. In Pakistan[10], the remittances growth was 7 percent due to significant reduction in remittance inflows from Saudi Arabia that is largest source of remittances. In developing countries, the remittances are second largest source of foreign exchange earnings after foreign direct investment. In 2018, the remittances flow to developing countries are recoded about $529 billion and increase by 9.6 percent over the last record high up to $483 billion in 2017. Regionally, almost the growth of remittances ranged from 7 percent in East Asia and Pacific to 12 percent in South Asian countries (World Bank, 2018).

Moreover, many studies test the consumption stability by using panel techniques for the different sample. Conversely, the researchers have not yet clearly explain the panel studies relating to consumption smoothing. Almost all of the studies are based on the single homogenous slope assumption. This indicates that practically, every country in the sample has the same pattern of consumption smoothing. Obviously, this assumption is not very strong and attractive because it is widely accepted belief among economist that economic shocks do not affect all countries in same magnitude because level of development is not the same in different countries,

[10] According to State Bank of Pakistan (SBP), Pakistani diaspora community send remittances to Pakistan (home country) US$ 5478.11 million in the three month of FY 20 (July to September), compared with US$ 5557.61 million received in same period of last year.

so dynamic relationship among variables is more appropriate. Moreover, almost all of the studies do not take into account the structural breaks even taking the large time period of data. However, the researcher should assume a number of structural breaks in the data due to various reforms in the financial sectors, institutions and regulations over the time period. Moreover, the traditional panel techniques like fixed effects models, Generalized Method of Moment (GMM) techniques are based on the assumption of cross sectional independence that cannot be denied in the current situation of financial market integration and global world (Teele *et al*., 2009; Combes and Ebeke, 2010; Islamaj and Yousefi, 2015). Keeping all these substantiation in view, this study incorporates the structural breaks, cross sectional dependence and slope heterogeneity (Jalil and Feridun, 2014).

Hence, the current study has a number of contributions in the literature. First, this study stresses the role of remittances in household's consumption smoothing in South Asian Region by using a long time series data from 1980 to 2017. Second, we shall test the long run relationship between remittances and household's consumption smoothing by incorporating the structural breaks in a longer time series data. Finally, this study uses the second generation of the econometric methodology by incorporating assumption of cross sectional dependence. Moreover, this study tries to examine the empirical findings on the long run relationship between consumption smoothing and remittances via using of panel co-integration techniques.

1.2. Research Gap

Previous studies give valuable and deep findings on consumption smoothing channels but still there is a lack of empirical findings on role of remittances in consumption smoothing framework in South Asia region because households of this region receive nearly one fourth of global remittances. When studying South Asian region, researchers tend to analyze the causes and consequences of remittances on household consumption smoothing as well as on development. At macro level analysis, it is observed that the increased flow of remittances tend to have significant effect on economic volatility[11].

At micro level, the remittances may smooth household consumption pattern by using remittances mainly on food, education and health. To explore this possible channel, this study used panel data (1980 - 2017) by taking into account remittances and other factors of consumption smoothing. Other contribution of this study is a panel co-integration technique which incorporates the structural breaks, slope heterogeneity and cross sectional dependence in long time span which is not being incorporated in previous studies.

1.3. Objectives of the Study

Main objectives of the current study are as follows:

- To analyze the impact of remittances as a tool to finance household consumption smoothing in South Asian region.
- To check whether the long run relationship between remittances and consumption smoothing exists or not through Panel co-integration.
- To test the hypothesis that whether better judicial structure, governances, financial development and globalization improve consumption smoothing or not.

1.4. Research Question

- What is the impact of remittances on household consumption smoothing in South Asia region?

[11] Craigwell *et al.*, (2010) examined the relationship between remittances and economic volatility.

1.5. Significance of the Study

Current study is eclectic in nature as remittances play key role in development of poor countries. This study will contribute in existent body of literature as well as it will give in-depth analysis of remittances pertinent to consumption smoothing. With the help of empirical results, policymakers will be able to formulate effective policies to enhance remittances because remittances performance very imperative protagonist to improve living standard through stability in consumption and other dimensions of economy.

1.6. Thesis Outline

The structure of this study is organized as follows. Chapter II provides a comprehensive review of the literature. Chapter III gives the theoretical framework of the study remittances and consumption smoothening. Chapter IV covered construction of data and variables which include in our study and justification of the variables involved, and explain the econometric methodological specifications. Chapter V explores the results of this study and explains the findings. Chapter VI consists on conclusion, key findings and policy implication of the study.

CHAPTER: 2

Literature Review

During great financial crises 2008, academic research turned up to channels of consumption smoothing at macro level. It is empirically evident that volatility in capital flows during economic slowdown has strong impacts on consumption level. Due to crises, down turn in economies, the consumer behavior changes according to how much they consume and how much they save. In economics, consumption is a main concept and studied by several other social sciences. Particularly, economists are interested in the relationship between consumption and income shocks in many developing countries. They are interested in how people face the income shocks and how they smooth their consumption pattern in period of income shocks, and other shocks like financial crises and disasters[12]. Consumption, only final goods and services that purchase by individuals are called households consumptions. While other categories of consumption included fixed investment, intermediate consumption[13] and government expenditure also effected by financial crises.

2.1. Literature on Consumption Smoothing

This section explores the consumption pattern of the individuals and how consumption path effect the household life cycle. Basically, the term consumption smoothing explains how individuals try to optimize the lifetime living standard by ensuring the proper balance of

[12] In global, natural disaster happening and its effect s are escalating. Natural disaster hit more than 5 billion individuals globally over 1 trillion US$ in financial crises in 1970 (Centre for Research on Epidemiology of Disasters, 2011).

[13] Intermediate consumption also called intermediate expenditures, is a national accounts concept that show the values of goods and services are consumed in process of productions.

expenditures and the saving in the different span of the life. Moreover, to smooth the pattern of spending during the period of life, it requires individuals to smooth their expenditures as they suffer from different phases of life. For instance, the crises like financial crises, natural disasters and many other factors became responsible for altering the individual consumption pattern. The magnitude of crises to consumer behavior has abounded effect on pattern of consumption level and the individual consumption behavior towards expenditure. Skoufias and Quisumbing (2005) have explained that consumption smoothing is wide ranging phenomenon which is largely determined by every dimension of life. Some researchers argue that the cash transfer or remittances are positive with migrant inheritances and household development in developing countries.

The term consumption smoothing (CS) is not completely clear. Several findings of many studies refer that less volatility in consumption than income over the time is consumption smoothing. However, consumption smoothing term indicate the degree of insulation of consumption from income shocks. To evaluate smoothing, we need to make clear distinction between long run and short run adjustment. In long run adjustment, individual's expenditure in a life time follows budget constraint and in the short run, consumer want to stabilize their consumption pattern over the time period (Notten and Crombrugghe, 2012).Consumption smoothing refers to the empirical ability of individuals to smooth their consumption expenditure that is the degree to which actual rise in insulating their consumption expenditure from existence of income shocks. So, consumption smoothing refers that individual smoothed their consumption expenditure over the time period. The degree of risk sharing within a country is higher than across the regions regardless of assumptions of the degree of consumption smoothing. The degree of consumption smoothening across the country is less than within a country. Hence, the result shows difference between degree of intertemporal consumption within U.S. and across OECD and EU countries is as large as the difference between the degrees of risk sharing (Kim and Asdrubali, 2009).

Ideally, fluctuation in income may not lead to instability in household consumption, if credit and insurance markets are complete, or other mechanisms that deal with shocks and risk. If an alternative mechanism of consumption smoothing subsists like financial assets deal with portfolio gain and other channels like remittances, capital market than the pattern of household's consumption keep smoothed.

2.2. Literature on Channels of Consumption Smoothing

This section explores the different channels of consumption smoothing which are discussed in previous many studies. Multiple studies have confirmed wide ranging channels of consumption smoothing. Previous studies on the consumption smoothing contributed a lot in terms of literature and policy formulation. Lucas and Stark (1985) confirmed that remittances play a vital role in consumption smoothing. The result shows that the remittances have a significant impact on household consumption. Townsend (1994) has reported that individual can potentially stable their income, consumption and saving by idiosyncratic consumption risk sharing. Moreover, Lewis (1996) documented that the consumption instability are not resolve either by nonsparabilties between tradable and nontradable things and capital market restrictions.

Consumption smoothing is highly correlated with aggregate output so output volatility leads to deteriorating same consumption level. Consumption smoothing occurs through fiscal and non-fiscal transfer[14] system. The findings suggest that migrant labor and remittances play important role in the stability of consumption and consumption risk sharing. The household can smooth out their consumption by using capital market through cross ownership of products in other countries (Asdrubali and Sorensen, 2002; Furstenberg, 2004). According to Attanasio and Rios-Rull (2000), intra state conflicts and forced displacement put heavy burden on population and generates severe welfare losses and author explained the mechanism of consumption smoothing in which he included capital market, assets, financial markets and insurance. These mechanisms contribute to cover the unpredictable shocks and help out in smooth out their consumption.

The failure in consumption smoothening occurs due to failure in the perfect credit markets and it has been observed that high sensitivity of consumption links with current income. This study investigated the determinant of consumption smoothing in relevance with household consumption stability. Results demonstrate high sensitivity in US which was observed higher in the period of recession and households rely on government debt and it has negative effect on financial liberalization (Pozzi and Peersman, 2004). The abounded flow of remittances from abroad in home countries help out to mitigate macroeconomic fluctuations (Chami *et al.*, 2003; IMF, 2005; World Bank, 2015). As well as, remittances effect the individual households which ultimately affect the macroeconomic indicators. Consumption smoothing within the country and across the region has different. However, the remittances and other financial tools across the border are more integrated to smooth the consumption pattern.

[14]Fiscal transfer system shows that the redistribution of wealth through tax system and at the level of individuals as well as region level. It's used to handle the funds from wealthier people to poor people by using the public tax and by policies.

Gupta (2005) documented the study of macroeconomic instability and remittances behavior and concluded that remittances hedge against economic shocks and other calamities. In developing countries, the remittance is the main source of individuals and the country's people to stabilize or improve their living standard. International financial integration is one of the most important sources of international risk sharing and if the financial integration increase than individuals diversify their assets across the country. Good financial integration leads to more consumption smoothing and more risk opportunities (Hadzi-Vaskov, 2006). On the other side, the informal mechanisms and insurance cope with the idiosyncratic shocks which directly affect the consumption (Ibanez and Moya, 2006).

