

# Remittance Inflows and Its Contribution to the Economic Growth of Bangladesh

Shirin Akter

## 要 旨

南アジアの発展途上国であるバングラデシュは、多くの海外労働移民と、多額の海外労働者による送金で知られている。それら海外労働者送金は、2014-15年には153.1億ドルと驚異的な水準に達し、これはバングラデシュのGDPの7.9%にもあたる。過去10年間、海外労働者送金は海外資金の主要な源泉となっており、バングラデシュが受け入れる海外直接投資（FDI）や公的開発援助（ODA）を上回っている。本論文は、海外労働者送金がバングラデシュの経済成長に与える影響を研究するため、1990-2013年（24年間）の時系列データを用いて分析する。相関および回帰モデルを用い、海外労働者送金とバングラデシュの経済成長との関係を明らかにしようと試みた。結果、海外労働者送金とバングラデシュの経済成長との有意かつ正の相関関係が示された。

**Keywords: Remittances, Economic growth, GDP, Bangladesh**

## 1. Introduction

Remittance most commonly refers to the funds expatriates send to their country of origin via wire, mail, or online transfer. These peer to peer transfers of funds across borders are economically significant for many developing countries. Remittances have been playing an important role on the economy of developing countries. In 2014, some US\$ 435 billion were remitted to developing countries. The growth of remittances is expected to moderate to 4.4 percent in 2015, raising flows to US\$ 454 billion. Remittances are an essential source of external funds for developing countries. These flows were three times larger than official development assistance (ODA) in 2013, and are steadier than both private debt and portfolio equity flows. Remittance flows are significantly larger than total foreign direct investment (FDI) to developing countries. They also help sustain the balance of payments (BOP) by bringing in foreign currency (World Bank, 2014).

Bangladesh is one of the largest remittance recipient countries through the export of its labor forces mainly to the Middle East and the Southeast Asian countries since the early 1970s. Job openings in the Middle-east and the establishment of an overseas recruitment system in the mid-1970s, pave the way open for Bangladeshi workers to go abroad for employment. Economic globalization in the 1980s and 1990s brought about a rise in the demand for migrant workers globally. This external demand opened up scope for a large number of Bangladeshis (mostly semi-skilled and less skilled) to go abroad as migrant workers. The migration of Bangladeshis took place owing to several pull factors (e.g., demand for labor abroad, kinship with other Bangladeshis living abroad, etc.) and push factors (e.g., poverty, unemployment, under development in rural areas etc. ) (ILO, 2014).

During the last decade, remittances had become a major source of external fund, surpassing the volume of FDI and ODA that the country received. For the year 2014-2015, workers' remittance is 9 times higher than FDI and 25 times higher than Portfolio Investment and 4 times higher than ODA in Bangladesh [Annexure-I]. So, workers' remittance is a major source of foreign exchange earnings and these large inflows of remittances have enormous effects to the Bangladeshi economy. According to World Bank Estimates of 2013, Bangladesh is the 5th top emigration country with 7.76 million. Up to 2015 May, Bangladesh has sent more than 9.34 million (BMET, 2015) workers to 142 countries (BBS, 2013). Due to this mass movement of temporary migrant workers, the remittance transfers received from these migrant workers have reached a level of 15.31 billion US dollars in 2014-2015, approximately 7.9% of GDP in Bangladesh which was 14.23 billion US dollars in the year 2013-2014 (Bangladesh Bank, 2015). From 1976-2014, annual migration from Bangladesh is about 0.2-0.3 million i.e., every year about 200,000 or more Bangladeshis leave the country to work overseas (BMET, 2015). Most of these migrants send part of their earnings home regularly or irregular basis.

Bangladesh receives 2.6 per cent of global remittance flow. This share was 3.5 per cent among developing countries and accounted for 12.8 per cent of the official remittances flowing into South Asia in 2014. The country ranked the 8<sup>th</sup> among developing countries and 10<sup>th</sup> globally as a remittance receiving country in 2013 with a remittance earning of US\$13.86 billion. Bangladesh has been maintaining position within top 10 remittance recipient countries since last 15 years from 2004 to 2014[Annexure-II & III].Bangladesh is a country of surplus manpower resources with a combination of professional, skilled, semi-skilled and less-skilled labor force. Almost two million young people are added to the labor force every year (BBS, 2013).But the country lacks the ability to create jobs to absorb them. As a result, the outflow of Bangladeshi workers will continue in the foreseeable future. Migration plays a vital role in the national

economy mainly in two major ways: firstly by reducing unemployment and secondly, by providing remittance inflows for the country. The steady growth of emigration from Bangladesh over the years is favorable to the development of Bangladesh; as inflow of remittance has increased every year. The links between migration and remittances are obvious. Both have a strong co-relation to poverty reduction in home countries. Remittance has become an important aspect for the developing countries like Bangladesh for socioeconomic advancement.

