Impact of Foreign Remittances on Human Capital: A Case Study of Pakistan

By

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List of Acronyms

ILO   International Labour Organization

UNESCO United Nations Educational, Scientific and Cultural Organization

GCC   Gulf Cooperation Council

OPF   Overseas Pakistani Foundation

SAP   Social Action Program

ESR   Education Sector Reforms

EFA   Education for All

NPA   National Plan of Action

PSDP   Public Sector Development Program

MDG   Millennium Development Goals

SDG   Sustainable Development Goals

MHHDC   Mahbub ul Haq Human Development centre

NELM   New Economics of Labor Migration

Abstract

This study attempts to investigate the effect of foreign remittances on human capital in Pakistan. We have considered two main components of human capital, education and health. Education was measured through enrollment in four levels: primary, middle, secondary and post-secondary. Health was measured through life expectancy. We have estimated health and education production functions based on the ground of Grossman (1972) theoretical model and Fayissa and Gutema, (2008) health production model. The empirical analysis is based on time series data for the period 1973-2014.We have estimated the impact of foreign remittances on human capital using Autoregressive Distributed Lag (ARDL) approach. The results show that the impact of foreign remittances on primary and middle school enrollment is positive in long run but negative in short run. However, the impact of foreign remittances on secondary school enrollment is negative in long run but positive in short run. The effect of foreign remittances on post-secondary school enrollment is insignificant for both in long run and short run. The effect of foreign remittances on life expectancy is positive for both short run and long run. These results suggest that importance of remittances cannot be ignore specially in developing countries like Pakistan, so that Government of Pakistan should focus on raising the awareness of investing more remittances to improve human capital.

Key words: Human Capital, ARDL, Foreign Remittances, Production Function, Time Series Data, School Enrollment, Life Expectancy, Pakistan

Chapter 1

Introduction

The notion of human capital is used for health, education, skill development and other abilities of people that can increase their capability and productivity (Todaro, 2002).One of the interesting facets of human capital is that it cannot be detached from the individuals. Human capital distribution rests on mobility of individuals across location and firms (Becker, 1993).Human capital is clearly the more fungible, in that it can entertain different uses much more readily than can physical capital (Taylor,2010).

The human capital stock is generally measured through three approaches: output-based, cost-based and income-based. The examples of output-based approach are school attainments, school enrolment rates, average years of education, and adult literacy. The cost-based approach deals with calculating costs of acquiring knowledge while the income-based approach is associated with one's benefits received by schooling and training investment (Kwon, 2009).

Human capital is an important determinant of economic progress than any other resource (World Economic Forum, 2013). Development in human capital increases the efficiency of both physical capital and labor (Lucas, 1988). Human capital is also considered an indicator of human welfare as schooling and health do not only stimulate economic growth but are also perceived as the major economic development indicators (Owoeye, 2002). It is a fact that development in western countries is due to the improvement in human capital. When a nation failing to raise the knowledge and abilities of human resources may be unable to develop anything else (Abbas, 2000).

The determinants of children schooling, an important indicator of human capital, are broadly classified into supply side and demand side factors. The demand side factors consist of variables at household, community and individual levels. The individual level factors consist of the gender and age of the child (Glick and Sahn, 2000) while the household level factors consist of family income and assets, education of parents and demographic composition of a household. Household income considered most important factor out of all household level determinants (Behrman and Knowles, 1999). The community level factors consist of school quality and locational productive potential. The supply side factors consist of the availability of teachers and schools, quality of teaching, condition of physical infrastructure in schools, financial status of teachers etc. (Sawada and Lokshin, 2000).

Investment in education which is a necessary condition to increase the human capital is low in developing countries, for example, India, Nepal, Bangladesh and Pakistan. According to ILO judgement, above 200 million children are engaged in child labor in the world, while above 8 million are engaged in hazardous work. In Pakistan 3.3 million children among the ages of 5 to 14 years are economically efficient and one third of these children have never even joined school in their entire life (ILO, 2009). Pakistan is ranked among one of the lowest spenders on schooling (about 2 percent of its GDP) in the world (World Bank, 2012).

One of the big reasons why less developing nations suffer from a lower education investment is because of liquidity constraints (Jacoby and Skoufias, 1997).At the household level migration is a one way or strategy to overcome this constraint. For income generation, household members work where they get better opportunity and high income. If they do not get better opportunity at origin country they can move to some other countries where they

can get better income than origin (Dean et al., 1984). Moving to other place is called migration whereas crossing the borders is defined as overseas or international migration. Migration is generally considered beneficial for both the labour sending and labour receiving countries as well as the participating households and individuals. The contribution of overseas migration is mainly through skill development of the participating workers, use of remittances for health, nutrition, child schooling and entrepreneurship of return migrants (De Haas, 2007).

After the Second World War, migration became an important factor for households who have fear of income shock. Most of migration takes place because of risk about income at places of origin. Migrants remit to their households at origin because of three motives: pure Altruism; pure self-interest; and tempered altruism or enlightened self-interest (Lucas and Stark, 1985).

There is no confusion regarding the betterment of emigrating people. The actual discussion is how the emigration of individuals impacts their households and communities at the place of origin? How remittances are used by the receiving households? Remittances could be used for improving human capital, consumption and small businesses which would generate more opportunities for jobs and could also reduce the pressure on families to earn income. As reported by the World Bank, (2008), emigrant remittances of US dollar 283 billion worldwide have caused to significant investments in physical and human capital back home. In developing countries remittance-receiving households have greater access to secondary and tertiary education and health services than households that do not receive remittances. Remittances have enabled the household members to meet their basic needs and contribute in reducing school dropout (Ratha, 2013).

1.1. Remittances to Pakistan

More than 7 million Pakistanis are working/living in different parts of the world, primarily in the Middle East, Europe (UK) and North America. Pakistan is in top 10 diaspora of the world and one of the most remittances recipient country. It stands in top ten countries for last decade in term of receiving remittances (Figure 1.1).

Figure 1.1: Top 10 Remittance recipient countries
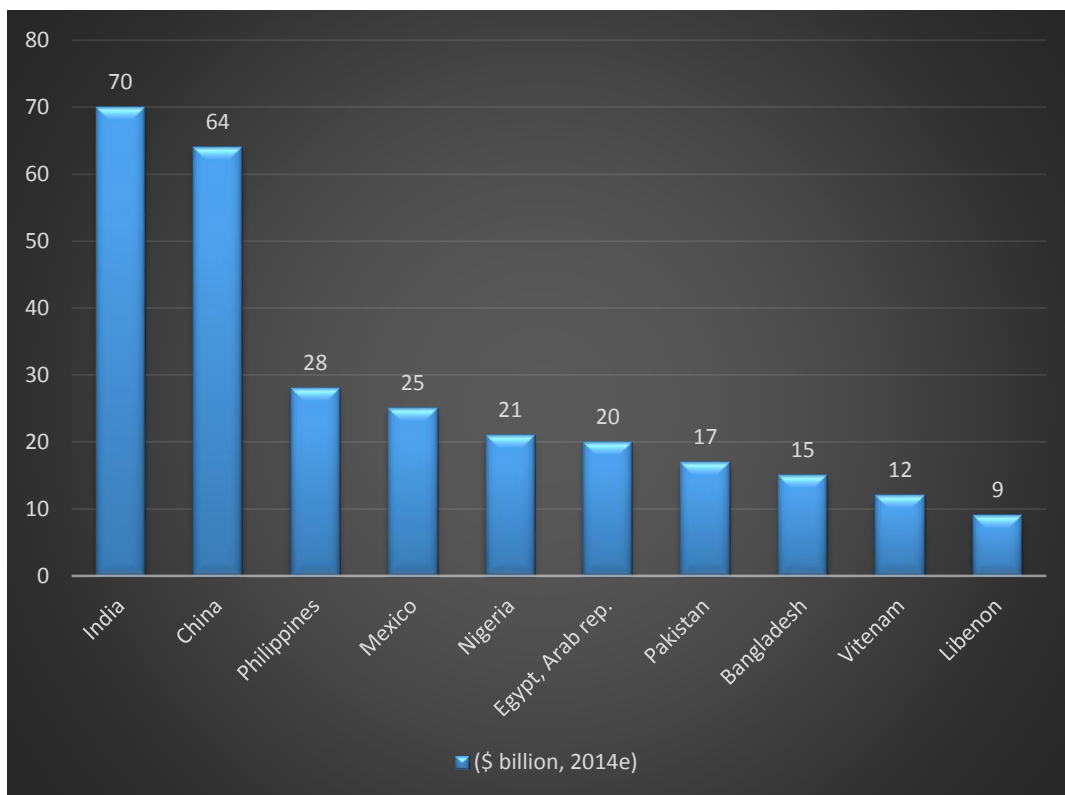
Data Sources: International Monetary Fund (IMF) and World Development Indicator (WDI)

In South Asia majority of the remittances have been directed to Pakistan, Bangladesh and India (World Bank, 2011). In developing countries remittances inflow reached to about $436 billion out of $583 billion in 2014 (World Bank, 2015).

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The economy of Pakistan is mainly based on agricultural sector. In Pakistan, large number of migrations occurred during late 1970s due to which remittances inflow raises during this period and these remittance inflows became the largest mean of foreign capital inflow at that time. The reasons behind this large amount of migration were the decreasing share of agricultural sector and inaccessibility of appropriate employment opportunities. In order to get better employment opportunities and better working conditions many Pakistani workers migrated (Ahmed et al. 2011).

Worker remittances are considered to be an important mean of foreign exchange in Pakistan. During 2000s, a remittances inflow to Pakistan from the Gulf countries increases. Remittances inflow to Pakistan from United Arab Emirates (U.A.E) has been double especially in early 2000s while remittances inflow from Saudi Arabia and other GCC countries toward Pakistan has been triple during the same period. Moreover moderate increase in these remittances inflow has been observed to Pakistan from United State, United Kingdom and other European countries (International Monetary Fund, 2011).