Nature of topic is multidimensional so existing literature is diverse in findings in macro and micro dynamics: remittances, transfer payment system, capital market, through government grants, financial liberalization through grain stocks and financial market[15] (Johnson and Li, 2007; Artis and Hoffmann, 2008; Kim and Asdrubali, 2009). However, plethora of studies has been done on financial crisis, the impact of capital inflows like financial liberalizations on consumption while none of studies has been conducted on role of remittances in the period of crisis. The consumption smoothening in china at the regional level (XU, 2008) indicates that in china provinces the less consumption smoothening take place than US states and Canadian provinces. Although consumption smoothening in regional china is somewhat higher than the industrialized countries.

[15] Financial Instruments which includes bonds and other assets that households hold and diversify in many countries and regime

Bracke and Schmitz (2008) illustrated that the investment portfolio to risk sharing is more appropriate and they are positively related when the domestic economy turn down in comparison with the rest of the world. Due to stabilizing effect of remittances on household's consumption, the community of international needs to take measures to reduce the high transaction costs of remitting money to labor exporting regions. However, consumption smoothing and instability in consumption are mainly affected by low level of regulations, political competitions, low level of governance and low quality in financial sector because households try to maximize their utility by smoothing their pattern of consumption. Consumption stability and the extent of consumption smoothing rely on the efficiency of financial markets. Individuals could get the credit by the institution and banks are considered to catch the strength of financial constraint (Combes and Ebeke, 2010). In developing countries, the tax ratio reforms and high rate of tax tend to lower the consumption smoothening, households are mainly uncertain about future reforms via regulations and governance authority.

Consumption stability may exist via international borrowing and lending markets which includes financial market, bonds and other equities (Du et al., (2011) at present, the whole world is integrated with each other through financial market and people easily migrate region to region. However, globalization and financial markets improve international consumption risk sharing. Through free movement of labor, communication, foreign exchange, global economic integration the globalization has drastic and significant impact on individual consumption. Artis and Hoffmann (2011) suggested that financial market integration can improve consumption risk sharing by engaging people in various financial instruments. Cross country analysis also confirms that remittances can work as automatic stabilizer. Some evidence put a conspicuous note that they reject the hypothesis of current consumption which is not dependent on contemporary income shocks (Notten and Crombrugghe, 2012). Stable consumption is maintained through stable income and whenever there is unpredictable change in income heads, it leads to drastic changes in expenditures. Alem and Colmer (2015) have argued that negative income shocks have adverse effects on consumption smoothing and welfare in less developed countries.

However, the effects of good regulations have beneficial for the poor because regulations keep stable the cost and ease of doing business resulting in stable prices that consumer immune to consumption expenditure. Unfortunately, the goods and services to which the poor devote much of their limited budgets, such as energy and food are also the most heavily regulated. In addition to undergoing larger price hikes, these heavily regulated products also display greater volatility, meaning that low-income households face more uncertainty in their household budgets than do wealthier households. Policymakers must understand the unintended effects of higher prices, more volatility in prices have effect on the poor (Chambers *et al.,* 2019). Consumption smoothing comes through investment gain and dividend that individuals keep at abroad and diversify their assets. Alcidi *et al. (*2017) analyzed that the capital market in US is much power full source of household consumption smoothing than in the EA.

Waheeduzzaman (2017) sought out the analysis of economic integration and its effect on day to day consumption pattern. The term integration in economics refers to the political and monetary treaty among regions and with rest of the world. Researchers argue that economic integration has positive direction because it brings structural changes in the economy. It causes the reduction in unemployment, expanding market and leads to overall economic progress. The finding indicates the effect of economic integration is in favor of consumption. Previous many studies give the huge intuition that the consumption smoothing occurs through different channels discussed previously and give the immense insight of consumption smoothing and consumption risk sharing. Chambers et al., (2017) stated that judiciary led to high prices and there is negative effect on consumer expenditure of high regulation mostly on low- income group of households. Households under the category of low-income group spend lion share of their incomes on high regulated goods and services.

2.2. Literature on Role of Remittance

This section elaborates the importance of remittances and the role of remittances in consumption smoothing. In many developing countries, the main source of consumption instability is remittances. The people move one region to another region and country to country for the gain of more opportunities and to gain income or cash in order to face income shocks. The cash that migrant send back to home is called remittances. Remittances provide households insurance against natural and economic shocks and this will help out in configuring fluctuations in welfare loss. Another important benefit of remittances is financial inclusion which further helps in individual consumption expenditures. There are some other conspicuous factors that affect the consumption path which are financial liberalization that has smoothed out the consumption of households because rest of the world is integrated with global perspective.

According to Stahl and Arnold (1986), they gave stress on the importance of remittances (earning from foreign diaspora) and regarded it as a key source of foreign exchange in developing countries. The remittances are used mainly for land purchasing, investment and debt repayment (Devereux and Smith, 1994). In developing region, remittances play a key role in economy of the country and in the welfare of the individuals because individuals maximize their satisfaction by utilizing the amount of remittances. Itzigsohn (1995) documented that remittances have positive and significant impact on low income urban people consumption pattern in

Caribbean Basin. Remittances are a major element of the capital inflows in home countries from abroad and concluded that remittances increase the welfare in developing countries (Diaz-Briquets & Lopez, 1997). However, the credit market faces the unanticipated income shocks (Jacoby and Skoufias. 1997).

At micro level, remittances play vital role in intra family obligation in most of developing countries. In non-welfare regions like Bangladesh, the people who are abroad are expected to provide financial help to their family member. For the welfare of households, the flow of remittances have positive effect on living standard of people in many developing countries and for consumption stability it requires more stable path for governance (Carling, 2005). Remittances reduce the volatility of output, consumption and investment and being positively associated with stable output and consumption (IMF, 2005). From agriculture perspective, stable consumption pattern achieved through adjustment in livestock and grain storage. The researchers found little evidence of consumption smoothing in rural Burkina Faso. Hence, there is almost no consumption smoothing and an individual depends solely on self-insurance by adjustments in grain stocks to smooth out their consumption (Kazianga and Udry, 2006).

Levchenko and Mauro (2007) suggested that the effect of remittance on consumption smoothing in period of crisis has been more stable than foreign direct investment (FDI) in developing countries. Moreover, at household level, access to remittances enable individuals to maintain their consumption pattern in the face of natural disaster, illness and some other calamity which largely affect the people (with very low level of earnings). Some studies explored the role of remittances in household consumption against the natural calamity and other economic shocks in developing countries. Yang and Choi (2007) examined that remittances used as an insurance in rainfall shocks. Turnell *et al*., (2008) shows that remittances are more stable source of foreign exchange than international trade, investment or aid in many developing countries. Consumption stability enhances global relation due to communication, foreign exchange, global economic integration, and free movement of labor in many regions (Kaijage and Siegel, 2008).

Remittances play a major role in growth of country and have significant effect on investment and household's consumption (Bugamelli and Paterno, 2009). It has been observed that volatility in output growth has negative effect on poverty alleviation and welfare. Combes and Ebeke (2010) explained the important sources of international consumption smoothing that remittances have prominent role in the growth of the Indian economy. The finding shows that worker remittances help in stabilizing household consumption expenditures. Craigwell *et al.*, (2010) have examined the relationship between remittances and economic volatility. At macro level analysis, the increasing flows of remittances tend to have positive effect on economic volatility. At micro level, the remittance may smooth out their household consumption volatility.

Combes and Ebeke (2010) documented that the remittances have significant effect on consumption instability. It implies that the remittances reduce the instability in consumption pattern in developing countries. Remittances reduce the effect of uncertain shocks which will reduce the consumption smoothening pattern such as natural disaster and agriculture shocks. Financial development provides the diversified opportunities and reduces the level of consumption instability. The main and important result underscores the effect of remittances on overall stabilization has least impact when share of remittances to GDP exceed 8.5 percent. Craigwell et al., (2010) find that remittances tend to have adverse negative shock that affect the economic output.

Remittances are negatively related with output volatility (Acosta et al., 2008; Bugamelli and Paterno, 2009). Ratha and Mohapatra (2012) find that households that receive international remittances depend on cash reserves and less on livestock to immune the drought. However, it protects from negative economic shocks and work as an important source of insurance. The diaspora community's earning has a greater contribution in an economy of several regions and in such countries the remittances are signification portion of the country's GDP (Ullah, 2012; World Bank, 2013). For instance, like in Bangladesh around about 9 percent of the GDP has covered by remittances and on the same ground, the 20 percent of GDP of Philippine country are funded by remittances (Rehman et al., 2014).

The contribution of remittances is huge in consumption pattern of household. Nnyanzi (2013) concluded that remittance immune the risk diversification factor via as a role of potential provision of social security. The finding suggest that in Africa, about 49 percent income smoothing has observed and the significant role of remittances as channels of income risk sharing is about 72 percent shock absorbent. Moreover, remittances play key role in consumption smoothening and help out in income risk sharing in developing countries. Remittances are major source of external financing and it is also a crucial determinant in the allocation of income risk sharing and consumption risk sharing (Nnyanzi, 2013; Balli and Rana, 2014).

In developing countries, the flow of remittance causes reduction in poverty and improve the living standard of their households. De *et al*., (2015) reported that the effect of remittances is associated with development such as it reduces poverty, provide better education and health facilities. Moreover, it enhances the financial development as well as multiplier effect on household expenditures. In principal, capital flows like remittances can help in short run fluctuation to buffer consumption pattern in developing countries. Besides, other channels of consumption smoothing like financial markets and integration reduce the poverty and raise the economic situation. Financial markets are allowed to international consumption risk sharing in countries. Moreover, lower variation in aggregate consumption lead to gain more welfare. Financial integration that is measured either in index of financial reforms and capital account openness to GDP, has a drastic effect on consumption smoothening in developing countries (Gardberg, 2016).

The positive impact of worker remittance flows on consumption smoothening in developing countries, while foreign aid does not have drastic impact. Hence, there is strong evidence that inequality in income and the larger share of low income ultimately reduce the consumption smoothening in lower development countries. The institutions, regulator and policymakers often asserted that regulations are intended to immune the poorest households and most vulnerable consumer. Remittances are major source of income in South Asia and therefore this study examines the consumption smoothing by taking into account the flow of remittances in South Asian Region. Funkhouse (1995) asserted that the remittances play significant role in development process as a source of foreign exchange. This study helps to explore the role and scope of remittances in consumption stability framework.