This study would like to identify the relationship between workers' remittances and economic growth, and to investigate the impact of workers' remittances on economic growth of Bangladesh by analyzing time series data of twenty four years (1990 to 2013). This paper consists of seven parts following introduction, part two consist of theoretical and empirical review of past literatures. Part three of the paper gives an overview of Bangladesh economy. Part four provides some facts and figures and the trends of remittance and migrant workers and illustrates impacts of remittances inflow on Bangladesh economy. Part five deals with modeling framework for estimation, part six consists of results and interpretation of estimation. Part seven concludes on the basis of analysis.

## **2. Literature Review**

This section reviews some theoretical and cross country as well as time series empirical studies especially in the context of developing countries. There are many studies in remittance literature that has analyzed the relationship between workers' remittances and economic growth. Studies that examined the relationship between remittances and GDP growth show mixed results. Majority of the existing studies illustrate the positive, direct and indirect, growth effect of remittances especially for the developing countries employing cross country data. However, some studies show a negative relationship between workers' remittances and economic growth.

Giuliano and Ruiz-Arranz (2005) conducted a study with International Monetary Fund (IMF) on the impact of remittance to growth. The study analyzed over 100 countries data. This paper analyzed the relationship between remittances and growth and its interaction with the financial development of the recipient country. The study was conducted by using a Generalized Method of Moments (GMM) approach independent of the particular measure of financial sector development. The study used a newly constructed cross-country data series for remittances covering 73 developing countries over the period 1975-2002. It was

found that remittances have promoted growth in less financially developed countries. The results suggest that remittances help to alleviate credit constraints on the poor, substitute for the lack of financial development, improve capital allocation, and therefore accelerate economic growth. The findings suggest that remittances can promote growth.

Ratha and Mohapatra, (2007) prepared a note for “G8 outreach event on remittance” to identify the macro-economic impact of remittances on development and concluded that remittances are the most important source of finance. In many developing countries, they are the biggest source of external financing and they also help in reducing poverty as well as they can increase standards of living of the people

Rao and Hassan (2012) conducted a study on 40 high remittance recipient countries using a System GMM panel data analysis. This paper analyzed the direct growth effects of remittances and the growth effects of the channels through which remittances may affect growth by treating as conditioning variables. It is found that while the evidence supports the indirect effects of remittances, the direct growth effects of remittances seem to be insignificant. The study finds that remittances indirectly facilitate economic growth by increasing the ratio of Broad Money (M2) to GDP.

Siddique, Selvanathan and Selvanathan (2012) conducted a study on remittance and economic growth on major South Asian countries (i.e., Bangladesh, India and Sri Lanka). This article investigated the causal link between remittances and economic growth by employing the Granger causality test under a Vector Auto Regression (VAR) framework using time series data over a 25-year period from 1980-2005. The empirical analysis identifies that remittances have a mixed response with the economic growth. The study finds no causal relationship between remittance and economic growth in the case of Bangladesh and India. But for Sri Lanka, a two way causal relationship is found between remittance and economic growth.

Das and Chowdhury (2011) investigated long run relationship between remittances and GDP of 11 top remittance-recipient developing countries including Bangladesh. They applied latest developed econometric techniques, i.e., panel co- integration and pooled mean group (PMG) approach. The results support a positive long run relationship between remittances and GDP. However, the magnitude of the remittance-GDP coefficient is quite small. Their result also implies that developing countries should formulate policies to divert this external resource into more productive sectors.

Paul and Das (2011) conducted a study on Bangladesh (from 1979 to 2009, a relatively liberalized regime) to examine the remittance-GDP interaction in both the long run and short run with a comprehensive approach by applying unit root tests, co integration tests and specially the vector error correction (VEC)

model to get the estimates on the co-integrating vector and short-run dynamics. The Study finds a long run positive relationship between remittances and GDP.

Jawaid and Raza (2014) is a study conducted by International Organization for Migration (IOM) on the effect of workers' remittances and its volatility on economic growth of five South Asian countries. This study investigated the effect of workers' remittances and its volatility on economic growth of five South Asian countries by employing long time series data from 1975 to 2009. The Study applied time series econometric techniques namely- unit root tests, co-integration test and sensitivity analysis by adding other variables into the model and finds mixed results for different countries. The results confirm a significant positive long run relationship between remittances and economic growth in India, Bangladesh, Sri Lanka and Nepal, but a significant negative relationship in Pakistan.