Figure 1.2: Remittances inflow to Pakistan from host countries in early 2000s in terms of percentage
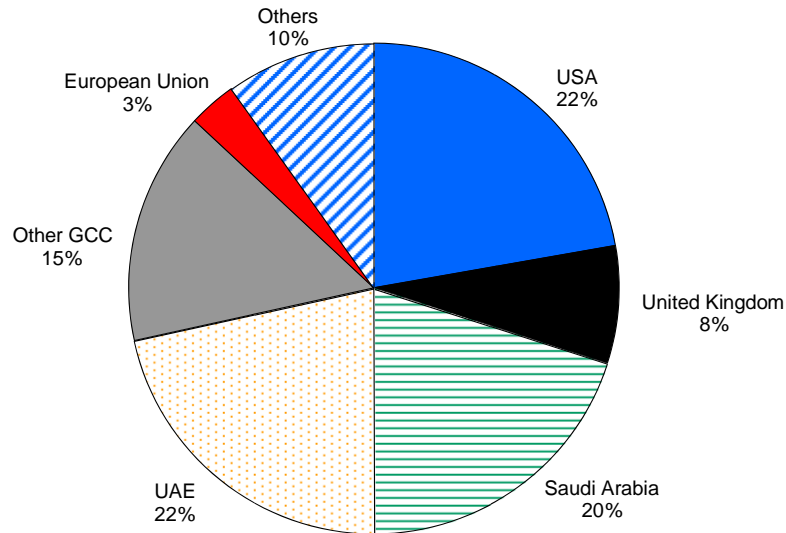
Data Source: State Bank of Pakistan, IMF

With the passage of time the inflow of remittances affected by unfavorable incidents in Pakistan and the whole world. Due to these events large fluctuations has been occurred in the inflow of remittances. The given figure1.3 shows that the inflow of remittances to Pakistan was highest between 1970s and 1980s.As large migration from Pakistan toward oil exporting countries started in early 1970s.In 1973 inflow of remittances surged suddenly due to the oil shock. The gross domestic product of the Gulf countries grew at very high rate during this period. The demand for labor increased due to start of new projects in these countries. The inflow of remittances raised manifold as Pakistan exported massive labour force to Gulf countries (Khalid et al. 2011).

Figure 1.3: Remittances Receipt (% of GDP)
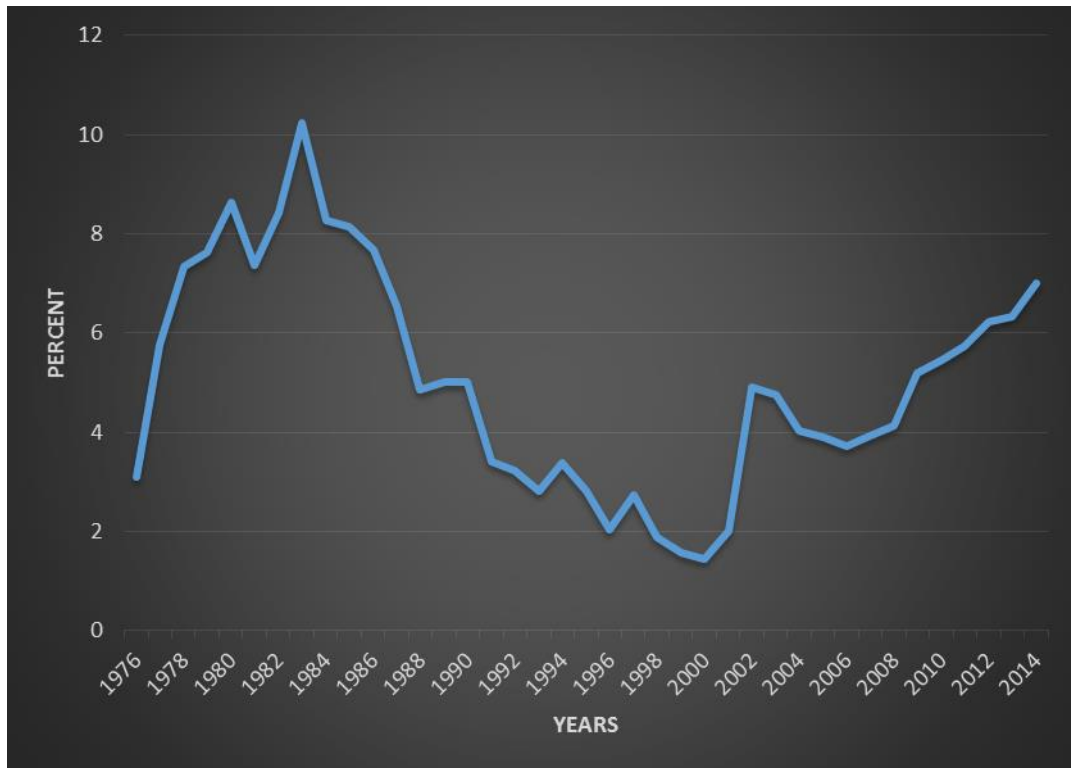
Data Source: World Development Indicator

The decline in the remittances in the 1990s is attributed to the Gulf War and economic sanctions on Pakistan because of the atomic explosions in 1998 (Ashraf and Asghar, 2004). In early 2000s, after the incidence of September 11, the inflows of foreign capital in terms of workers remittances improved in Pakistan (Makhlouf and Mughal, 2013).

The literacy rate in Pakistan is lowest (58%) as compare to other developing countries. One of the big reasons behind lower literacy rate is income constraints. In developing countries like Pakistan remittances tends to relax families income constraints (Arif, 2011). Remittances raises the probability of children enrolled in school (Jamil, 2013). For younger children external migration have positive impact on school enrollment and for

older children it increases accumulated level of schooling by sending remittances (Arif, 2011).Moreover, Remittances help in reducing the poverty of households, increases the purchasing power of consumer, and helps to get better health facilities (Qayyum et al. 2008). Hence, remittances have an important role in human capital development.

1.2. Significance of the Study

Various studies in developing countries suggest that remittances improve enrollments at lower levels but has negative or no effect on enrollments at higher levels (Acosta 2006; Arif, 2011; Hamid and Bilquees, 1981; Kalaj, 2010). In contrast, some studies highlight that remittances cause slight increase or no effect on enrollments at lower levels but have larger impact on enrollments at higher levels (Yang 2005; Amarea and Waibel,2014; Nugyen and Mont, 2011).So, the impact of remittances on human capital is inconclusive. Early studies on this issue are mostly based on micro level data, with the exception of Hassan et al., (2013) who have used macro data to examine the relationship between remittances and human capital in Pakistan. This study analyzed the consequences of remittances on human capital in case of Pakistan. This study has found that worker's remittances negatively affect human capital formation. In this study only secondary school enrollment was used as a proxy of human capital. However health is also an important indicator of human capital. According to our knowledge there is no empirical study in Pakistan in which primary, middle, secondary and post-secondary school enrollments as well as life expectancy are used as indicators of human capital. This study considers different level of school enrollments to examine which level of schooling affected most by foreign remittances. These levels of schooling have different impact on economic growth of a country. As primary, middle and secondary schooling seems to have a more important effect on economic growth in developing countries

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while post-secondary schooling seems to have a more important effect on economic growth in developed countries Akguc, (2010).This study fills this gap in knowledge by including in the analysis different levels of school enrollments as well as life expectancy to find out the relationship between foreign remittances and human capital in Pakistan.

1.3. Objectives of the Study

The overall objective of this study is to analyze the impact of foreign remittances on human capital. More specifically, it aims:

- ❖ To investigate the effect of foreign remittances on primary school enrollments in Pakistan.
- ❖ To analyze the effect of foreign remittances on middle school enrollments in Pakistan
- ❖ To estimate the effect of foreign remittances on secondary school enrollments in Pakistan
- ❖ To examine the effect of foreign remittances on post-secondary school enrollments in Pakistan
- ❖ To investigate the effect of foreign remittances on life expectancy in Pakistan.

1.4. Hypotheses

Hypotheses of the study are as follows**:**

- ❖ Foreign remittances positively affect primary school enrollments in Pakistan.
- ❖ Foreign remittances positively affect middle school enrollments in Pakistan.
- ❖ Foreign remittances positively affect secondary school enrollments in Pakistan.
- ❖ Foreign remittances positively affect post-school enrollments in Pakistan.

❖ Foreign remittances positively affect life expectancy in Pakistan.

1.5. Contribution of the Study

This work is valuable addition to existing literature. The contribution which this study makes to the existing literature are:

❖ It utilizes ARDL estimation technique to estimate impact of foreign remittances on human capital.

❖ It includes primary, middle, secondary and post-secondary school enrolments as indicator of human capital.

❖ It includes life expectancy as another indicator of human capital.

❖ It uses most update data from 1973-2014.

1.6. Organization of Study

Remaining part of the study is organized as follows. Chapter 2 is based on the review of literature. Chapter 3 represents the state of human capital in Pakistan. Chapter 4 presents the model specification and the methodology opted for estimations in this study. Chapter 5 represents the results of the study which are obtained from estimation, results are given and these results are also discussed thoroughly. Lastly chapter 6 consist of findings and conclusions of whole study and some policy recommendations. At the end of this chapter future research prospects are given.

Chapter 2

Literature review

Many studies have been done in respect to find the effect of remittances and migration on macro and micro variables as, poverty, inequality, welfare, consumption, investment, saving etc. Remittances help at macro level in order to reduce poverty, reducing unemployment, increasing growth, investment, improving living standard of households and welfare of people of receiving country. At micro level remittances improve health, education, mortality, durable goods, holding of households, and awareness among households (which receive remittances). In order to find the effects of remittances at macro level several studies[1] have carried out. In this chapter we will focus specifically on studies related to education and health for our literature. Section 2.1 of this chapter deals with motivation to remit while section 2.2 deals with uses of remittances.

2.1. Motivation to Remit

The research on remittances can be separated into two categories: motivation to remit and uses of remittances. The first category, motivation to remit has been thoroughly studied over the last two decades (Acosta, 2006). Lucas (1985) gave the three theories of remittances, which are pure altruism, pure self-interest, and tempered altruism or enlightened self Interest. He explained why the different people remit to their home. He found that sons remit more than the any other family member of a household because the son inherits more. He also

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[1] Amjad and Ahmed, 1986, Amjad, 1989, Nishat and Bilgrami, 1993, Arif and Irfan, 1997, Lucas, 2007, Qayyum et al., 2008, Irfan 2011, Amjad et al, 2012, Bakkar, 2015 and many more economists

found during the crisis the remittances received to household increases. The three main reasons for remit are to aspire to the inheritance, for rural investment and keep his dignity at home. Pure altruism is one of the most important reason for remit.

Nishat and Bilgrami (1993) used data from Overseas Pakistani Foundation (OPF) and found pure altruism and pure self-interest are the two theories which determine the motivation to remit in Pakistan. Pure altruism motive is supporting family whereas self-interest relates to scarify of migrant's education, income, level of skills and living without family. Accumulation of property is another self-interest motive to remit. Their study also showed that the skilled worker remit 5.5% less than unskilled worker and worker living in urban areas remit more than the worker in rural areas. Another study by Pozo and Amuedo-Dorantes (2004) concentrated on the insurance incentive of remittances. By remitting back, as emigrant is being risk-avoider in the profile of economic uncertainty, and those remittances help to transform the risks facing by the families and the migrant.