In South Asia, the remittances play key role in household consumption pattern because remittances are main source of income in this region. However, this study confirms the role of remittances in consumption smoothing because every year from South Asian region a large number of people move abroad which results in large flows of remittances and became a major source of economic development. There are few studies on remittance to consumption smoothing previously. Plethora of studies on consumption smoothing exists but none of them incorporated the role of remittance in consumption smoothing in South Asian Region. However, this study provides the intuition of remittance in consumption smoothing. Other drawback of previous studies is that they used tradition panel techniques which results in ambiguous results. Because traditional panel data have several flaws like one of the major drawback is they do not account for the structural breaks in the data series.

The structural breaks resulting from change in policy regime and liberalization of capital controls. Conversely, the panel data techniques can be more useful with large time period. Moreover, the above mentioned studies based on the first generation model of the econometrics which imply unrealistic assumptions (panel units are homogenous). It implies that every country has same pattern of consumption that is not valid assumption. Obviously, this assumption is not very valid in real world scenario and it is widely accepted belief among economist that economic shocks do not affect all countries in same magnitude because level of development is not the same in different countries, so dynamic relationship among variables is more appropriate.

Furthermore, mostly all of the previous studies based on the assumption of cross sectional independence but this study will incorporate the assumption of cross sectional dependence (CS). Because technology shocks, supply side productivity and global economic shock may influence household consumption pattern of expenditures. However, the researcher should assume a number of structural breaks in the data due to various reforms in the financial sectors, institutions and regulations over the time period. Moreover, the traditional panel techniques like fixed effects models, Generalized Method of Moment (GMM) techniques are based on the assumption of cross sectional independence that cannot be denied in the current situation of financial market integration and global world (Teele *et al*., 2009; Combes and Ebeke, 2010; Islamaj and Yousefi, 2015). Therefore, this study will contribute in the literature by reducing the assumption of homogeneity of panel units and cross sectional independence as well as structural breaks.

CHAPTER: 3

Theoretical Framework

This chapter deals with theoretical framework of empirical research work. With the help of this framework, we will try to answer the question: what is the impact of remittances on household consumption smoothing in South Asia region?

3.1. Motivations for an Individual Migrant

Remittances, the migrant worker labor send money to home to assist family to smooth their consumption expenditures resulting from unpredictable shocks. The question rose from many studies that why migrant remit money to their home country. The answer of this question is understood by asking, how individual migrant worker take the decision to maximize their utility. For the potential answer to this query include the following:

3.1.1. Pure Altruism

The migrant worker derived the motivation by a desire to assist his family by sending remittances. For example, the beneficiary of utilization to remittance relies on migrant’s utility work. Aggarwal and Horowitz (2002) documented the study of international remittances altruism and insurance which supports the said hypothesis.

3.1.2. Pure Obligation

The migrant people send remittances to their families as an obligatory. The families at home country use remittances to smooth their consumption pattern; cost of schooling, health expenditure and natural disaster and to cover other shocks. Hoddinotts (1992) study on remittances conducted on households of Kenya. Bernheim *et al.*, (1985) and Cox (1987) studies support the “obligation” hypothesis.

3.1.3 Enlightened Self-Interest

The migrant worker motivates to send remittances by the altruism, but there is another motivation behind sending remittance is well-being, particularly in time of shocks. Lucas and Stark (1985) explore the theories of motivation and documented the behavior of enlightened and altruism are best explored for the motivation of flow of remittances. Furthermore, they use the household data and find that if migrant remit to households in order to repay educational investment, the individuals which are highly educated may receive remittances. Those households who use the remittances to cope with unpredictable shocks are linked with more risky production at home[16]. Households having cattle farm are more sensitive to remittances in developing countries and have large flows of remits which they received. However, little evidence is on the fact that the low level of remittances is received by household engaged with children education investment.

3.1.4 Insurance

The migrant remittances are being warmly welcomed in face of unpredictable shocks. The insurance motive suggested that migrant workers with low social network (undocumented) and those who worked seasonally tend to have more remittances. The migrant people send their remittances to home in order to secure their families from the uncertain future shocks (Pozo and Dorantes, 2006).

These studies are contributing immense insight into the theories of motivation of remittances to migrant. What matters is weather remittances can serve as an interest for the households. It is believed that remittances tend to stabilize the household consumption pattern

[16] For example by using new seeds/technology, by having cattle as the main asset.

(long-term development motives). Now, we turn on to the literature that consists mainly on household consumption smoothing and remittances.

3.2. Remittances and Consumption Smoothing

In most of developing countries agriculture household are at the verge of shocks: the price shocks concerned with consumer and producers goods; natural disasters, health issues and various other shocks. The plethora of studies explored the role of remittances on family and households which collectively immune against these risks (Udry, 1994). Yang and Choi (2007) use micro-level data and analyzed the impact of remittances on consumption expenditures. The results show that households often use the remittances as an insurance. The study gives evidence that remittances have positive impact on household's consumption, like consumer durables, non-land assets (Quisumbing *et al.*, 2008).

Immense studies have been done to prone the effect of financial flows on consumption smoothing at the macro level. Almost all of the above mentioned studies find the minimal effect of equity flows on consumption smoothing in developing countries. While the stability of remittances over the business cycle span documented that large scale of remittance recipients may less prone to consumption instability. However, the little literature has been done on the stabilizing impact of remittances to consumption smoothing. In order to measure the degree of consumption smoothing, we will estimate the following panel regression equation (Hadzi-Vaskov, 2006):

$$\boldsymbol{C^*_{it}} = \boldsymbol{\alpha} + \boldsymbol{\beta_1}(\boldsymbol{Y^*_{it}}) + \boldsymbol{\beta_2}(\boldsymbol{rem_{it}}) + \boldsymbol{\beta_3}[\boldsymbol{gov} \times (\boldsymbol{Y^*_{it}})] + \boldsymbol{\beta_4}[\boldsymbol{Rem} \times (\boldsymbol{Y^*_{it}})] + \boldsymbol{\beta_5}[\boldsymbol{reg} \times (\boldsymbol{Y^*_{it}})] + \boldsymbol{\beta_6}[\boldsymbol{glob} \times (\boldsymbol{Y^*_{it}})] + \boldsymbol{\beta_7}[\boldsymbol{fin} \times (\boldsymbol{Y^*_{it}})] + \mu_{\boldsymbol{it}} \qquad \textbf{\textit{(1)}}$$

Where c* are the difference of the log of the country's consumption growth and world's average consumption growth and y* are the country's output growth minus the world's average output growth at time t respectively. Where β_1 measures how per capita income changes affect the household consumption. Interactive terms enable us to parse out smoothening effect of control variables i.e. remittances, per capita income, regulations, governance, financial development and globalization. The β_1, slope coefficient measures the average deviation from perfect consumption smoothing.

To estimate the assessable effect, this study find standard approach in consumption smoothening literature (Islamaj and Yousefi, 2015) and considered the impact of remittances on the movement between domestic consumption and output as well as the impact of controls variables. This study used interaction term between remittances and output growth which measures the extent to which remittances inflows help to delink household consumption from output growth as well as with controls variables. The negative and significant values of interactive term reported that the remittances and controls variable help lower the correlation between household consumption and output growth. This study introduces some control variable as interactive terms to evaluate the impact of different macroeconomic variables in the context of consumption.

The current functional form is used to determine the role of remittances and other controls variables in consumption smoothing, specifically in the region of South Asia. The volatility in household consumption expenditure tend to represent the consumption stability in developing countries. Quisumbing *et al*. (2008) also reported the effect of remittances on consumption expenditures, assets holding and credit market in the study of Filipino and used micro data for such analysis. Moreover, results suggested that the remittance immune to uncertain shocks. Consumption expenditure is main variable in this study which is dependent variable. Acosta *et al*. (2008) address that migrant remittances are correlated with lower poverty and inequality income distribution and observed significant impact of remittances on household expenditures. Hadzi-Vaskov (2006) also used the consumption per capita as dependent variable and the finding of current study suggest that GDP per capita have a drastic and significant effect on consumption.

There are several other macroeconomic variables that affect the household consumption smoothening. Most of the time stability in consumption pattern is associated with financial development (main variable in our study). Therefore, this study incorporates the effect of financial development on consumption smoothening because the degree of consumption smoothing depend on the efficiency of financial markets and ratio of credit provided by the bank to the private sector over GDP (Combes and Ebeke, 2010). The soft access to credit will enhance the smoothing pattern of household consumption, which ultimately down the volatility of output and consumption. In regarding to financial market, which have huge contribution in pattern of consumption smoothing. In developing countries, easy mechanism of credits helps to promote the stable consumption expenditure and real growth of countries (Cecchetti et al., 2006).Globalization has integrated the whole world due to natural calamity, free movement of labor in the world has wide ranging impacts on individuals and household strive to stable their consumption and therefore individual move abroad to earn money which contributes in smooth consumption pattern(Cochrane, 1991; Mace, 1991; Kose *et al*., 2009).

This study incorporates some control variables including governance which has multi-dimensional impacts on consumption pattern in many developing and developed countries. Good governance indicates well institution structure of regulation that will lead to good consumption pattern via individual motivation, like consumers are secured while having more stable consumption. The good governance has also a main component of this study that affects the dependent variable. Some study reported that in developing countries whenever government fails to achieve strategic economic ends, which are linked to public welfare, the individual fall into instability in consumption pattern (Kapur, 2004; Abdih *et al*., 2008). It is important to mention that the legal rights and flow of money from one region to another is related to many factors like judicial independence, legal information of contracts, legal system and property rights, protection of property rights, military interference and reliability of police (Smith, 1776). So the role of judicial also included in this study as an independent variable which has a significant effect on consumption smoothing.

According to Attanasio & Rios-Rull (2000), Intra state conflicts and forced displacement put heavy burden on population and generate severe welfare losses and author explain the mechanism of consumption smoothing in which he included capital market, assets, financial markets and insurance. These mechanisms contribute in covering the unpredictable shocks and help out in smooth out their consumption. Pozzi and Peersman (2004) examined the cause of failure in consumption smoothening which occurs due to the imperfect credit markets and observed high sensitivity of consumption links with current income. All these variables are affected on household consumption expenditure therefore the present study is intended to analyze the impact of these indicators on consumption expenditures. The theoretically explanation suggested that the remittances have a positive and significant impact on consumption stability.