2.2. Uses of Remittances

The second category is uses of remittances. A large number of papers have been concentrated on the usage of remittances at micro level. Different studies have investigated the positive relationship between migrant's remittances and human capital. These studies give an initial point for examining the potential growth impacts of foreign remittances through development in human capital. By employing a reduced-form approach, Hanson and Woodruff (2003) estimated the impact of remittances on educational attainment in terms of accumulated schooling in Mexico. By considering cross-sectional data the authors treat families' emigration behavior as endogenous and utilize the link among historical state

emigration patterns and family's characteristics as an instrumental variable. They found a positive association among children's schooling and having a household member abroad in families where mother and father are less educated.

Similar conclusions are drawn by Cox-Edwards and Ureta (2003) in El Salvador about the effect of remittances. They utilized cross sectional data which was collected in the year 1997.By considering survival functions they reveal that remittances contribute to increase the schooling. However, this study did not address issues of potential sample selectivity and endogeneity of foreign remittances.

Another study by Lu and Treiman (2007) examined the impact of remittances on schooling of children in South Africa. By considering cross sectional data for the period 1993-1994 and panel data for the period 2002 and 2003 found that remittances have positive impact on children's schooling. The study reveal that remittances overcome the negative impact of parental absence on the educational performance of children because of migration. These findings are further supported by Dorantes et al. (2010).This study examined the effect of remittances on children's schooling in different communities of Haiti. They found that in some communities' remittances increases the schooling of children regardless of household member abroad or not. However, in some communities this impact is only among children of the families which do not have family member abroad. Hence the remittances contribute in human capital development in Haiti.

Mara et al. (2012) reported the impact of remittances or migration on schooling and health care attainments in developing countries. They found that in short term remittances increases the consumption, alleviate poverty and income inequality. While long run impact of remittances is more appropriate on human capital accumulation especially educational

performance and improvement in health level. According to Irfan (2011) remittances increases the income of recipients and enhance the human capital investment. McKenzie (2005) measured the effects of migration on Mexican household. Migration helps in improving the health of children, reduce the infant mortality, help the relatives in migration and have positive impact on education. Migration change the inequality among nations which receive remittances. The study found that remittances increase the education among migrant household because they can easily pay fee for education. He also found that those household which receive remittances had lower the child labour because they had more income resources.

The study by Abbasi and Hashmi (2000) was investigated the effect of foreign remittances to their household members in Pakistan. By considering primary data the study found that remittances are an important source of income of migrant households in Pakistan and it is significantly affect educational fulfillment of children. Amakom and Iheoma (2014) investigated the impact of foreign remittances on education and health in eighteen countries of Sub-Saharan Africa and found that the impact of foreign remittances on education and health is positive and significant in selected countries. Mansuri (2006) reported the effect of migration on children education investment in rural Pakistan. The study was conducted by utilizing the data for 2001 to 2002. This study found positive impact of migration on development of human capital.

Alcaraz et al. (2012) checked in their study the effect of remittances and migration on child labor and schooling in Mexico. The data for the year 2008 and 2009 was utilized in the study. The result suggests that there is significant and negative impact of remittance on child labor and positive impact on adolescent's education. Other similar study performed in

Nepal by Thieme and Wyss (2005) also verify the demagogue school of thought that declares that growing emigration opportunities for the greatly skilled, the anticipated return to invest in schooling would increase. A study by Adams and Cuecuecha (2010) measured the effect of remittances on household of the Guatemala. They divided the households in three groups, i.e. receiving no remittances, receiving internal remittances and receiving external remittances and found that the household with receiving the internal and external remittances were more likely to invest in human capital. They concluded that household with remittances spend less on food and invest significantly more on education.

The study by Amuedo-Dorantes and Pozo (2010) concluded the impact of migrant absence and remittances on left behind children. Initially they separate their data into non-migrant and migrant families. The one part of analysis deals families with non-migrant which enables the authors to separate the effect of remittances from the impact of migrant absence. The examination is then restate to include children living in migrant families and the outcomes compared. They found that there is a positive relationship between remittances and schooling. Another result suggest that children may employ in market jobs to support emigration expenditures. So they have little time for school. They may have responsibility for family chores in the unavailability of an adult household member. Furthermore, if children admit they too will emigrate in future they may leave school.

A recent study by Jamil (2014) explored the impact of father absence and remittances on the children left behind in Pakistan. This study utilized panel data for the year 2007 and 2011. This study considered both the countervailing mechanisms effecting the schooling status and child labor of the back home children. This study explicitly concerned with the problem of father absence and endogeneity of remittances by considering instrumental

variable approach. This study found that remittances from abroad does help to increase the wellbeing of children by enhancing the probability to enroll in school and reduce child labor. On the other side father absence due to emigration has increased the workload and adverse emotional effect on children. However, Alcaraz et al. (2012) investigated the impact of adverse shock of remittance in 2008-2009 from US on remittance receiving country i.e. Mexico. In this study differences-in-differences approach was utilized and found that adverse shock have positive impact on child labor and negative impact on child school attendance.

However, a contrary set of studies has emerged, showing a somewhat negative effect of remittances on child schooling. Mckenzie and Rapoport (2006) indicated a negative effect of migration on attendance and school attainment especially for boy's ages 12 to 18 and for girl's ages between 16 to 18 years in rural Mexico. By utilizing probit model they indicated that family migration decreased the schooling attainment of majority of the Mexican children.

Another studies Grogger and Ronan (1995); Lang and Zagorsky (2001) emphasized on the negative feature of migration and asserted that the positive impact of remittances is offset by the adverse impact of the emigrant's absence particularly if one or both of the children's parents migrated. By considering survey data for 2008, Ukwatta (2010) reported that in Sri Lanka mothers migrated to foreign countries to achieve better lifestyle for their households. This study asserted that absence of parents particularly of the mother created abandonment and loneliness between the children left-behind. As a result unfavorable consequences of migration on children schooling performance.

The unavailability of an emigrant father means that there is no role model for children. This can have distressing outcomes leading to cultural, social and psychological

pressure. The study by Booth (1995) in Swazi indicated that the mothers of children whose fathers had emigrated could not supervise their children's behavior or schooling. Moreover, the workload of mothers at house raises, leaving her little time to pass with her children. Halpern-Manners (2011) analysed the effect of migration on children in Mexico. The study asserted that migration has a negative and significant effect on children's schooling. Even though migration alleviates financial constraints but it raising children's predictions about abroad markets and future movability and chances of receiving a profession even if they have less education. They may already anticipated to earn higher than their place of origin and agree not to further study on the supposition that they will migrate in future.

By considering Heckman's two-step approach Milligan and Bohara (2007) declared that in Nepal remittances can generate a moral hazard problem if households who get remittances adopt to invest the wealth in risky projects. This enforcing their children to seek job rather than to education. Farooq and Javed (2009) investigated the problems of families in rural areas of Pakistan. By considering Probit analysis they showed that majority of the children of migrants could not go to school in district Faisalabad. The reason is children have no role model and feel loneliness due to father absence. Another study by Mboya and Nesengani (1999) investigated the academic performance of non-migrant's and migrant's adolescents in South Africa. By utilizing primary data they found that the academic performance of non-migrant's adolescents are better than the migrant's adolescents.

Using Indonesian family life survey, Parilduri and Thangavelu (2011) found that the schooling performance of migrant's children do not enhance due to remittances. In spite of the fact that due to remittances there is an increase in the schooling attendance but no

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improvement is observed in the quality of schooling. This shows the negative effect of migration on human capital accumulation.

The negative impact of worker's remittances is also supported by the study Nasir et al. (2011) in Pakistan. In this study household level data was used from Khyber Pakhtunkhwa Province. The OLS results indicated that remittance have negative impact on educational performance of the children if the parents are uneducated but it become positive when parents are educated. By using ARDL approach for the period 1981-2011, Hassan et al. (2013) examined the effect of remittances on human capital in Pakistan. The study found the negative impact of worker's remittances on human capital formation.

Some studies have investigated that migrant remittances have positive impact on education at lower level but this positive effect does not applicable for education at higher level. Acosta (2006) reported microeconomic confirmation on the economic impacts of remittances on families spending decisions. The data used in this study was a survey of cross-sectional household in EI Salvador. Average estimates proposed that young boys and girls (below fifteen years of age) from remittance receiving families were high likely to be enrolled for education. The major results which were derived from this study showed that remittances can influence human capital investment of children. The results also demonstrated that when discriminated on the base of demographic groups, boys and girls ages 11 to 14 years were seen to advantage from remittances in respect of greater enrollment rates, but the positive effect does not employ to older boys ages 15 to 17 years. Remittances were also established to move as an alternative for child labor and results in more school dropout rates.

In a case study Bilquees and Hamid (1981) revealed the effect of male migration on children and women left behind in Pakistan. They presented that the children up to class three is higher in the emigrant's sample of 11.35% of females and 22.08% of males, compared to non- emigrant sample (3.48 % of females and 13.3% of males), beyond class three the position is changed as 14.28 of males are continuing to education in the first group contrasted to 17.76% in the second group. The study showed that children have little interest in schooling as they perceive they are going overseas sooner or later. The migrant families were more sensitive for the schooling of their children for both boys and girls. A greater number of migrant families have arranged tuitions for their children. A study by Kandel (2003) found that positive impact of labor migration on children's schooling and educational performance but it decreases the interest of children for getting above average years of schooling in case of Mexico.

By using Cox proportional hazard model the study by Kalaj (2010) explored education achievement with cross sectional data. The preliminary findings of the study suggest a surprising result about the effect of remittances on education attainment. The results indicated that remittances increases the threat of drop out schooling afterwards secondary education. This is most obvious for males residing in rural areas.

On the contrary of above studies, Yang (2005) revealed that in Philippines remittances cause only slight improvement in education for children having age between 10 to 16 years. There is much greater effect in schooling for boys having age between 17 to 21 years.

2.2. Conclusion

This chapter gave review of different studies which are conducted in different time periods to measure the effects of remittances on human capital formation. Most of studies are done to find out the effect on micro level data and a few have been conducted at macro level, here in this study we will use macro data for measuring the effect of remittances on human capital. The literature shows inconclusive result about the impact of foreign remittances on human capital. Due to mix results about the impact of remittances on different levels of schooling there is a need to further explore the issue. Such exploration may take care of these shortcomings by taking different levels of schooling at primary, middle, secondary, post-secondary level and life expectancy for the clear cut conclusion about the impact of foreign remittances on human capital in Pakistan.

Chapter 3

State of Human Capital in Pakistan

Human-capital theory is a modern extension of Adam Smith's explanation of wage differentials by the so-called net (dis)advantages between different employments. The costs of learning the job are a very important component of net advantage and have led economists such as Gary S. Becker and Jacob Mincer to claim that, other things being equal, personal incomes vary according to the amount of investment in human capital; that is, the education and training undertaken by individuals or groups of workers.