CHAPTER: 4

Data and Methodology

4.1. Data

Current study is specific to south Asian region to estimate the role played by remittances in consumption pattern. This section deals with data and variables construction along with the methodology. This study uses the sample of South Asian countries over the period 1980 to 2017 to estimate the long run relationship between remittances and consumption smoothing. The data is in U.S dollar.

In literature, studies have diverse results which are conducted with different variables on consumption smoothing. Numbers of variables suggested through literature include remittances, per capita income (PCI), consumption expenditure (CE), financial development, globalization, governances and regulations (Quisumbing *et al*., 2008; Adams and Page, 2005; Acosta *et al*., 2008) which are used in this study to formulate the good results and to test the role of remittances in consumption smoothing. The data is taken from *World Development Indicator* (WDI) and Heritage Foundation and International Country Risk Guide and definitions of variables are given in table A in appendix.

One of the major flaw of the previous studies is that they do not account for the role of governance, globalization and judiciary explicitly in their results. However, this study incorporate these variables and consider the effect of these variables on consumption smoothening. In this drawback, we construct indices of regulation, governances and globalization via principle component analysis (PCA). Moreover, principal component analysis

(PCA) captured the strong relationship among data set and highlight the variation of data unit which is known as principal component that is mostly used in predictive techniques and statistical models.

4.2. Variables Construction

The variables suggested by literature and are being employed in this study are as follows;

4.2.1. Consumption Expenditures

This study uses the household final consumption expenditures which are market value of all goods and services including durable goods purchased by individuals in specific years, divided by the average country's population for the same year. The data is taken from World Development Indicator (WDI). The theory suggested that consumers always want to smooth their consumption pattern over the time period. Individual households uses different ways of earning to smooth their consumption like remittances, portfolio gain etc. Therefore, consumption expenditure is the core variable to test the consumption smoothening. Gerry and Li (2010) documented that the variation in income shocks is transmitted to consumption expenditures. Notten and Crombrugghe (2012) reported that the consumption expenditure is effected by income inequality and therefore this study take the consumption expenditure as a dependent variables which depicts the consumption smoothening. Number of studies used the consumption expenditure variables for testing the consumption smoothing (Teele *et al*., 2009; Dutt and Padmanabhan 2011; Islamaj and Yousefi, 2015).

4.2.2. Remittances

Personal remittances consist of two components; personal transfers (current transfers in cash or in kind made or received by resident households to or from nonresident households) and compensation of employees (income of border, seasonal and other short term workers who are employed in an economy). The data of remittance is taken from World Development Indicator (WDI). Remittances give the immunity to households from unpredictable shocks and individual household used the remittances to stable their consumption pattern (Lucas and Stark, 1985; Chimhowu *et al*., 2004). Migrant worker sent remittances to their family to immune their negative shocks and the migrants are sharing their risk with their households (Yang and Choi, 2007). Combes and Ebeke (2010) reported that the remittances have drastic effect on consumption and significantly reduce the household's consumption instability.

4.2.3. Per Capita Income

Per capita income measured the average income generated by per person in specific region in a specific year. It is estimated by dividing the specified region national income by its total population. Per capita income's data is taken from World Development Indicator (WDI). Income is the main sources of households which they consume to maximize their utility in daily life. The individuals who wants to stabilize their consumption pattern may earn more and engage in generating more income by other means too. Consumption stability is expected to be higher in more sustainable countries (Auffret, 2003; Bekaert *et al*., 2006). Kumar and Sing (2012) have reported that consumption smoothing may exist with high per capita income. There are several studies that support the argument that the household income is significantly associated with their consumption expenditure. Therefore, this study incorporates the per capita income as independent variable.

4.2.4. Globalization

In the past few years globalization has accelerated as economic integration among regions as the flow of financial markets, labour, goods and services and technology has increased across the world. The globalization results in economic integration mainly in developing countries that ultimately enhance the welfare of the households and will contribute in stimulating growth. Moreover, increase in globalization due to capital mobility can enhance the competition among nations, which may lead to great ends on the pattern of individual's welfare spending (Sinn, 2002). The data is taken from KOF index of globalization. The globalization index measures the rate of globalization among the countries across the globe. There are three dimension of index, economic, social and political. Economic globalization provides immunity from adversity of such shocks and protect consumer from associated risk (Kose *et al*., 2003; Kose *et al*., 2009; Saahdong, 2010; Islamaj, 2012).

4.2.5. Governance

Good governance has multi-dimensional impacts. When government fails to achieve its strategic economic ends, which are linked to public welfare, it results in temporal changes in consumption pattern (Kapur, 2004). Abdih *et al*., (2008) suggested similar argument that consumption smoothing improved by improving quality of governance. The several studies explain that institutions play a central role in capital flows (Ju and Wei, 2006; Faria and Mauro, 2009; Combes & Ebeke, 2010; Fratzscher and Imbs, 2009). Therefore, this study uses an extensive measure of governance. To construct the index of governance, we use different components such as government stability, democratic accountability, corruption, law and order and bureaucratic quality. Principal component analysis (PCA) is used to construct the variable of governance.

4.2.6. Judiciary/Regulation

Smith (1776) argued that people are more concerned about security of their capital and resources as compare to profitability. Sound judicial system provides security to people when they are sending their capital to any other region. Acemoglu and Johnson (2005) reported that regulations induce higher willingness to cooperate and to concession in the political regions, the greater stability generate in the consumption expenditure pattern. The hypothetical arguments stated the positive relationship between regulation and stability (Mubarak, 2005 and Yang, 2011). In this regard, institutions and organizations make the stability to household consumption via good regulations and judiciary (Chambers and Krause, 2019). It is important to mention that the legal rights and flow of money from one region to another is related to many factors like judicial independence, legal information of contracts, legal system and property rights, protection of property rights, military interference and reliability of police. Therefore, this study constructs a single index of regulations by using PCA.

4.2.7 Financial development

This study use the modes to measure the financial development is broad money to GDP ratio, which is *M2/GDP*. From economic perspective, several studies stated the process of financial globalization and financial markets which help in consumption pattern of the households and consumption risk sharing prospect. Bonser_Neal & Dewentre (1985) also explained the importance of financial development in consumption smoothing. Financial development is measured on number of factor such as depth, size, access and soundness of financial sectors (Jalil and Feridun 2010). The extent of consumption smoothening depend on the depth and the efficiency of financial markets (Bekaert *et al.*, 2006; Ahmed and Suardi, 2009; Combes and Ebeke, 2010). Jappelli & Pistaferri (2011) examined the relationship of financial integration and consumption smoothing and shows that individual household hold finances in kind of assets in other countries or businesses so that they could maximize their utility by mitigating associated expenditure shocks.

4.3 Methodology

The theoretical framework of methodology is as follows:

4.3.1. Theoretical Framework of Methodology

Previous panel data studies on consumption smoothing contributed in a significant way and literature shows that methodology employed is not reliable in multiple ways. Traditional panel data techniques considered the whole panel as single entity and estimated homogenous slope regression for all cross sectional units. Previous studies discussed have not taken into account structural breaks despite using panel data containing long time series. South Asian countries are much diverse in socio-economic parameters and assuming slope homogeneity which invalidates the results and conclusion. In this backdrop, ignoring structural breaks and heterogeneity, earlier studies could not give satisfactory empirical results. It is widely accepted belief among economist that economic shocks do not affect all countries in same magnitude because level of development is not the same in different countries, so dynamic relationship among variables is more appropriate. Other flaws existing in previous studies are ignoring cross sectional dependencies and assuming single entity for the whole panel (Jalil, 2014; Bibi and Jalil, 2016).

4.3.2. Empirical Framework of Methodology

Current research work deploys panel methods which consider slope heterogeneity and cross sectional dependence by incorporating structural breaks. As mentioned earlier some authors documented that the results of traditional panel techniques may be uncertain in the presence of slope heterogeneity, cross sectional independence and structural breaks assumptions (Teele *et al*., 2009; Combes and Ebeke, 2010; Notten and Crombrugghe, 2012; Islamaj and Yousefi, 2015). The previous studies used the traditional panel techniques like Fixed Effect Model (FEM), Random Effect Model (REM) and Generalized Method of Moments (GMM) are not suitable for estimating the equation 2 in this study. Therefore, this study considered the slope heterogeneity assumption, cross sectional dependence with structural breaks assumptions. Following the study by Hadzi-Vaskov (2006), we will use the following regression equation to estimate.

$$\boldsymbol{C^{*}_{it}} = \boldsymbol{\alpha} + \boldsymbol{\beta_1}(\boldsymbol{Y^{*}_{it}}) + \boldsymbol{\beta_2}(\boldsymbol{rem_{it}}) + \boldsymbol{\beta_3}[\boldsymbol{gov} \times (\boldsymbol{Y^{*}_{it}})] + \boldsymbol{\beta_4}[\boldsymbol{Rem} \times (\boldsymbol{Y^{*}_{it}})] + \boldsymbol{\beta_5}[\boldsymbol{reg} \times (\boldsymbol{Y^{*}_{it}})] + \boldsymbol{\beta_6}[\boldsymbol{glob} \times (\boldsymbol{Y^{*}_{it}})] + \boldsymbol{\beta_7}[\boldsymbol{fin} \times (\boldsymbol{Y^{*}_{it}})] + \mu_{\boldsymbol{it}} \qquad \textbf{\textit{(2)}}$$

Where c* are the difference of the log of the country's consumption expenditure minus world's average consumption and y* country's growth minus the log of world's average growth at time t respectively. Where β_1 measures how per capita income changes affect the household consumption and the consumption smoothening can be measured as (1-β). For the perfect smoothening of consumption or risk sharing among the regions the coefficient should not differ from zero. The interactive terms should be negative and significant, only then they can contribute to improvement in consumption smoothening. Interactive terms enable us to parse out smoothening effect of control variables i.e. remittances, regulations, governance, financial development and globalization.

To overcome the problem of heterogeneity (Pesaran and Smith (1995); Pesaran *et al*. (1999)) developed the econometric technique which incorporates heterogeneity and give reliability to estimation procedure. To test cross sectional dependence Westerlund (2007) cointegration tests and panel unit root tests is employed. In presence of heterogeneity, mean group estimators and pooled mean group estimators are warranted. To deal with the problem of structural breaks, unit root and cointegration procedure is employed. All these problems are not discussed in previous studies so this study is unique in multiple ways to address these issues.

To test cross-section dependence Pesaran (2004) proposed test with no cross-section dependence under null hypothesis. CD can be applied to model, which are dynamic heterogeneous panels having potential structural breaks. To assume cross-section dependence is realistic and evident because world is integrated through financial markets and other channels. The assumption of cross sectional dependence can be tested thorough the cross-section dependence (CD) that is proposed by (Pesaran, 2004).

The test follows:

$$\boldsymbol{CD = \sqrt{\frac{2T}{N(N-1)}}\,(\sum_{i=1}^{N-1}\sum_{j=i+1}^{N}\widehat{\rho}_{ij}) \rightarrow N(0,1)} \qquad \textbf{\textit{(3)}}$$

And $\hat{\rho}_{ij}$ is

$$\boldsymbol{\widehat{\rho}_{ij} = \widehat{\rho}_{ji} = \frac{\sum_{t=1}^{T}\widehat{u}_{it}\widehat{u}_{jt}}{\sqrt{(\sum_{t=1}^{T}\widehat{u}_{it}^{2})}\sqrt{(\sum_{t=1}^{T}\widehat{u}_{jt}^{2})}}} \qquad \textbf{\textit{(4)}}$$

The literature proposed numerous ways to test the stationary of panel date. These tests are distinguished as first generation panel unit root test and second generation panel unit root test. The first generation panel unit root test includes, for instance, (Maddala and Wu, 1999; Levin *et al.,* 2002; Im *et al.,* 2002) are based on the assumption of no cross sectional dependence. While the second generation panel root test for instance (Bai and Ng (2004)) assumed that there is a cross sectional dependence which is reliable in presence of structural breaks and cross-section dependence because of panel data except all countries as a single entity, so this is the problem that has not recognized earlier for the difference in relationship between remittances and consumption smoothening for separate countries. Different countries have the different level of economic development; therefore, the dynamics relationship among variables should also be different for each country. Furthermore, many reasons for the existence of cross sectional dependence in the modern economy are present. For instance, the higher level of financial integration of regions, the economic integration and most of the precise reason may involve trade interdependence (Jalil, 2014).

For cointegration among variables and long run relationship among variables Westerlund (2007) test based on four different statistics, is employed. In which to test the null hypothesis is that the panel is not co-integrated as a whole, named as panel test, "Pt and Pa" and other two statistic test explain that the alternative hypothesis that at least one element in the panel is co-integrated, named as "group mean test" Ga and Gt. Most importantly all these four tests are applicable in the presence of heterogeneous panel and assumption of cross sectional dependence.

This test is applicable in presence of cross-section dependence and heterogeneous panel data but this test does not take into account structural breaks in longer series. To tackle this problem, Westerlund and Edgerton (2008) panel cointegration test is used to overcome the problem of structural breaks. Westerlund and Edgerton, (2008) proposed panel cointegration test that provide evidences of heterogeneous panel robust for the cross sectional dependence and the structural breaks simultaneously.

To estimate long run and short run coefficients with error correction terms; mean group, pooled mean group and common correlated effect mean group estimators is plausible and also employed. Pesaran and Smith, (1995); Pesaran *et al,* (1999) suggested that when data set is large in time series (T) dimension, each country can be estimated separately. In this case assumption of heterogeneity is well suited if data set is large enough in time and cross section (N) dimensions and estimation of individual N time series regression is reasonable (Pesaran *et al.*, 1999).

MG estimators calculate long run estimates model for every cross section and then takes average of slope parameters for each cross section but they do not allow incorporating the structural breaks in the estimation. So, the present problem is same that's why CCEMG is applicable for problem of structural breaks. Model in our case takes the following form:

$$C_{it} = \gamma_i + \sum_{j=1}^{\rho} \partial_{i.j} C_{it-j} + \sum_{j=0}^{\rho} \delta_{i.j} Z_{it-j} + \varepsilon_{it} \qquad (5)$$

Where $C_{i,t}$ is the level of consumption expenditures in i group at t time, γ_i is fixed effects in the data and $Z_{i.t}$ is the vector of independent side variables which includes r, g, jr, gl, f. To test homogeneity (Pesaran and Yamagata, 2008) modified Swamy test is employed and this modified version does not require any size restriction on N[17] and t[18].

CCEMG is applicable as this method considers structural breaks and also assume cross sectional dependence. CCEMG provide consistent and robust results even when structural breaks prevail in the data (Kapetanios *et al.*, 2011). This study uses CCEMG methodology to estimate equation 2. The presence of structural breaks may promote to ambiguous inferences with respect to the order of integration that is a stationary series may be taken as non-stationary. Consumption smoothing is macro variable and assuming cross sectional independence is inappropriate and thus invalidates the conclusion. To deal with structural breaks and cross sectional dependence this study employs panel techniques.

[17] N= Number of countries involved in the study.

[18] t= Number of years.

CHAPTER: 5

Results and Analysis

Many studies have been done on consumption smoothing which are mentioned earlier and have significant results but few studies done on consumption smoothing via remittances. Therefore, the current study analyzes the role of remittances in consumption smoothing in South Asia because of significant increase in flows of remittances to low-middle income countries in 2018. [19]According to World Bank report growth in remittances flows to south Asian region increased by 12 percent in 2018 and other shortcomings in previous studies that they have not taken into account as structural breaks and traditional panel data techniques considered the whole panel as single entity as estimated homogenous slope regression for all cross sectional units. Since South Asian countries are much diverse in socio-economic parameters and assuming slope homogeneity invalidates conclusion. In this flaw, previous studies could not give the satisfactory evidence.

Many studies like (Asdrubali and Sorensen 2002; Du *et al.*, 2011; Dorantes and Pozo, 2012; Aga *et al.*, 2014; Alcidi *et al.*, 2017) which are mentioned in literature that the results of panel techniques may be unconvinced in the presence of slope heterogeneity and cross sectional independence hypothesis. Therefore, the traditional panel techniques like Fixed Effect Model, Random Effect Model and Generalized Method of Movements (GMM) are not a good choice methods to be estimated for panel data. Therefore, researcher estimate the equation through

[19] WASHINGTON, April 8, 2019 ,officially bank record show that annually remittances to low – middle income countries reached $529 billion in recent year of 2018.and arises 9.6% over the last record high of $483 billion in 2017.

cointegration under the hypothesis of cross sectional dependence and structural breaks in our data unit.

Previous studies suggested many ways to estimate the panel unit root test but in our study three type of panel unit root test are implied. First, Maddala and Wu (1999) panel unit root test suggested without considering the cross sectional dependence and structural breaks. Maddala and Wu (1999) do not account for the problem of cross sectional dependence and structural breaks therefore this test is not appropriate. Second, the panel unit root test suggested by Pesaran (2007) that is based on assumption of cross section dependence among units but again this test not included the problem of structural breaks and this test also regarded as inappropriate. Panel unit root test by Bai and Carrion-i-Silvestre (2009) which take into account the problem of structural breaks and cross section dependence. However, the result of this test of unit root gave better insight and is helpful in the study.

5.1. Unit Root Test

Unit root test estimation are accomplished first and results of unit root test are shown in table 6.1 that clearly indicates that almost all the variables contain unit roots whether the structural breaks are taken into account or not in that scenario. The statistics of panel unit root tests (Maddala and Wu, 1999) supposed to be non-stationary as null hypothesis that panel data has unit root. Hence, this is same true for the cross sectional dependence and results are shown in table 6.1 (see the unit of Pesaran, 2007)). Descriptive statistics are given in table B in appendix that shows the two parameters; mean and standard deviation.

TABLE 6.1

Panel Unit Root Test

Without Structural breaks			With structural breaks		
	MW Test	**Pesaran (2007)**	**Constant and Trend**	**Mean Shift**	**Trend Shift**
Consumption	0.335	0.301	0.870	0.612	0.378
Remittances	0.977	0.425	0.035	0.971	0.561
Regulations	0.121	0.091	0.302	0.411	0.649
Globalization	0.256	0.822	0.112	0.018	0.463
GDP per capita	0.834	0.875	0.167	0.254	0.432
Finance	0.682	0.765	0.501	0.916	0.672

P-values are given with null hypothesis that series is I (1).

After applying the panel unit root test, the next step is to estimate the long run relationship among variable via panel co-integration test.

5.2. Panel Co-Integration Test

For panel co-integration estimation this study used (Westerlund, 2007) cointegration test which shows that there is long run relationship among variables in presence of cross sectional dependence. The results indicate that the presence of long run relationship among variables (shown in Table 2). Since, this technique does not give the authentic results for structural breaks results thus to cater this problem we used Westerlund and Edgerton (2008) panel cointegration test and finding confirms the presence of long run relationship among variables.

If there is a presence of structural breaks in data the Westerlund (2007) test is not appropriate to test long run relationship among variables because it does not take into account the problem of structural breaks. Therefore, for this purposes we used (Westerlund and Edgerton, 2008) which takes into account structural breaks. The results of (Westerlund and Edgerton, 2008) show in Table 6.2 which clearly indicate the null hypothesis of no cointegration is rejected in this case study. So, the results are consistent with previous studies as there exists long run relationship among variables (Bonser_Neal and Dewentre, 1985; Combes and Ebeke, 2010; Jappelli and Pistaferri, 2011).

Table 6.2

Panel Cointegration Test (Null Hypothesis: No Cointegration)

Without structural breaks assuming cross sectional dependence				**With structural breaks assuming cross sectional dependence**				
Statistics	**Value**	**p-value**	**Robust**	**Model**	$z\varphi(N)$	**p-value**	$z\tau(N)$	**p-value**
Gt	-3.119	0.325	0.0004	**No break**	8.3853	0.0075	2.0280	0.0256
Ga	-5.311	0.788	0.0007	**Mean Shift**	3.651	0.0835	3.7314	0.0573
Pt	-6.127	0.004	0.0090	**Regime shift**	4.0371	0.0413	1.9264	0.0643
Pa	-5.681	0.327	0.0005	**NA**	NA	NA	NA	NA

Note: Gt and Ga are the groups mean statistics. Pt and Pa are panel mean statistics.