Human capital is important for economic development. Investment in human capital is the act of enhances productivity of labour by providing more schooling and health. The state of schooling and health in Pakistan is discussed briefly in this chapter. This chapter divided into three sections. Section 3.1 is related to schooling in Pakistan, section 3.2 is about comparison of schooling with South Asian countries and last section i.e. section 3.3 is related to health in Pakistan and comparison with South Asian countries.

3.1. Schooling in Pakistan

At the time of dependence of Pakistan literacy rate was only 10 percent and mere ten thousand primary schools. Different steps for the improvement of education was taken by various governments of Pakistan in the past. However, due to the political instability, none of these programs could achieve their targets. The Social Action Program, for example, was launched in early 1990s to enhance education, to improve school environment by providing trained teachers, teaching aids and quality text books, and to reduce gender and regional

disparities. In two Phases of SAP (1993-96 and 1996-2000) the government paid special attention to promote technical and vocational education, expanding higher education in public as well as in the private sector, enhancing computer literacy, promoting scientific education, and improving curriculum for schools and teachers training institutions. As a result parents willingly sent their boys and girls to the schools, even though cultural restrictions on the education of girls in the region (Nasir and Nazli, 2010).

Table 3.1: Budget Allocation for Schooling and Change in Schooling

	Pre-SAP 1992	Post-SAP 1997
Total Primary School Budget ($)	$5.25 Million	$10.5 Million
Female Primary School Enrollment	41% of females	72% of females

Source: World Bank (1997)

Figure 3.1 shows that due to allocation of more budget towards primary schooling, the condition of female literacy rate and primary school enrollment of female increased in 1997.The Social Action Plan was a step towards the development of human resources in Pakistan. In 1997-98 the overall literacy rate jumped to 40%; 51% for males and 28% for females (Javed et al.2008).

Another step was the Education Sector Reforms (ESR) aimed at the development of education sector as a whole, with a special focus on Education for All (EFA), served as a foundation for the 2001-2015 National Plan of Action (NPA). The main objectives of the NPA was to reach the disadvantaged population groups in rural and urban areas with emphasis on out of school girls and illiterate girls and women, to promote community participation and ownership of basic education programs at the grassroots, and to improve relevance and quality of basic education through enhancing learning achievements of the children, youth and adults (Government of Pakistan, 2002).

According to Labor Force Survey of Pakistan 2009-10 the literacy rate for age ten years and above was 57.7% for male and 45.2% for female. According to Education for All (EFA) Plan the goal was to increase the literacy rate at 80 percent. Government of Pakistan, (2012-13) reported that during 2011-12 the literacy rate was 58 percent. The literacy rate did not match with the target set by EFA Plan. The trend and facility to get higher education between the ages of 17-23 is approximately 7.8% in Pakistan which is lowest as compare to India where that rate is 15%   (Laghari, 2011).

The government is fully committed for the attainment of the Millennium Development Goals which focus towards universal primary education. The target was to be attained by 2015 for which collective exertions were made at provincial and federal level to rise the enrollment at primary education level. Different efforts has been made at provincial and federal level to increase primary school enrollment. The budget for schooling was Rs 59.28 billion by federal government during 2013-2014 while federal government's public sector development program (PSDP) was Rs 5.72 billion for the development of primary and

higher education. Additionally, the provincial governments allocated Rs 59.440 billion to increase schooling at all levels. In 2013-14 the overall literacy was 58 percent (PSLM, 2014).

Table 3.2: Education at Provincial Level in 2013-14   (Percentage)

Indicators	Punjab	Sindh	KPK	Balochistan
Primary Education (Age 5-9 Years)	0.95	0.81	0.74	0.65
Secondary Education (Age 14-15 Years)	0.95	0.84	0.62	0.45
Youth Literacy (Age 15 years and above)	0.87	0.77	0.60	0.51

Source: Pakistan Social and Living Standards Measurement (PSLM) Survey 2013-14.

Table 3.2 shows the province wise education at primary and secondary level. The literacy rate for age 15 years and above was highest in Punjab at 87 percent and the lowest in Baluchistan at 51 percent. Similarly primary and secondary education is 95 percent in Punjab while lower in other provinces

The overall literacy rate in Pakistan for (ten years and above) was decreases from 60% in 2012-13 to 58% in 2013-14. Literacy rate in urban areas is 74% while 49% in rural areas and for male (81%) compared to female (66%) in urban areas in 2013-14. The literacy rate was lower in rural areas as compare to urban areas. The female literacy rate was lower as compare to male literacy (Table 3.3).MDG 3 was emphasized on the key challenges confronted by women in major area like education. Women education not only leads to access to good wages and labor opportunities but also directly influence their children in

getting higher schooling and also decreases mortality rates in such a way that literate women have superior understanding associating to health related problems (PSLM, 2014).

Table 3.3: Literacy Rate (10 Years and Above)-Pakistan and Provinces
(Percent)

Province/Area	2012-13			2013-14		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Pakistan	**71**	**48**	**60**	**70**	**47**	**58**
Rural	64	37	51	63	36	49
Urban	82	69	76	81	66	74
Punjab	**71**	**54**	**62**	**71**	**52**	**61**
Rural	66	45	55	65	43	53
Urban	82	72	77	82	71	76
Sindh	**72**	**47**	**60**	**67**	**43**	**56**
Rural	59	22	42	53	21	37
Urban	84	70	77	80	63	72
KPK	**72**	**35**	**52**	**72**	**36**	**53**
Rural	69	31	49	70	32	49
Urban	78	52	66	81	55	68
Balochistan	**62**	**23**	**44**	**59**	**25**	**43**
Rural	55	15	37	54	17	36
Urban	81	47	65	74	45	59

Source: Pakistan Social and Living Standards Measurement Survey, 2013-14

The situation in urban area is to some extent satisfactory than the situation of rural areas and also there is a difference in income and expenditure between the individual living in urban area and the individual living in rural area according to the statistics on human capital index. The reason of that difference is of lack of awareness about the importance of education and health in rural areas. The mean human capital is o.46 for rural area and for urban area the mean human capital is 0.64 according to the statistics on human capital index (Khan and Rehman, 2012). In order to get higher education or to get better job opportunities Pakistanis go abroad and most of them do not return back, so there is a huge human capital loss for the country (Nasir and Nazil, 2000).

In Pakistan public spending on schooling as percentage of GDP is lowest as compared to other South Asian countries. The total spending on schooling was about 2 percent of GDP for the last decade. As reported by UNESCO's EFA global monitoring report 2015, the public sector spending on schooling (as % of GDP) was 4.9 % of Bhutan, 2.1% in Bangladesh, 4.7% in Iran, 8.0% in Maldives and 3.2% in India.

The aims of MDG3 was to achieve 100% enrolment at primary school level and overall literacy rate 88% by 2015. As primary schooling plays an important role in the entire education structure. It puts basis for middle, secondary and post-secondary education. An efficient and effective process at primary education level would be supportive to get the aim of other cycle of education at secondary level. It is now extensively accepted that human capital development (skills and education) is essential to a nation achieving prosperity, growth and raising human development. The attainments found for primary education until 2012 are stated in the figure 3.1.

Figure 3.1: Targets & Achievements-Net Primary Enrolment Ratio
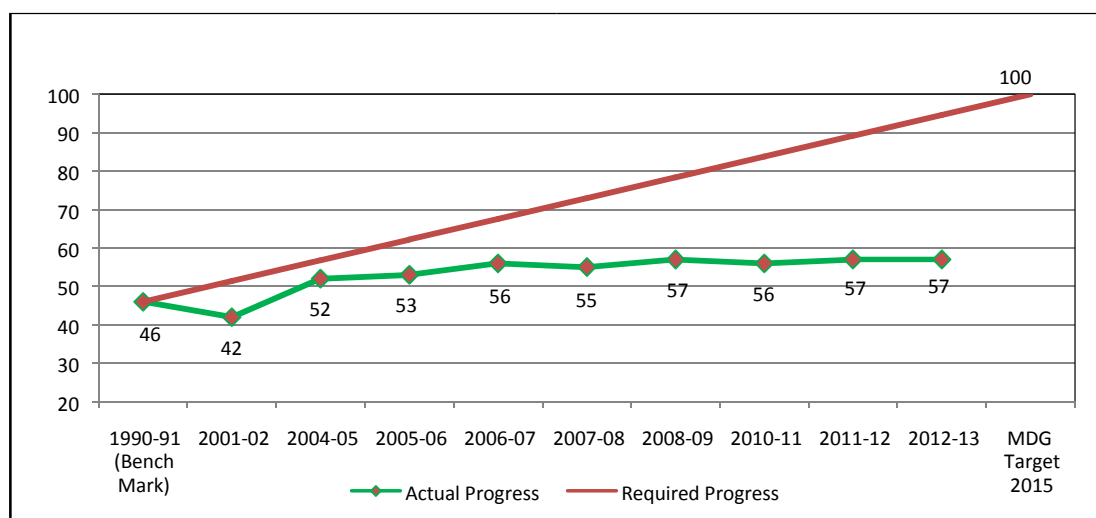
Net primary enrolment ratio (%) indicates very small rise with 46% in 1990 to 1991 to 57% in 2013 to 2014 whereas the goal was to be attained 100% in 2015.Pakista failed to achieve 100 percent net primary enrollment ratio.

Figure 3.2: Targets & Achievements-GPI Youth Literacy
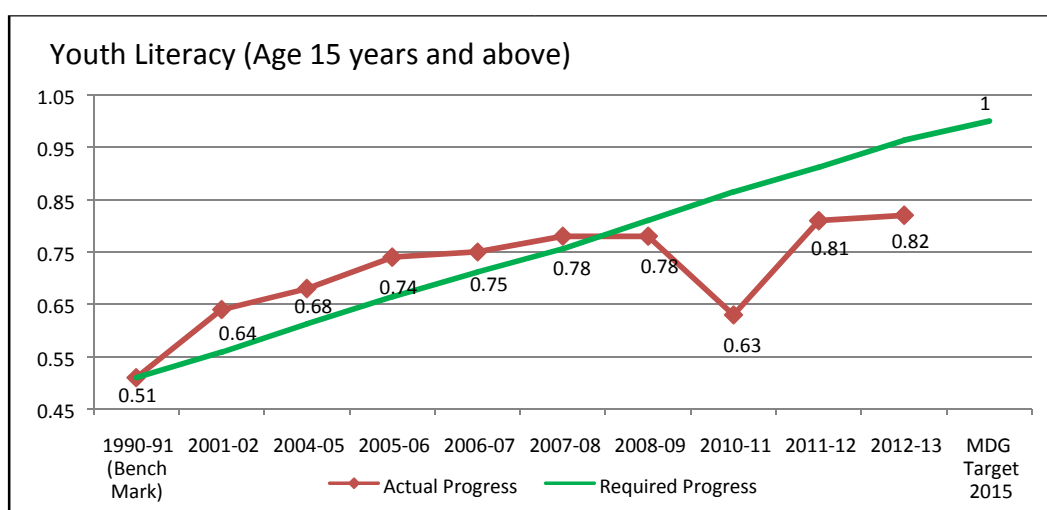
Youth Literacy (Age 15 years and above)

The figure 3.2 shows inspiring trend of rise from 51% in 1990 to 1991 to 64% in 2001 to 2002 and 68% in 2004 to 2005.Afterwards it slightly raised to 78% in 2007 to 2008.The trend presents some stagnancy at 78% both in 2007-08 and 2008-09.Afterwards it decreased to 63% in 2010-11 after that it again increased to 81% in 2011-12. During 2012 to 2013 literacy rate documented at 82%.