Regarding long run relationship, there are four crucial findings manifested in current study. As mentioned earlier, remittances reduce instability in household consumption smoothing. Hence, remittances are performing a role as an insurance when other factors disturb consumption pattern like the income shocks, disasters, agriculture shocks etc. In many less developing countries, remittances performs a strong role in consumption smoothing (Rehman *et. al* (2014). In Table 6.2 Gt and Ga shows the group mean statistic and other Pt and Pa give the information of panel mean statistic in current study.

5.3. Long-Run Estimations

The results of long run estimates are shown in Table 6.3; there are eight models which are estimated in this study. We have estimated the long run relationship and employed the specific to general approach. Model 1 give the evidence that the presence of consumption smoothing with a considerable magnitude of per capita income that is 0.575. It implies that approximately 58 percent consumption exist through per capita income and remain 42 percent consumption occur via other factors. Hence coefficient of per capita income is significant at 1% (level of significance). The higher coefficient of per capita income covers the one side of the discussion. The higher magnitude of the per capita income coefficient can be expected in the presence of low level of quality of regulation, financial development, legal protections and governance. Therefore, the consumption smoothing can be improved via the improvement in the cited factors over the time.

In this regard, Model 2 shows that the coefficient of remittances that is 0.654 confirms that the 65 percent household consumption exists through remittances that are significant at 5% level of significance. For the link between remittances and consumption, a large body of micro-level studies has implied that remittances are primarily used for consumption purposes (De

Bruyn, 2006; Combes and Ebeke, 2010; Notten and Crombrugghe, 2012). According to Spatafora (2005) remittances help low income recipients and assisting them to manage their expenditures efficiently.

Table 6.3

Long-Run Estimates from Common Correlated Effect Mean Group

	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model6**	**Model 7**	**Model 8**
Constant	0.124** (0.056)	0.156*** (0.049)	0.187 (0.167)	-0.169*** (0.035)	0.016 (0.019)	-0.089** (0.035)	0.023 (0.167)	0.076** (0.030)
Per capita income	0.575*** (0.174)	0.465*** (0.171)	0.652** (0.259)	0.355** (0.156)	0.375*** (0.105)	0.350** (0.154)	0.357*** (0.099)	0.412** (0.199)
Remittances	NA	0.654** (0.275)	0.145*** (0.055)	0.562*** (0.099)	0.347*** (0.103)	0.423* (0.221)	0.435** (0.170)	0.245*** (0.080)
	Interactive Terms							
Governance	NA	NA	-0.012*** (0.003)	NA	NA	NA	NA	-0.045*** (0.010)
Remittances	NA	NA	NA	-0.351*** (0.09)	NA	NA	NA	-0.375*** (0.080)
Regulations	NA	NA	NA	NA	-0.014 (0.009)	NA	NA	-0.021** (0.009)
Globalization	NA	NA	NA	NA	NA	-0.006** (0.003)	NA	-0.041 (0.046)
Finance	NA	NA	NA	NA	NA	NA	-0.016*** (0.004)	-0.094*** (0.035)

Note: The Standard Errors are presented in the parentheses.

N: 4

t: 38

*** 1 % level of significance, ** 5% level of significance, * 10 % level of significance

Moreover, remittances may smooth consumption and consumption stability can take place by improving factors like globalization, financial development, governance, regulation and remittances. So, as a result the consumption smoothing can be improved via improvement in the mentioned factor over the time. Dutt and Padmanabhan (2011) explain the importance of governance, law and regulation in determining the level of consumption risk sharing. However, they contribute in the literature by examining the role of institutions and policy maker. Therefore, we consider the role of regulations that is based on the judicial system of the country. The indices of regulation are constructed via the judicial independence, legal system and property rights, and protection of property rights, military interference and reliability of police.

The regulation variable elaborates the judicial situation of a country in model 5. We argue that better judiciary system enhance the capital mobility, capital flow, remittances and provide the protection to investors. Hence, consumption instability may decrease via the improvement in globalization and regulation (Kapur, 2004; Ju and Wei, 2006). Provision of better bureaucratic quality along with law and regulation has positive impact on idiosyncratic consumption patterns (Abdih *et al*., 2008). The variable of regulation is used as an interactive term and the negative and insignificant coefficient of regulation depicts that how better judicial system influence the consumption smoothing pattern.

The negative and significant coefficient of interactive term of remittances in model 4 shows that per capita income will decline as compare to the base model. Hence, again the coefficient of remittance in interactive term is significant at 1 percent level of significance. It implies the significant contribution of remittance in consumption smoothing. Gupta (2005) explained the possible sources of international consumption smoothing in which remittances have prominent role in the growth of the developing economy. This result of remittances coefficient is in line with Combes and Ebeke, 2010; Ahmed, 2012; Ahmed and Martinez-zarzoso, 2016) studies. The magnitude of the coefficient of remittances is larger than other variables and the main focus of this study is on remittances and the results indicate the huge role of remittance in consumption smoothing.

The study further considered the role of governances on the basis of study by Combes and Ebeke (2010). Our coefficient of governance is negative and significant in model 3 which implies that the governance improve the consumption smoothing. Similarly, the globalization and financial development enhance the consumption smoothing and declined the coefficient of per capita income. Globalization variable indicates that an increase in integration of the world the global factor enhance with integration tend to improve the consumption pattern of individuals, and help in risk sharing among countries. Better globalization improves the consumption stability. On the same grounds, the financial development also helps in consumption risk sharing (Jalil and Feridun, 2010).

The negative and significant coefficient of remittances depicts that in South Asian Region, there is huge contribution in consumption smoothing that is the main objective of this study. (Hadzi-Vaskov, 2006) has examined the role of migrant worker's remittances and risk sharing in consumption by using the panel techniques fixed effect approach. Therefore, the results are inappropriate because it does not account for the problem of the structural breaks and cross sectional independence. However, economists have strong believed that world is integrated with each other. Globalization has significant effect in consumption pattern.

Overall joint effect of financial development and per capita income coefficients also give significant value in model 7 and hence plausible influence on consumption smoothing. All the above results are significant instead of regulation and they improve consumption smoothing but major chunk comes from remittances and of per capita income. So, if improvement in above mentioned variables occur, the consumption smoothing can increase. Asdrubali and Sorensen (2002) suggested that migrant labor workers and remittances perform significant role in the consumption risk sharing. However, Gupta (2005) explained the possible sources of international consumption smoothing in which remittances have prominent role in the growth of the developing economy. Our result suggested significant and plausible consumption smoothing held by remittances and per capita income there are huge contribution of these factors in consumption smoothing in South Asia region.

In the same regard, as mention earlier SAR is the second prominent region where people get larger share of remittance because people are more sensitive to assist their families. Our results confirms that remittance is the one of the best way to reduce consumption volatility in South Asia. Flood *et al.*, (2012) conducted the study in which he asserted that consumption smoothing could be improved by financial globalization and with era of globalization. Besides, they find the evidence of international risk sharing in consumption has been improved during globalization.

Robustness Check

For robustness check, we have employed specific to general model approach in this study. In this respect, all variables are being tested simultaneously to tackle the problem of misspecification of biasness. The results shows that the coefficient of per capita income is low in all samples as compare to the base model. However, the coefficient of globalization becomes insignificant in case of full model analysis. Separate analysis regarding interactive term of governance, remittance, globalization and financial development shows that improvement in that variables will enhance the consumption smoothing.

CHAPTER: 6

Conclusion

The aim of this study is to find the role of remittances in consumption smoothing in south Asia region by taking into account eight countries over period of 1980 to 2017. Previous studies have employed a diverse range of methodologies and have inconclusive findings regarding role of remittances in consumption smoothing. Perhaps the main reason of wide ranging mixed findings is the use of various methodologies and nature of data. Controversy arises by ignoring presence of structural breaks and cross-sectional dependence which motivates the current study to overcome these flaws by employing more advance econometric techniques. Plethora of studies have been done on three types, time series, cross sectional and panel data. This dissertation based on panel data techniques.

This study is empirical in nature and conducted to fill the gaps of previous literature by using Common Correlated Effect Mean Group (CCEMG) for large panel which incorporates the cross sectional dependence and structural breaks. The advantage of using CCEMG is to overcome common issues in literature mainly established in time series data. Traditional approach does not counter these issues. Further, our study is concerned with the role of various socio-economic variables like judicial system, per capita income, remittances, governance and globalization, financial development in consumption smoothing.

6.1. Key Findings

Findings of this study confirm the cross-sectional dependence and structural breaks as evident in previous chapter. Furthermore, role of difference of per capita income is dominant that is 58% consumption takes place while remaining proportion comes through other variables and 65%

consumption take place via remittances in SAR. Role of remittances which is the main variable of this study also has greater joint effect with difference of per capita income which is substantial contribution. Other factors have minor but significant effect as compare to remittances on consumption smoothing. So, by improving overall socio-economic indicators like judiciary system, globalization, governance and financial development may enhance the consumption smoothing which of course will have consequential impact on living standard.

Specifically, we find two major result of this study. Firstly, the role of remittance plays a significant role in consumption smoothing. Secondly, by improving the factors like governance, regulation, globalization and financial development household may smooth their consumption pattern. The results might help policy makers that if they are willing to enhance the consumption smoothing, they can get full consumption smoothing by improving remittance from brain drain community and better governance, financial development and globalization factors.

6.2. Policy Implication

On the basis of end results and findings, there are some policy recommendations which are as follows:

- Government should increase flow of remittances by lowering transaction cost which ultimately improve consumption smoothening.

- Government should improve financial infrastructure and insure easy access to financial services in order to improve financial development which may improve the consumption smoothening as suggested by our results.

- Government should improve the level of governance by insuring government stability, accountability, lowering corruption and law and order situation which enhance smoothening level of consumption.

All mentioned policies will enhance the flow of remittance which will ultimately results in smooth consumption pattern of households. Flow of remittance may improve by considering related policies in developing countries and thus results in improved welfare. From the perspective of socio economic indicators, stronger judiciary system, governance and globalization have significant role in increasing the flow of remittances and helps households in stabilizing their consumption pattern.

References

Abdih, Y., Dagher, J., Chami, R., & Montiel, P. (2008). *Remittances and institutions: Are remittances a curse?* (No. 8-29). International Monetary Fund.

Acemoglu, D., & Johnson, S. (2005). Unbundling institutions. *Journal of political Economy*, *113*(5), 949-995.