The current literacy rate in Pakistan (58%) in 2015 much below the target set under the Millennium Development Goals (MDGs).The agenda after 2015 is to replace the MDGs

with a new notion such as Sustainable Development Goals (SDGs). SDG four related to aim at completing the goal of universal education at primary level by focusing on out of school children and quality of education. SDGs related to education also focusing to improve access to education at lower secondary level in order to reach the task of completing primary education.

3.2. Comparison of Schooling with South Asian Countries

Many countries in South Asia have a diverse schooling system. In the region three biggest economies: Bangladesh, India and Pakistan faced the problem of school exclusion. Countries like Bangladesh and Pakistan have failed to get girls education. While all nations have progressed in enrolments rate at secondary education level, particularly Pakistan faces difficulties in improving secondary enrolments since 1980. Although Participation in schooling at primary level has improved since 1980 for all countries. Nepal has made improvement in decreasing repetition rates from 26% to 12% in 1999-2009 for primary education. In contrast Bangladesh and Pakistan have faced slightly increasing repetition rates from 11-13 percent and 3-4 percent respectively for the same period. School dropout is a big problem in Pakistan, India and Bangladesh. As reported by latest United Nations Children's Fund (UNICEF), the only country is Sri Lanka, which has near to global participation in schooling at primary and lower-secondary level. Pakistan has the biggest rate of exclusion at primary school age. By considering adult and youth literacy Sri Lanka considered was a big achiever in 1980 and achieved youth literacy rate (98%) by 2010.Nepal, Bangladesh and India have largely improved adult and youth literacy rates over the year. In Pakistan literacy has been increasing slowly (MHHDC, 2015).

3.3. Health in Pakistan and Comparison with South Asian Countries

Health is another important part of human capital. South Asian countries have raised life expectancy at birth. Pakistan and India have similar improvements but little uniformity in performance in life expectancy across respective provinces. There are broad disparities in political and socioeconomic conditions particularly in Pakistan and India. Over the last few decades, Sri Lanka has highest life expectancy rate (MHHDC, 2015).

Figure 3.3 Life Expectancy and Infant Mortality Rate for the Year 2013

Data Source: World Bank

According to the report of the world development 2007 there was a rise in the world wise average life expectancy at birth i.e. from 51 years to 65 years in less than 40 years. In

the same way in the developing countries average life expectancy rises from 40 years in 1950 to 63 years in 1990 (World Bank, 1993). The life expectancy in Pakistan as compare to other South Asian countries is lower. The infant mortality rate is highest in Pakistan as compare to other South Asian countries Figure 3.3.

Health expenditure is the most important variable influencing health status. In Pakistan health expenditures during the period 1970-2007 were between 0.5-0.8 percent of GNP which was considered to be very low in comparison with other developing countries. Moreover the condition of available healthcare facilities is also not good. In the urban areas, more preference was given to hospitals, medical colleges, curative services over primary healthcare and the rural health services (Akram et al. 2008).

During 2013-2014 the doctors in the country increased to 167,759 likewise 167,759 dentists, 86,183 nurses and 111,953 hospital beds,7 health centers and 32 basic health centers have been established, while 37 basic health centers and 10 rural health units have been improved. There are 5,310 dispensaries, 1,096 hospitals, maternity and children health centers are 687 and   5,527 basic health centers in Pakistan. Different health program were started including food, malaria, Aids, nutrition and TB program (Pakistan economic survey, 2013-2014).

Both education and health improved overtime but the speed of improvement is slow and there is a need of improvement. Remittances can play an important role in developing countries like Pakistan to increase education and health status of the people. In developing countries remittances from migrants have an important source of families' income. Due to remittances households made investment in agriculture and non-agricultural sectors that are

necessary to alleviating the poverty trap and increasing education attainments and improving

health status Amakom and Iheoma, (2014).

Chapter 4

Methodological Framework

This chapter deals with methodological framework for our study that how remittances affect human capital. Section 4.1 of the chapter deals with theoretical background. Section 4.2 deals with links between migration, remittances and human capital. Section 4.3 deals with model specification for health. Section 4.4 deals with model specification for education. Remaining part of the chapter deals with data, definition of variables, estimation technique, test of stationarity, bound testing and diagnostic tests.

4.1. Theoretical Background

This section has reviewed the migration approaches of four school of thoughts: developmentalist, neoclassical economist, structuralist, new economics of labour migration and livelihood approach. Developmentalists had optimistic view of migration. They were of the view that migration helps to transfer investment capital and make trade communities liberal, and rational. Migration also modernizes knowledge and education. According to them, remittances as outcome of migration boost investments in home countries, thus helping the developing countries in take-of stage. They defined migrants as the agents of change, innovators and investors.

Then comes the era of neoclassical economists, who also had optimistic view of migration, but they were different from developmentalists in a way that neoclassical migration theory had no place for remittances. They stated that migration takes place due to wage differentials (Todaro, 1969). Factor price equalization will cease the migration because

the wage differences will be removed (Samulson, 1948). These views were accepted till 2002 in World Bank.

Migration pessimist or structuralist theory had pessimistic views for migration. They challenged the optimistic views. They said that migration basically withdraws human capital from a country, causes brain drain, and creates inflationary pressure. Inflation emerges because remittances creates raises consumption especially real state consumption. They explained the interdependency of countries resulting from migration (De Haas, 2007).

Then new economics of labour migration (NELM) brought new changes in theory of migration. Migration is not considered as an individual decision but involve family decision. Stark (1991) considered the household as more appropriate decision making unit. New economics of labour migration have two main innovative aspects. First, migration is joint decision making within the household. Second, making rational choices not only for wages and income maximization but also for income diversification and risk aversion. NELM stats that migrant spends remittances on securing his family. This approach has hypothesis that the remittances play a role of income insurance, risk spreading and protect people from income shock (De Haas, 2007).

Livelihood approach is most recent picture of migration model. This approach takes both positive and negative aspects of migration. This approach shows that how migration reduce poverty and reduce the livelihood risk. Migration helps the household in reducing vulnerable poverty and helps in assets accumulation that helps the household to come from or exit poverty. Livelihood approach tells how the household manage their resources for risk (De Haas, 2007).

To deal with risks household attain/accumulate assets like education of children, saving, land, livestock etc. It depends on assets how much assets a household attain with time, if household have more assets then they have more capacity to manage the risks and cope with shocks, more the asset less the vulnerability. Households try to maintain or rise the assets through remittances (Carter, 1997).In this study we are following NELM approach as migration of household member is collective decision of family. This study particularly focus an aspect of remittances through which families accumulate assets like education and health to manage the risks.

4.2. Links between Migration, Remittances and Human Capital

For the developing countries the importance of remittances as an income source is undeniable. Now it is an accepted fact that investment in physical capital and the level of consumption are largely influenced by remittances. However, at household level the effect of remittances on socioeconomic conditions is ambiguous. Particularly, the discussion over the effect of remittances and migration on children's education remains controversial (Booth, 1995; Kandel, 2003; Hanson and Woodruff, 2003).

Supposing that parents can borrow to relax their budget constraints, parents' decision to invest in their children's schooling made by comparing costs and benefits of education. However, in the borrowing constraints parents' decision to invest on children's schooling will depend on their resources. From the model by Becker and Tomes, (1976) this is evident that poor parents may invest smaller than the optimum in schooling of their children. However, the desire of parents to invest and their income are positively correlated up to the position where market rate of return and marginal return to investment both are equal.

Moreover, parents may also allocate their resources across children when a family contains more than one child. In developing countries the families with both female and male children, more importance has been given to male education as male child considered the earner for the family.

The effect of remittances and migration may both be negative and positive. When parents migrate and send remittances it relaxes the family's budget constraints. Due to income from remittances families able to invest more in the education of the children. Income from remittances may either be utilized for children's higher education who are already studying or invested for those who never go to school especially female children because of budget constraints, or remittances income can be utilized for both purposes. Child labor also decreases due to income from remittances. Various studies supported the positive impact of remittances on education (Bryant 2005; Taylor, 1987; Morooka, 2004; Lu, 2005; Jones 1995; Curran, et al., 2004).

Contrary, migration of the parents may have adverse impact on children's schooling. These impacts may capture various channels. Firstly, due to migration of parents the social responsibilities of the children increases that were initially done by the parents. By putting emotional stress on children, by increasing social responsibilities of children and also by less supervision migration can distort the family. This may have a negative impact on the educational performance of the children as due to this a lot of time is wasted. Secondly, the family life of out-migrants may be distorted and has a negative effect on educational performance of children in school (Haveman and Wolfe, 1995; Mboya and Nesengani, 1999). In developing countries like Pakistan, in the nuclear families father's absence may lead to the children's adaption of unhealthy company as there is no hold of mother on the

children activities outside home. Activities from outside home ultimately lead to quit schooling (Nasir, 2011).

The above both theoretical mechanisms consider the parental absence due to the out migration is responsible for the adverse impacts on children's education. They do not blame remittances for the negative effects. The channel through which remittances have adverse impact on schooling is a decrease in the motivation of getting education due to an increase in the income of the migrant family. For getting more income education is considered to be an important path and due to remittances the income of family increases and this decreases the worth of this way i.e. education for getting more income. This impact of remittances is stronger in case when instead of being working as a labor, the migrant has a business in foreign country. When the children grow up, they obtain an adverse motivation of migration abroad and sharing business of their parents, and so they do not contemplate schooling as a source of earnings for the future. This shows the adverse impact of remittances on school enrollment (Nasir.2011).

Theoretical channels propose that findings related to the effect of remittances on schooling is an empirical question. The literature shows conflicting empirical findings and suggest that these results may be country or region specific. During checking impact of remittances on schooling some studies considered only lower level of education like primary and secondary and some used only secondary level education. The current study will fill the research gap or contribute to literature by analyzing the impact of remittances on different levels of education at macro level.

4.3. Model Specification for Health

The nation's health status can be obtained by considering health production function. The production function of health consist of some outputs and inputs. Theoretical production function for health developed by Grossman (1972) can be stated as:

$$H=F(X)………………………………. (a)$$

Where H is the measure of health output for individual, X is the vector for individual inputs to the production function of health F. The components of vector consist of education, health cares, environment, health and medical expenditure, life style and genetic factors. This model was further modified by Fayissa and Gutema, (2008) for the production function for health in Sub Saharan Africa. According to them, above model was made for health production analysis at micro level. The aim of them like our aim, was at macro level analysis of production system. They switched analysis from micro to macro level, keeping the theoretical ground the components of the above vector X were depicted by variables in per capita form and reorganized into sub-sectoral vectors of social, environmental, and economic as:

$$h=F(Y, S, V)…………………………… (b)$$

Where Y denoted the vector of economic variables in per capita form whereas S denoted the vector of social variables in per capita form and V denoted the vector of environmental factors in per capita form. Above equation (b) was rewritten by them in its scalar form as:

$$h=f (y_1, y_2… y_n, s_1, s_2…s_m, v_1, v_2… v_1) ………………………(c)$$

Where h denotes one's health status. The health status of individual proxied by life expectancy at birth. Y= (y$_1$, y$_2$,... y$_n$);S=(s$_1$,...s$_m$);V=(v$_1$, v$_2$,... v$_1$),and the numbers of variables in every sub group are n,m and 1 respectively.

By using calculus the above equation (c) was written by them in explicit form as:

$$h= \Omega \ \Pi_{yi}{}^{\alpha I} \Pi_{sj}{}^{\beta j}\Pi_{yi}{}^{\gamma k} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \text{(d)}$$

Where α i, β j and γk are the elasticities.

In equation (d), Ω evaluates the initial health stock (Grossman, 1972).It measures the status of health that were observed when no change in health status due to changes in environmental and socioeconomic factors utilized in production system. Likewise ($\Pi_{yi}{}^{\alpha I} \Pi_{sj}{}^{\beta j}\Pi_{yi}{}^{\gamma k}$-1) x100% estimates the percentage change in status of health because of environmental and socioeconomic factors. By taking log and rearranging above equation (d) by them yields:

$$h= \ln\Omega +\Sigma\alpha i \ (\ln yi) + \Sigma\beta j \ (\ln sj) + \Sigma\gamma k \ (\ln vk) \dots\dots\dots\dots. \text{(e)}$$

The initial stock of health Ω is given in initial period (Grossman, 2000).

4.3.1. Econometric Specification for Health

Based on above theoretical model, the econometric model of life expectancy to be estimated as follows:

$$\text{LEX}P_t = \alpha_o +\alpha_1\text{RE}M_t + \alpha_2\text{POPG}R_t + \alpha_3\text{IN}F_t +\alpha_4\text{THE}X_t +\alpha_5\text{GD}P_t + \varepsilon_{5t}\dots\dots\dots. \text{(1)}$$

Where,

t=1, 2, 3……………..42 (time period ranging from 1973-2014)

LEXP_t =   life expectancy at birth at time t

$\text{RE}M_t$ = foreign Remittances at time t

POPGR_t = population growth at time t

$\text{IN}F_t$ = Inflation at time t

$\text{THE}X_t$ = Total health expenditure at time t

$\text{GD}P_t$ = GDP Per capita at time t

ε_{5t} = error term.

4.4. Econometric Specification for Education

Following the studies by Amakom and Iheoma, (2014); Hassan et al., (2013) and based on above theoretical model specification for health we can write the models for education as:

$$\text{PS}E_t = \delta_o + \delta_1\text{RE}M_t + \delta_2\text{POPGR}_t + \delta_3\text{GEE }X_t + \delta_4\text{THE}X_t + \delta_5\text{GD}P_t + \varepsilon_{1t} \quad \dots (2)$$

$$\text{MS}E_t = \beta_o + \beta_1\text{RE}M_t + \beta_2\text{POPGR}_t + \beta_3\text{GEE}X_t + \beta_4\text{THE}X_t + \beta_5\text{GD}P_t + \varepsilon_{2t} \dots\dots (3)$$

$$\text{SS}E_t = \gamma_o + \gamma_1\text{RE}M_t + \gamma_2\text{POPGR}_t + \gamma_3\text{GEE}X_t + \gamma_4\text{THE}X_t + \gamma_5\text{ GD}P_t + \varepsilon_{3t}\dots\dots (4)$$

$$\text{PSS}E_t = \Omega_o + \Omega_1\text{RE}M_t + \Omega_2\text{POPGR}_t + \Omega_3\text{GEE}X_t + \Omega_4\text{THE}X_t + \Omega_5\text{GD}P_t + \varepsilon_{4t}\dots (5)$$

Where,

t=1, 2, 3…………….42 (time period ranging from 1973-2014)

$\text{PS}E_t$ = primary school enrollment at time t

$\text{MS}E_t$ = middle school enrollment at time t

SSE_t =   secondary school enrollment at time t

$PSSE_t$ =   post-secondary school enrollment at time t

REM_t =   foreign Remittances at time t

$POPGR_t$ =   population growth at time t

GDP_t =   GDP per capita at time t

$THEX_t$ =   Total health expenditure at time t

$GEEX_t$ =   government expenditure on education at time t

ε_{1t} , ε_{2t}, ε_{3t} and ε_{4t} are the error terms.

4.5. Data

The data for foreign remittances (Million Dollars) is taken from State Bank of Pakistan. The data for primary, middle, secondary and post-secondary enrollment as well as total health expenditure (Million Rupees) is taken from Federal Bureau of Statistics (FBS) 50 Years of Pakistan in Statistics & Economic Survey of Pakistan. The data for income per capita, government expenditure on education (% of GDP), life expectancy at birth, inflation, consumer prices (annual%) and population growth (annual %) is taken from World Development Indicator (WDI).

4.6. Definition of Variables

Definitions of the variables are given as follows:

Table 4.1: Definition of Variables

Variable	Definition
Population growth	Annual population growth rate for year t is the exponential rate of growth of midyear population from year t-1 to t, expressed as a percentage. Population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship--except for refugees not permanently settled in the country of asylum, who are generally considered part of the population of the country of origin.
Government expenditure on education	General government expenditure on education (current, capital, and transfers) is expressed as a percentage of GDP. It includes expenditure funded by transfers from international sources to government. General government usually refers to local, regional and central governments.
GDP per capita	GDP per capita is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in constant 2005 U.S. dollars.
Inflation	Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly.
Total health expenditure	Total Expenditure on Health (Million Rupees)
Life expectancy	Life expectancy at birth indicates the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life.

Foreign remittances	Worker's remittances (Million Dollars)
School enrollments at primary,middle,secondary and post-secondary level	Enrolments in Educational Institutions in (Numbers)

4.7. Estimation Technique

It is observed from theoretical and empirical literature that foreign remittances have an impact on human capital. This study will try to estimate the impact of foreign remittances on schooling and health by applying Autoregressive Distributed Lag (ARDL) cointegration technique by Pesaran et al., (2001).

4.8. Test of stationarity

Before estimation the first step is to check the stationarity of all the variables. Augmented Dickey Fuller (1984) unit root test is used to test the stationarity of variables under consideration. The ADF equation is given as:

$$\Delta Y_t = \alpha + \beta_t + \Upsilon Y_{t-1} + \delta_1 \Delta Y_{t-1} + \ldots + \delta_{p-1} \Delta Y_{t-p+1} + \varepsilon_t \qquad (6)$$

In order to check the stationarity the null hypothesis is there is unit root i.e. $\Upsilon=0$ whereas the alternative hypothesis is there is no unit root i.e. $\Upsilon < 0$.

4.9. Bound testing

ARDL technique is used to estimate the impact of foreign remittances on primary, middle, secondary and post-secondary school enrollment as well as on life expectancy. The reason of using this technique is that there is no restriction of having the same order of integration and moreover, in case when the size of the sample is small ARDL is considered to be an appropriate technique (Javid *et al.* 2012).

In this technique both short run and long run parameters are simultaneously estimated. So in this study we use ARDL approach.

 The ARDL equation can be written as:

$$\Delta Y_t = \beta_1 + \beta_2 Y_{t-1} + \beta_3 Z_{t-1} + \sum_{i=1}^{n} \beta_4 \Delta Y_{t-i} + \sum_{i=1}^{n} \beta_4 \Delta Z_{t-i} + \varepsilon_t \qquad (7)$$

In the above equation i.e. equation (7) Y is dependent variable whereas the vector of independent variables Z. The testing method i.e. bound test developed by Pesaran et al (2001) is used to check the existence of long run relationship between the concerned variables. F test is used as a base for this purpose. Hypothesis is given below:

H0: $\beta2 = \beta3 = 0$ (There is no long run relationship)

H1: $\beta2 \neq \beta3 \neq 0$ (There is long run relationship)

The comparison of calculated F stat and critical values have been made. If the critical values of upper bound is lower than calculated F stat or in other words if calculated F stat is greater than critical values of upper bound then it shows the rejection of null hypothesis ($\beta2 = \beta3 = 0$) i.e. there is no long run relationship and conclude that there is long run relationship.

In other case, if F stat is lower than the critical values of upper bound then we accept the null hypothesis and conclude that there is no long run relationship.

4.10. Diagnostic tests

After checking the existence of long run relationship some diagnostic tests like LM Serial Autocorrelation, Normality test, Heteroscedasticity etc. are applied on the model.

Chapter 5

Model Estimation and Results

Education and health are the important components of human capital (Appleton and Teal, 1998). After selecting the suitable specification of the model and explaining the methodology in detail in previous chapter, we now estimate the impact of foreign remittances on human capital. Section 5.1 of the chapter deals with remittances and school enrollments at primary and middle level. Section 5.2 deals with remittances and school enrollments at secondary and post-secondary level while section 5.3 deals with remittances and life expectancy.

Before estimation of models the first step is to check time series property of the data has been examined to determine the order of integration of variables by using Augmented Dickey Fuller (ADF) unit root test. The results are reported in table 5.1.