Acosta, P., Calderon, C., Fajnzylber, P., & Lopez, H. (2008). What is the impact of international remittances on poverty and inequality in Latin America?. *World Development*, *36*(1), 89-114.

Aga, G. A., & Peria, M. S. M. (2014). *International remittances and financial inclusion in Sub-Saharan Africa*. The World Bank.

Aggarwal, R., & Horowitz, A. W. (2002). Are international remittances altruism or insurance? Evidence from Guyana using multiple-migrant households. *World development*, *30*(11), 2033- 2044.

Ahmed, A. D., & Suardi, S. (2009). Do Financial and Trade Liberalization Cause Macroeconomic Volatility in Sub-Saharan Africa?.

Ahmed, J. (2012). Cyclical Properties of Migrant's Remittances to Pakistan: What the data tell us. *Economics Bulletin*, *32*(4), 3266-3278.

Ahmed, J., & Martinez-Zarzoso, I. (2016). Blessing or Curse: The Stabilizing Role of Remittances Compared with other Financial Flows. *Journal of South Asian Development*, *11*(1), 38-66.

Alcidi, C., D'Imperio, P., & Thirion, G. (2017). *Risk-sharing and Consumption-smoothing Patterns in the US and the Euro Area: A comprehensive comparison. CEPS Working Document No 2017/04, May 2017*.

Alem, Y., & Colmer, J. (2015). Consumption smoothing and the welfare cost ofuncertainty.

Alfieri, A., Havinga, I., & Hvidsten, V. (2006, February). Issue paper: Definition of remittances. In *Meeting of the United Nations Technical Subgroup on Movement of Persons–Mode*(Vol. 4).

Amuedo-Dorantes, C., & Pozo, S. (2012). An Inquiry into Remittances and Income Smoothing. Perspectives on Global Development and Technology, 11(2), 261-289. doi:10.1163/156914912x635071

Artis, M. J., & Hoffmann, M. (2008). Financial Globalization, International Business Cycles and Consumption Risk Sharing*. *Scandinavian Journal of Economics*, *110*(3), 447-471. doi:10.1111/j.1467-9442.2008.00546.x

Artis, M. J., & Hoffmann, M. (2011). The Home Bias, Capital Income Flows and Improved Long-Term Consumption Risk Sharing between Industrialized Countries. *International Finance*, *14*(3), 481-505. doi:10.1111/j.1468-2362.2011.01293.x

Asdrubali, P., Sorensen, B. and Yosha, O. (2002). Channels of Interstate Risk Sharing: United States 1963-1990.

Asdrubali, P., & Kim, S. (2008). Incomplete Intertemporal Consumption Smoothing and Incomplete Risk Sharing. *Journal of Money, Credit and Banking*, *40*(7), 1521-1531. doi:10.1111/j.1538-4616.2008.00170.x

Attanasio, O., & Rıos-Rull, J. V. (2000). Consumption smoothing in island economies: Can public insurance reduce welfare?. *European economic review*, *44*(7), 1225-1258.

Auffret, P. (2003). High consumption volatility: the impact of natural disasters?, Policy Research Working Paper Series 2962, The World Bank.

Bai, J., & Carrion-I-Silvestre, J. L. (2009). Structural changes, common stochastic trends, and unit roots in panel data. *The Review of Economic Studies*, *76*(2), 471-501.

Bai, J., Ng, S., 2004. A PANIC attack on unit roots and cointegration. Econometrica 72,

Balli, F., Basher, S. A., & Balli, H. O. (2013). International income risk-sharing and the global financial crisis of 2008–2009. *Journal of Banking & Finance*, *37*(7), 2303-2313.

Balli, F., & Rana, F. (2014). Determinants of Risk Sharing Through Remittances: Cross-Country Evidence. *SSRN Electronic Journal*. doi:10.2139/ssrn.2382986

Bekaert, G., Harvey, C. R., & Lundblad, C. (2006). Growth volatility and financial liberalization. *Journal of international money and finance*, *25*(3), 370-403.

Bernheim, BD, Shleifer, A, Summers, LH (1985) .The Strategic Bequest Mo-Bonser-Neal, C. and K. L. Dewenter (1999), Does financial market development stimulate savings? Evidence from emerging stock markets. Contemporary Economic Policy, Volume 17, pp. 370-380.

Bernheim, BD, Shleifer, A, Summers, LH (1985) .The Strategic Bequest Motive. The Journal of Political Economy 93(6); 1045-1076

Bibi, N., & Jalil, A. (2016). REVISITING FELDSTEIN-HORIOKA PUZZLE: Econometric Evidences from Common Coefficient Mean Group Model. *Pakistan Economic and Social Review*, *54*(2), 233.

Bracke, T., & Schmitz, M. (2008). Channels of international risk-sharing: capital gains versus income flows. *International Economics and Economic Policy*, *8*(1), 45-78. doi:10.1007/s10368-010-0176-6

Bugamelli, M., & Paternò, F. (2009). Output Growth Volatility and Remittances. *Economica*, *78*(311), 480-500. doi:10.1111/j.1468-0335.2009.00838.x

Campbell, J., & Deaton, A. (1989). Why is consumption so smooth?. *The Review of Economic Studies*, *56*(3), 357-373.

Carling, J. (2005). Incorporating Insights from Migration Research into Policy on Remittances. *The Development Dimension Migration, Remittances and Development*,289-296. doi:10.1787/9789264013896-21-en

Chambers, D., Collins, C. A., & Krause, A. (2019). How do federal regulations affect consumer prices? An analysis of the regressive effects of regulation. *Public Choice*, *180*(1-2), 57-90.

Chami, R., Fullenkamp, C., & Jahjah, S. (2003). Are Immigrant Remittance Flows a Source of Capital for Development? *SSRN Electronic Journal*. doi:10.2139/ssrn.463002

Chimhowu, A., Piesse, J., & Pinder, C. (2004). The impact of remittances. *Enterprise Impact News*, (29).

Cochrane, J. H. (1991). A simple test of consumption insurance. *Journal of political economy*, *99*(5), 957-976.

Combes, J., & Ebeke, C. (2010). Remittances and Household Consumption Instability in Developing Countries. *World Development*, *39*(7), 1076-1089. doi:10.1016/j.worlddev.2010.10.006

Cox, D. (1987). Motives for private income transfers. *Journal of political economy*, *95*(3), 508-546.

Craigwell, R., Jackman, M., & Moore, W. (2010). Economic volatility and remittances. *International Journal of Development Issues*, *9*(1), 25-42.

De Bruyn, T., & Kuddus, U. (2006). Dynamics of remittance utilization in Bangladesh.

De, S., Islamaj, E., & Yousefi, S. (2015). Can remittances help promote consumption stability. *Global Economic Prospects, 4*.

dependence. *Journal of Applied Econometrics*, Volume 22(2), pp. 265-312.

Devereux, M. B., & Smith, G. W. (1994). International Risk Sharing and Economic Growth. *International Economic Review, 35*(3), 535. doi:10.2307/2527072

Diaz-Briquets, S., & Pérez-Lopez, J. (1997). Refugee Remittances: Conceptual Issues and the Cuban and Nicaraguan Experiences. *International Migration Review*, *31*(2), 411-437. doi:10.1177/019791839703100207

Du, J., Qing, H. and Rui, O. (2011), Channels of Interprovincial Consumption Risk Sharing in the People's Republic of China. SSRN Electronic Journal.

Dutt, P., & Padmanabhan, V. (2011). Crisis and consumption smoothing. *Marketing Science*, *30*(3), 491-512.

Faria, A., & Mauro, P. (2009). Institutions and the external capital structure of countries. *Journal of International Money and Finance*, *28*(3), 367-391.

Flood, R. P., Marion, N. P., & Matsumoto, A. (2012). International risk sharing during the globalization era. *Canadian Journal of Economics/Revue canadienne d'économique*, *45*(2), 394-416. doi:10.1111/j.1540-5982.2012.01700.x

Food Policy Research Institute (IFPRI).

Fratzscher, M., & Imbs, J. (2009). Risk sharing, finance, and institutions in international portfolios. *Journal of Financial Economics*, *94*(3), 428-447.

Funkhouser, E. (1995). Remittances from International Migration: A Comparison of El Salvador and Nicaragua. *The Review of Economics and Statistics*, *77*(1), 137. doi:10.2307/2109999

Gardberg, M. (2016). *Determinants of International Consumption Risk Sharing in Emerging Markets and Developing Countries* (No. 9452). EcoMod.

Gerry, C. J., & Li, C. A. (2010). Consumption smoothing and vulnerability in Russia. *Applied Economics*, *42*(16), 1995-2007.

Ghosh, A. R., & Ostry, J. D. (1995). The current account in developing countries: A perspective from the consumption-smoothing approach. *The World Bank Economic Review*, *9*(2), 305-333.

Gillani, S. F. (1996). Risk-sharing in Rural Pakistan. *The Pakistan Development Review*, *35*(1), 23-48. doi:10.30541/v35i1pp.23-48

Gupta, P. (2005). Macroeconomic Determinants of Remittances: Evidence from India. *IMF Working Papers*, *05*(224), 1. doi:10.5089/9781451862430.001

Hadzi-Vaskov, M. (2006). Workers' Remittances and International Tjalling C. Koopmans Research Institute. *Discussion Paper Series/Tjalling C. Koopmans Research Institute*, *6*(19).

Hoddinott, J. (1992). Modelling remittance flows in Kenya. *Journal of African Economies*, *1*(2), 206-232.

Ibanez, A., & Moya, A. (2006). The impact of intra-state conflict on economic welfare and consumption smoothing: Empirical evidence for the displaced population in Colombia.

Im, K. S., Pesaran, M. H., & Shin, Y. (2003). Testing for unit roots in heterogeneous panels. *Journal of econometrics*, *115*(1), 53-74.

IMF. 2005. *Finance and Development Quarterly Magazine* (December) 4:42.

Islamaj, E. (2012). *Financial liberalization and consumption smoothing: What have we learned so far*. Working Paper, Vassar College. Available at http://irving. vassar. edu/faculty/ei/survey. pdf.

Itzigsohn, J. (1995). Migrant Remittances, Labor Markets, and Household Strategies: A Comparative Analysis of Low-Income Household Strategies in the Caribbean Basin. *Social Forces*, *74*(2), 633. doi:10.2307/2580495

Jacoby, H. G., & Skoufias, E. (1997). Risk, financial markets, and human capital in a developing country. *The Review of Economic Studies*, *64*(3), 311-335.