Table 5.1: Testing non-stationarity of Variables

Variables	Constant/ Trend	Level	First Difference
PSE	C,T	-0.845	-5.285*
MSE	C,T	-1.072	-5.487*
SSE	C,T	-1.952	-4.446*
PSSE	C	-1.316	-8.938*
LEXP	C,T	-3.110	-10.209*
REM	C,T	-2.244	-3.544*
POPGR	C	-1.990*	
GDP	C,T	-3.455	-4.273*
THEX	C,T	-3.055*	
GEE	C,T	-2.645	-5.930*
INF	C,T	-2.280	-6.130*

Note;* indicate significant at 5% level. C, T denotes constant and trend

Above results shows that PSE, MSE, SSE, PSSE, REM, GDP, LEXP, GEE and INF are non-stationary at level but by taking first difference they become stationary. The above nine series are integrated of order one i.e. I (1) and the series THEX and POPGR are I (0) which means they are stationary at level. The order of integration of the variables under investigation is not same. So, the results confirm using ARDL technique to examine the long run and short-run association among the variables under consideration.

All equations 1,2,3,4 and 5 in Chapter 4 are estimated by utilizing lag length as 2 that is chosen on the basis of smallest values of SBC (Schwarz Information Criterion) and AIC (Akaike Information Criterion).To check the cointegration relationship among the variables, we check the hypothesis which states that there is no long run relationship between the variables. We employed F-Statistics for all equations which is greater than the value of upper bound i.e. 4.32 stated by Pesaran et al. The results confirm that the hypothesis of no cointegration is rejected because the F-Statistics are significant. So the long run relationship exists among the variables in each model. We employed general to specific procedure and eliminate the insignificant variables.

5.1. Remittances and School Enrollments at Primary and Middle Level

As the study has analyzed the enrolments at four educational levels: primary, middle, secondary (matriculation) and post-secondary (Arts and Science Colleges) for the whole country, the results for enrollments at primary and middle level are reported in Table 5.2.

Table 5.2: Estimates of Remittances and School Enrollments at Primary and Middle Level

A:Estimated Long Run Coefficients						
Dependent Variable: D(LPSE)				**Dependent Variable: D(LMSE)**		
Variables	Coefficients	t-stat	p-values	Coefficients	t-stat	p-values
C	6.549**	3.120	0.006	-2.379*	-2.054	0.051
LREM	0.101*	1.956	0.065	0.040*	1.731	0.096
POPGR	-0.816**	-5.174	0.001	-0.330**	-5.613	0.000
LGEEX	0.0753	0.8846	0.3874	0.123*	1.953	0.063
LTHEX	9.122**	4.2797	0.0004	6.379**	4.717	0.000
LGDP	1.417**	3.724	0.001	1.551**	4.259	0.000
B:Estimated Short run Coefficients						
Dependent Variable: D(LPSE)				**Dependent Variable: D(LMSE)**		
Variables	Coefficients	t-stat	p-values	Coefficients	t-stat	p-values
D(LREM(-1))	-0.143**	-2.339	0.030	-0.076*	-1.844	0.078
D(LREM(-2))						
D(LGDP(-1))				1.836**	3.9611	0.001
D(LGDP(-2))	1.3860**	2.9251	0.0087	1.041**	2.1871	0.039
D(POPGR(-1))	-2.0282**	-5.218	0.000			
D(POPGR(-2))				-0.5364**	-3.385	0.003
CointEq(-1)	-2.324	-3.23*	0.012	-1.231**	-2.342	0.043
C: Diagnostic Test						
Serial Correlation LM Test	0.043 [0.912]			1.749 [0.183]		
Heteroscedasticity	14.892 [0.459]			9.353 [0.589]		
Normality	1.253 [0.535]			2.283 [0.319]		
D: Bound Test						
			p-value			p-value
F-statistics (5,24)	5.401		(0.018)	F-statistics (5,24)	4.774	0.007

Note: *denotes significance at 10% level and ** denotes significance at 5% level.

In long run results reveal that worker remittances positively and significantly affect both primary and middle school enrolments. The possible explanation for this positive link is that remittances enable the households to send their children to school. The more foreign remittances they get, the larger the desire to substitute schooling either for farm work or for other income-earning occupations that their children are engaged for. Furthermore, remittances income enables the children to pay for their uniforms, transport, books and sometimes even teacher salaries. These results are consistent with the studies like Arif, (2004, 2011) for Pakistan and another study by Amakom and Iheoma, (2014) for Sub-Saharan Africa. This finding is enforced by the standard economic theory which suggest that by lifting liquidity constraints, remittances increase human capital investment of family members in developing countries.

In short run the impact of remittances on primary and middle school enrollment is negative and significant. One possible reason for this result is that households used remittances to increase consumption and not invest in education in short run. This result is supported by study Mara et al. (2012) who stated that in short run remittances usually related to raises consumption and poverty reduction while in long run remittances related to productive investment like increase in education. Another reason behind this might be because of the transaction cost connected with migration. For better explanation of these results we conduct a survey of 10 families from Tramri Chowk, Islamabad. The following questions asked from the family members by the author:

❖ How did migrant pay for the costs of migration?

❖ Did children attend school or college after one or two years of father migration?

❖ Is father absence responsible for children schooling drop-out?

According to the survey most of the migrant fulfil their migration costs through borrowing. Income from remittances firstly used to return migration cost. In that period families were not able to enroll their children in schooling. After returning migration cost families preferred to enroll their children in schooling especially for female.

Besides remittances other explanatory variables are also important determinants of school enrollment at primary and middle school enrollment. All explanatory variables other than remittances have same sign in short run and in long run. Result reveals that GDP per capita positively and significantly affect primary and middle school enrolment. This result enforced the theory that suggest that income of the households is most important factor to determine their children's education. This positive association is justified by the argument that as income of the family rises the schooling costs like fee, books and uniform affordable for households. As credit constraints facing by households affect the resources needed to finance education by Carneiro and Heckman, (2002) in America. A study conducted by Baluch and Shahid, (2008) in Pakistan, stated that the resourceful families are in a good position to afford education for their children. For developing countries Verhoeven et al. (1999) had revealed that as family's income increases, the relative price of enrolling children into school is decreases, indicating that rising income would be linked with rising enrolments. For Pakistan Arif et al., (1999) revealed that increasing families' income will cause increase in school enrollment at primary level. This finding in line with the study by Mayer, (2010) which stated that parental income is positively associated with middle schooling.

Population growth rate is negatively and significantly associated with education enrolment at primary and middle level. The reason for this relationship is that as increase in

the population increases the number of children in every household leads to rise in household expenditure. So it is difficult for households to have surplus money for children's education thus the low enrolment in schooling. The result for primary and middle school enrolment is consistent with the study Ahiakpor et al., (2014) in Ghana who stated that population growth rate is significantly and negatively associated with primary and middle school enrolment.

Total health expenditure are positively and significantly associated with middle school enrolments. Total health expenditure are positively associated with primary school enrollment. The reason is healthy population of the economy considered as assets for any country. More health facilities are available in small towns and villages as a results of higher expenditure on health. Good health enables the people to attend schooling in better way. These results are consistent with the study by Bashir et al., (2011) for Pakistan.

With regards with government expenditure on education, results show that it is positively and significantly affecting enrolments at primary and middle school level. School enrolments depends on the cost of education. The reason is large number of people enter in schooling due to public spending in condition of credit constraint. Moreover, more public spending on textbooks, teacher and buildings gives more facilities and opportunities for learning Iyer, (2009). Public expenditure on education directly increased primary educational attainment Baldacci et al. (2008).In Europe, Winter-Ebmer and Wirz, (2002) also found a positive impact of government education expenditure on primary and middle education levels. Similar results also given by Anyanwu and Erhijakpor, (2007) in Africa who show that government expenditure on education positively affect enrolment at primary and middle level.

The selection of variables include in models are based on the earlier studies such as primary and middle school enrollment was used as a proxy for education by Amakom and Iheoma, (2014) while studying the impact of foreign remittances on education and health. The explanatory variables such as GDP per capita and health expenditure utilized as control variables for primary and middle school enrollments by Amakom and Iheoma, (2014).Government education expenditure utilized as control variable for primary and middle school enrollments by Bashir et al, (2011).

5.2. Remittances and School Enrollments at Secondary and Post-Secondary Level

The results for enrollments at secondary (matriculation) and post-secondary (Arts and Science Colleges) levels are reported below in Table 5.3.

Table 5.3: Estimates of Remittances and School Enrollment at Secondary and Post-Secondary Level

A:Estimated Long Run Coefficients						
Dependent Variable: D(LSSE)				Dependent Variable: D(LPSSE)		
Variables	Coefficients	t-stat	p-values	Coefficients	t-stat	p-values
C	-6.205**	-5.219	0.000	-0.2731	-0.078	0.938
LREM	-0.064**	-2.537	0.019	0.002	0.029	0.976
POPGR	-0.178**	-3.738	0.001	-0.534**	-2.016	0.056
LGEEX	0.0007	0.011	0.991	1.134**	3.343	0.003
LTHEX	8.5509	0.7814	0.443	5.562**	5.191	0.000
LGDP	2.228**	6.359	0.000	1.607**	2.348	0.0283
B:Estimated Short run Coefficients						

Dependent Variable: D(LSSE)				Dependent Variable: D(LPSSE)		
Variables	Coefficients	t-stat	p-values	Coefficients	t-stat	p-values
D(LREM(-1))	0.124*	2.386	0.014			
D(LREM(-2))	0.087*	3.034	0.026			
D(LGDP(-1))	1.751*	4.120	0.000			
D(LGDP(-2))	1.071*	2.519	0.019			
D(LTHEX(-1))				0.011*	3.394	0.003
D(LGEEX(-1))				0.793*	2.495	0.021
D(POPGR(-1))				-6.588	-3.042	0.007
D(POPGR(-2))	-0.689*	-4.311	0.000			
CointEq(-1)	-0.065*	-2.58	0.014	-0.534*	-3.342	0.003
C: Diagnostic Test						
Serial Correlation LM Test	0.113 [0.785]			1.029 [0.195]		
Heteroscedasticity	13.367 [0.343]			19.121 [0.185]		
Normality	0.5723 [0.751]			1.409 [0.494]		
D: Bound Test						
			p-value			p-value
F-statistics (5,24)	5.8404		0.0011	F-statistics (5,24)	7.968	0.000

Note: *denotes significance at 10% level and ** denotes significance at 5% level.

In long run the impact of remittances on secondary school enrolment is negative and significant. The reason behind this is poverty forces families to keep the children away from school (Jensen and Nielsen 1997). Economic literature suggest that poverty may force the families to send their children to work instead of schooling, families substitutes work for schooling because of poor quality of schooling, and decrease the investment in their children's human capital. Another explanation is because of the absence of parental supervision to their children. In developing countries like Pakistan due to the absence of father the mother cannot have a control on the activities of children outside the home will

lead to the adaption of bad company and this will sometime lead to drop-out of children from the school. Hence, the positive effect of remittances is offset by the negative effect of the parental absence. The results are also supported by the studies by Hassan et al. (2013) for Pakistan who gave the reason as father absence is responsible for the children's poor performance in schooling at secondary level. Similarly, Nasir et al. (2011) in Pakistan gave the same reason as father absence is responsible for children's poor schooling performance.

Our survey support the reason of father absence. On the question of father absence families replied as when children especially male were in early ages like primary and middle schooling got good marks. In secondary school level they did not perform well as mother did not hold over activities outside home and most of the children dropout from school. Due to father absence the social responsibilities of children also increased and this is also the reason for children poor schooling performance.

The short run effect of remittances on secondary school enrollment is negative. According to our survey few families who did not borrow for migration, these families enrolled their children immediately after receiving income from remittances. After some years as families become richer they provide more facilities to their children. As a result children especially male showed poor performance and ultimately drop-out from school at secondary education level.

Impact of worker remittances on post-secondary school enrolment is insignificant in short run as well as in long run. The explanatory variables other than remittances have same sign in long run and short run. With regards with government expenditure on education, results show that it is positively and significantly affecting enrolments at secondary and post-secondary level. School enrolments depends on the cost of education. More public spending

on textbooks, teacher and buildings give more facilities and opportunities for learning Iyer, (2009).Moreover, the large number of people enter in higher education due to public spending in condition of credit constraint. The large number of people complete the secondary and post-secondary education due to higher education spending by government (Van der Berg, 2006).In Europe Winter-Ebmer and Wirz, (2002) also find a positive impact of government education expenditure on secondary and post-secondary education levels. The result of secondary enrolment is also consistent with Verhoeven el at. (1999) for the developing countries.

GDP per capita is also positively and significantly affect secondary and post-secondary school enrolments. In Pakistan the resourceful families are in a good position to afford education for their children Baluch and Shahid, (2008). For developing countries Verhoeven et al. (1999) had revealed that as family's income increase, the relative price of enrolling children into school is decreased, indicating that rising income would be linked with rising enrolments. The positive impact of GDP per capita on post-secondary school enrollment is consistent with Berger, (2009) in Canada. The positive impact of GDP per capita on secondary school enrolment is consistent with the study by Hassan et al., (2013) in Pakistan. This positive impact is also consistent with Carneiro and Heckman, (2002) in America.

Population growth rate is negatively associated with secondary and post-secondary school enrolments. Increase in the population increases the number of children in every household leads to rise in household expenditure. So it is difficult for households to have surplus money for children's education thus the low enrolment in schooling. The negative impact of population growth on secondary school enrolment is also consistent with Hassan

et al., (2013) in Pakistan while the result for post-secondary education is consistent with Mughal and Vechiu, (2009) in developing countries.

Total health expenditure is also cause of higher school enrolment. Healthy population of the economy considered as assets for any country. More health facilities are available in small towns and villages as a results of higher expenditure on health. Good health enable the people to attend schooling in secondary and post-secondary level in better way. The coefficient of expenditure on health is also significant for secondary and post-secondary enrollment in the study of Pakistan by Bashir et al., (2011).

The variables include in the models are based on the earlier studies such as secondary school enrollment was used as a proxy for human capital by Hassan et al. (2014) while studying the impact of worker remittances on human capital. Schooling at secondary and post-secondary level taken by Kalaj, (2010) while checking the impact of remittances on human capital investment. The explanatory variables like GDP per capita and health expenditure utilized as control variables for secondary school enrollment by Amakom and Iheoma, (2014).Government education expenditure utilized as control variable for secondary and post-secondary school enrollments by Bashir et al, (2011).Population growth taken by Hassan et al, (2014) as control variable for secondary school enrollment

5.3. Remittances and Life Expectancy

Considering an important variable, the study includes life expectancy as a major indicator of human capital. The results for remittances and life expectancy are reported below in Table (5.4).

Table 5.4: Estimates of Remittances and Life Expectancy

A:Estimated Long Run Coefficients			
Dependent Variable: D(LEXP)			
Variables	Coefficients	t-stat	p-values
C	0.0007**	5.4176	0.000
LREM	0.0003*	1.7508	0.091
POPGR	-0.005**	-5.139	0.000
INF	-0.001**	-13.865	0.000
LTHEX	0.007**	6.495	0.000
LGDP	2.004**	9.479	0.000
B:Estimated Short Run Coefficients			
D(LREM(-1))	0.001**	2.417	0.022
D(LTHEX(-1))	0.003**	3.261	0.003
D(LTHEX(-2))	0.002**	4.188	0.000
D(LGDP(-1))	1.122**	2.686	0.012
D(POPGR(-2))	-0.004**	-3.943	0.001
D(INF(-1))	-0.004**	-8.356	0.000
D(INF(-2))	-0.002**	-5.602	0.000
CointEq(-1)	-0.056**	-3.453	0.000
C:DiagnosticTests			
Serial Correlation LM Test	0.93043 [0.2054]		
Heteroscedasticity	19.234 [0.156]		
Normality	0.667 [0.716]		
D:Bound Test			
F-statistics (5,24)	34.9682		0.000

Note: **denotes significance at 5% level and * denotes significance at   10% level.

In long run and short run remittances have same signs for life expectancy. We have found remittances are positively and significantly associated with life expectancy. In developing countries remittances income is used for better nutrition and health. Remittances enable the people to afford advanced health care services and better nutrition, as a result life expectancy increases (Ajayi, 2009).Moreover, increased income due to remittances helps households to spend for healthcare when needed and spend income for preventative medicine and doctor visits. Furthermore, through exposure to other country emigrants may gain health knowledge. As a result they use financial resources more effectively and hence a greater health attainment. This argument is supported by Hildebrandt and McKenzie (2005).Our result also in line with Romano, (2009) in El Salvador.

Health expenditures and GDP per capita are positively and significantly associated with life expectancy. Increasing expenditure on health leads to access to excellence health care services. As a result health status improves. This reasoning is also true for household's income. Increasing families' income leads to higher spending on health care services and expenditure on welfare enhancing consumption. This leads to high life expectancy. The results for health expenditure and GDP per capita are consistent with Amakom and Iheoma, (2014) in Sub-Saharan Africa. Positive association between per capita income and life expectancy is also supported by the study for US (Thornton, 2002).

Impact of population growth on life expectancy is negative and significant. There is a high correlation among higher population with poverty and mortality. Increase in population raises diseases and decreases life expectancy in China (Kinder, 1998).This result is consistent with Balan and Jaba, (2011) in Romania.

Inflation is negatively and significantly associated with life expectancy. The purchasing power of the families reduced as a result of rising prices. Life expectancy decreases as a result of rising prices of consumer goods. This finding in line with the study by (Ali and Ahmad, 2014) in Pakistan.

The variables used in this model is based on earlier studies such as life expectancy was used as proxy for health by Amakom and Iheoma, (2014) while studying the impact of foreign remittances on education and health. The control variables such as remittances, GDP per capita and expenditure on health were utilized as the control variables for life expectancy by Amakom and Iheoma, (2014).Population growth and inflation as a control variable for life expectancy was taken by Ali and Ahmad, (2014).

Chapter 6

Conclusions and Policy Recommendations

The main objective of this study was to examine the impact of foreign remittances on human capital. We have considered two main components of human capital, education and health. Education was measured through enrollment in four levels: primary, middle, secondary and post-secondary. Health was measured through life expectancy. The study has covered the period 1973-2014.We have employed Autoregressive Distributed Lag (ARDL) technique. The estimation results have shown that the impact of remittances on primary and middle school enrollment is positive for long run but negative for short run. The reason is that remittances enable the households to send their children to school. The more foreign remittances they get, the larger the desire to substitute schooling either for farm work or for other income-earning occupations that their children are engaged for. Furthermore, remittances income enables the children to pay for their uniforms, transport, books and sometimes even teacher salaries. The short run negative impact may be due to migration cost. Income from remittances firstly used to return migration cost. The migrant who fulfil their migration costs through borrowing. They firstly used income from remittances to return migration cost. Another possibility is that in short run remittances usually related to raises consumption and poverty reduction while in long run remittances related to productive investment like increase in education.

The impact of remittances on secondary school enrollment is negative in long run. The reason behind this is, the negative effect of remittances is because of the absence of parental supervision to their children. In developing countries like in Pakistan due to the absence of father the mother cannot have a control on the activities of children outside the home will lead to the adaption of bad company and this will sometime lead to the drop-out of children from the school. Hence, the positive effect of remittances as the inflow of income is offset by the negative effect of the parental absence. Another reason is poverty forces the families to send their children to work instead of schooling, families substitute work for schooling because of poor quality of schooling, and decrease the investment in their children's human capital.

The impact of remittances on secondary school enrollment is positive in short run. The reason is migrants who did not borrow for migration, these families enrolled their children immediately after receiving income from remittances. As families become richer they provide more facilities to their children. As a result children especially male showed poor performance and ultimately drop-out from school.

Besides remittances other important explanatory variables like GDP per capita, total health expenditure and government education expenditure are positively and significantly affect primary, middle secondary and post-secondary school enrollment while population growth is negatively and significantly affect these school enrollments.

The impact of remittances on post-secondary school enrollment is insignificant in short run as well as in long run. The effect of remittances on life expectancy is positive in short run and long run. The reason is remittances helps households to spend for healthcare when needed and spend income for preventative medicine and doctor visits. Additionally,

through exposure to other country emigrants may gain health knowledge. As a result they use financial resources more effectively and hence a greater health attainment. Other important variables that determine life expectancy are GDP per capita, total health expenditure, inflation and population growth. GDP per capita and total health expenditure are positively correlated with life expectancy while inflation and population growth are negatively associated with life expectancy. This study concludes that remittances increase education at primary and middle school level in long run and secondary school level in short run. Moreover, it helps to improve health.

6.1. Policy Recommendations

On the basis of results of this study following are some recommendations:

- ❖ Importance of remittances cannot be ignore specially in developing countries like Pakistan, so it is suggested that Government of Pakistan should focus on raising the awareness of investing more remittances to improve human capital.
- ❖ There should be some awareness strategies taken by government which help in realizing the people to get faster, cheaper and efficient flow of remittances so that inflow of remittances could be increase more than expectation.
- ❖ Banks and financial institutions should also facilitate remittance receiving people by giving them better services.

6.2. Future Research Prospects

There are some aspects on which future research can be conducted to further explore the issue. Some possible areas are:

❖ The empirical analysis can be further extended by including environmental factor as the determinant of human capital.

❖ This study can be modified further if panel data is used, so that better picture can be seen that in how much time remittances can change the human capital and how much. Panel data analysis will help to explore this topic more accurately.

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