Jalil, A. (2014). Energy–growth conundrum in energy exporting and importing countries: Evidence from heterogeneous panel methods robust to cross-sectional dependence. *Energy Economics*, *44*, 314-324.

Jalil, A., & Feridun, M. (2014). Energy-driven economic growth: Energy consumption—economic growth nexus revisited for China. *Emerging Markets Finance and Trade*, *50*(5), 159-168.

Jalil, A., Feridun, M., & Ma, Y. (2010). Finance-growth nexus in China revisited: New evidence from principal components and ARDL bounds tests. *International Review of Economics & Finance*, *19*(2), 189-195.

Jappelli, T., & Pistaferri, L. (2011). Financial Integration and Consumption Smoothing*. *The Economic Journal*, *121*(553), 678-706. doi:10.1111/j.1468-0297.2010.02410.x

Johnson, K., & Li, G. (2007). Do high debt payments hinder household consumption smoothing?.

Kaijage, J. N., & Siegel, M. (2008). The impacts of international remittances on receiving countries at the micro and macro level and policy options for increasing remittance effectiveness: Reviewing the literature. *Unpublished MS Thesis, Maastricht Graduate School of Governance, Maastricht University, Maastricht, Netherlands*.

Kapetanios, G., M. H. Pesaran and T. Yamagata (2011), Panels with non-stationary multifactor error structures. *Journal of Econometrics*, Volume 160(2), pp. 326-348.

Kapur, D. (2005). Remittances: the new development mantra?. *Remittances: Development impact and future prospects*, 331-60.

Kazianga, H., & Udry, C. (2006). Consumption smoothing? Livestock, insurance and drought in rural Burkina Faso. *Journal of Development economics*, *79*(2), 413-446

Kose, M. A., Prasad, E. S., & Terrones, M. E. (2003). How does globalization affect the synchronization of business cycles?. *American Economic Review*, *93*(2), 57-62.

Kose, M. A., Prasad, E. S., & Terrones, M. E. (2009). Does financial globalization promote risk sharing?. *Journal of Development Economics*, *89*(2), 258-270.

Kumar, P., & Singh, S. K. (2012). Consumption Smoothing and Insurance Against the Income Risks: A Case of India. *Indian Economic Review*, 265-283.

Levchenko, A. A., & Mauro, P. (2007). Do some forms of financial flows help protect against "sudden stops"?. *The World Bank Economic Review*, *21*(3), 389-411.

Levin, A., Lin, C.F., J. Chu, C.S., 2002. Unit root test in panel data: asymptotic and finite sample

Lewis, K. K. (1996). What Can Explain the Apparent Lack of International Consumption Risk Sharing? *Journal of Political Economy, 104*(2), 267-297. doi:10.1086/262025

Lucas, R. E., & Stark, O. (1985). Motivations to remit: Evidence from Botswana. *Journal of political Economy*, *93*(5), 901-918.

Mace, B. J. (1991). Full insurance in the presence of aggregate uncertainty. *Journal of Political Economy*, *99*(5), 928-956.

Maddala, G. S., & Wu, S. (1999). A comparative study of unit root tests with panel data and a new simple test. *Oxford Bulletin of Economics and statistics*, *61*(S1), 631-652. Montiel, P. J., & Servén, L. (2008). *Real exchange rates, saving and growth: Is there a link?* The World Bank

Mohapatra, S., & Ozden, C. (2009). 5. MIGRATION AND REMITTANCES IN SOUTH ASIA. *The Service Revolution in South Asia*, 199.

Mughal, M. Y., & Ahmed, J. (2014). Remittances and business cycles: Comparison of south Asian countries. *International Economic Journal*, *28*(4), 513-541.new simple test. Oxf. Bull. Econ. Stat. 631–652 (special issue).

Nnyanzi, J. (2013). Remittances and risk sharing in Africa. *Issues in Business Management and Economics*, *5*, 107-114.

Notten, G., & Crombrugghe, D. D. (2012). Consumption smoothing in Russia1. *Economics of Transition*, *20*(3), 481-519. doi:10.1111/j.1468-0351.2012.00441.x

Parker, J. A., & Preston, B. (2005). Precautionary Saving and Consumption Fluctuations. *American Economic Review*, *95*(4), 1119-1143.doi:10.1257/0002828054825556

Peersman, G., & Pozzi, L. (2004). Determinants of consumption smoothing. *Work& ing paper*

Pesaran, M. H. (2007), A simple panel unit root test in the presence of cross section

Pesaran, M. H., & Smith, R. (1995). Estimating long-run relationships from dynamic heterogeneous panels. *Journal of econometrics*, *68*(1), 79-113.

Pesaran, M. H., Shin, Y., & Smith, R. P. (1999). Pooled mean group estimation of dynamic heterogeneous panels. *Journal of the American Statistical Association*, *94*(446), 621-634.

Pesaran, M.H., 2004. General diagnostic tests for cross section dependence in panels. CESifo Working Paper No. 1229.

Pesaran, M.H., 2006. Estimation and inference in large heterogeneous panels with a multifactor error structure. Econometrica 74, 967–1012.

Qiu, J., & Wu, Y. (2016). Migration, Consumption Smoothing and Household Income: Evidence from Thailand.

Quisumbing , Agnes R., S. McNiven, M. Godquin. (2008). Shocks, Groups, and Networks in Bukidnon, Philippines. CAPRiWorking Paper No. 84, International

Rahman, M. M., Yong, T. T., & Ullah, A. A. (2014). Migrant Remittances in South Asia: An Introduction. In *Migrant remittances in South Asia* (pp. 1-30). Palgrave Macmillan, London.

Ratha, D., & Mohapatra, S. (2012). Remittances and development. *The Wiley‐ Blackwell Encyclopedia of Globalization*.

Saahdong, C. (2010). THE RELATIONSHIP BETWEEN GLOBALIZATION AND PUBLIC SPENDING: EMPIRICAL EVIDENCE FROM THE NORDIC COUNTRIES.

Sean Turnell, Alison Vicary, & Wylie Bradford. (2008). Migrant-worker remittances and Burma: an economic analysis of survey results. *ANU Press*.

Sinn, H. W. (2005). Migration and social replacement incomes: How to protect low-income workers in the industrialized countries against the forces of globalization and market integration. *International Tax and Public Finance*, *12*(4), 375-393.

Skoufias, E., & Quisumbing, A. R. (2005). Consumption insurance and vulnerability to poverty: A synthesis of the evidence from Bangladesh, Ethiopia, Mali, Mexico and Russia. *The European journal of development research*, *17*(1), 24-58.

Spatafora, N. (2005). Workers' remittances and economic development. *World economic outlook*, 69-84.

Stahl, C. W., & Arnold, F. (1986). Overseas workers' remittances in Asian development. *International Migration Review*, *20*(4), 899-925.

Teele, D., Kumar, A., & Shroff, K. (2009) Do households use remittances to smooth consumption?!.

Townsend, R. M. (1994). Risk and Insurance in Village India. *Econometrica*, *62*(3), 539. doi:10.2307/2951659

Udry, C. (1994). Risk and insurance in a rural credit market: An empirical investigation in northern Nigeria. *The Review of Economic Studies*, *61*(3), 495-526.

Ullah, AKM Ahsan. 2010. *Rationalizing Migration Decisions: Labour Migrants in East and Southeast Asia*. London: Ashgate.

Von Furstenberg, G. M. (2004). Consumption Smoothing Across States and Time: International Insurance vs. Foreign Loans. *SSRN Electronic Journal*. doi:10.2139/ssrn.586961

Waheeduzzaman, Abu N. M. (2017), "Effect of Economic Integration on Consumption." Journal of Euromarketing, 26, 4-16.

Westerlund, J., 2007. Testing for error correction in panel data. Oxf. Bull. Econ. Stat. 69,709–748.

Westerlund, J., Edgerton, D.L., 2008. A simple test for cointegration in dependent panels with structural breaks. Oxf. Bull. Econ. Stat. 70, 665–704.

World Bank & World Bank. (2015). *Global Economic Prospects, January 2015*. Washington, DC: The World Bank.

World Bank. 2014. *Migration and Remittances Factbook 2014*, Washington, D.C: World Bank.

XU, X. (2008). Consumption Risk-Sharing in China. *Economica*, *75*(298), 326-341. doi:10.1111/j.1468-0335.2007.00606.x

Yang, D., & Choi, H. (2007). Are remittances insurance? Evidence from rainfall shocks in the Philippines. *The World Bank Economic Review*, *21*(2), 219-248.

Yang, D. (2011). Migrant Remittances. *Journal of Economic Perspectives*, *25*(3), 129-152. doi:10.1257/jep.25.3.129

Appendix

Table A: Definition of Variables

Variables	*Sources*	*Definition*	*Method*	*Dp/Indp*
Consumption Expenditure	World development indicator (WDI)	Household final consumption expenditures which are market value of all goods and services including durable goods purchased by individuals in a specific years, divided by the average country's population for the same year.	_	Dependent
Remittances	World development indicator (WDI)	Personal remittances consist of two components; personal transfers (current transfers in cash or in kind made or received by resident households to or from nonresident households) and compensation of employees (income of border, seasonal and other short term workers who are employed in an economy.	_	Independent
Per capita income	World development indicator (WDI)	Per capita income is national income of specific country's divided by total population size.	_	Independent
Globalization index	KOF indices	Globalization index covers three dimensions political, social and economic globalization.	KOF indices of globalization	Independent
Governance index	Heritage Foundation and International Country Risk Guide.	Governance measure as government stability, democratic accountability, corruption, law and order and bureaucratic quality.	Principal Component Analysis (PCA)	Independent
Regulation index	Heritage Foundation and International Country Risk Guide.	Regulation measure as Judicial independence, legal information of contracts, legal system and property rights and protection of property rights, military interference and reliability of police.	Principal Component Analysis (PCA)	Independent
Financial Development	WDI	Financial development measure as broad money to GDP ratio, which is *M2/GDP*.	_	Independent

Table B: Descriptive Statistics

Variables	*Mean*	*S.D*
Consumption	3.5077	0.6410
Per capita income	3.7141	0.8893
Remittances	1.0792	0.1588
Governance	0.3149	0.0974
Regulations	0.3465	0.1089
Globalization	0.6395	0.2972
Finance	0.3073	0.0483