Study on Bangladesh by Datta and Sarkar (2014), attempted to analyze the impact of remittances on economic growth, using time series econometric techniques, specifically, the auto regressive distributed lag (ARDL) framework taking only two variables remittance and GDP under consideration. The study suggests that while remittances can foster growth and development as well as prevent balance of payment crises, they can also have a negative impact on growth if used for conspicuous consumption or unproductive purpose. The findings of this study show that there is a possibility of a long-run relationship between remittances and GDP, but there is no predictive causal relationship, neither in the short-run nor in long-run.

Negative relationship between remittance and economic growth was predicted by Chami et al. (2003). They rather finds a negative effect of remittances on economic growth as it reduces the incentive to work by the migrant family members. This Paper provides a new systematic theoretical analysis and robust empirical estimation (using a complete set of conditional variable for remittances) using the most accurate and comprehensive remittances data available. The study used database encompassing 84 recipient countries and annual observations for the 1970–2004 period. The results demonstrate that remittances have had, at best, no impact on economic growth.

### **3. Overview of Bangladesh Economy**

Bangladesh a developing economy in South Asia has a total land area of 147,570 square kilometers (56,977 square miles) geographically bounded by India to the west, north and north-east, by Myanmar to the South-east, and by the Bay of Bengal to the south. According to World Bank data, 2014 Bangladesh falls under

the category of middle income country with GDP of US\$ 173.8 billion(GDP at current US\$).

**Table 1: Key Macroeconomic Indicators\***

Indicators	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15 <sup>P</sup>
<b>Real Sector</b>						
GDP at current prices (USD million)	115921.4	132345.2	148202.8	151570.5	169076.3	194550.1
GDP in constant market price	87731.2	90778.1	87040.5	91351.7	99683.4	105980.7
Growth rate of GDP at constant price (%)	5.57	6.46	6.52	6.01	6.12	6.51
Population (million)	147.8	149.7	151.6	153.7	155.8	157.9
Inflation rate (12 month average)	7.6	9.39	12.3	7.6	6.82	6.46
<b>Sectoral share (as % of GDP)</b>						
Agriculture	17.81	17.71	17.09	16.28	16.11	15.59
Manufacturing	26.14	26.39	26.74	27.64	15.59	27.98
Services	56.05	55.9	56.16	56.09	27.98	56.42
<b>External sector</b>						
Exports (as % of GDP)	14.1	17.6	18	17.7	17.2	7.5
Imports (as % of GDP)	18.6	25.3	25	22.4	21.2	10.3
Trade balance(as % of GDP)	-4.5	-7.7	-7	-4.7	-3.9	-2.7
Current account balance (as % of GDP)	3.2	-1.3	-0.3	1.7	0.9	-0.7
Workers' Remittance (as % of GDP)	9.5	8.8	8.7	9.5	8.4	7.9
Workers' remittances (USD million)	10987	11513	12734	14338	14115	9835
Foreign exchange reserve (USD million)	10750	10912	10364	15315	21508	24141
<b>Investment and savings (as % of GDP)</b>						
Gross investment	26.2	27.4	28.3	28.4	28.6	29
Public investment	4.7	5.3	5.8	6.6	6.5	6.9
Private Investment	21.6	22.2	22.5	21.7	22	22.1
Gross domestic savings	20.9	20.7	21.2	22	22.1	22.3
Gross national savings	29.5	29	29.9	30.5	29.2	29
* All GDP figures are calculated taking Fiscal year 2005-06 as base year. P= Provisional						

Source: Compiled from Bangladesh Bureau of Statistics (BBS) and Ministry of Finance (MoF) data

The total population of Bangladesh is 160 million. Bangladesh is one of the most densely populated countries in the world, with 1222.08 people living in per square kilometer land area, and approximately 26%

of the population lives in the urban area<sup>1</sup>. Bangladesh has achieved significant development progress, making the transition from the mid-1980s from being an inward-looking socialist economy to a liberalized economy, under the auspices of major donors. The economy has attained an average annual growth rate of 6% in the 2000s. Economic growth has stabilized since the 1990s. Increased GDP and lower population growth have resulted in higher per capita income, up to USD 1,044 in 2013 from only USD 90 in 1973 (BBS, various issues). Higher income was coupled with lower income poverty as the share of population living below the poverty line has fallen from more than 80% in the early 1970s to 31.5% in 2010 (BBS, 2015).

Bangladesh has been utilizing a mixed system of public and private development, which operates on free-market principles. Due to the liberalization policies followed since the mid-1970s, more than 60% of the economy of Bangladesh is integrated with the global economy through exports, imports, remittances, ODA and FDI. The share of exports, imports and remittances as a percentage of GDP has been on the rise since the 1990s (CPD, 2014). The above table-1 shows the overall economic progress of Bangladesh economy for the last 6 fiscal year starting from year 2009-10 to 2014-15.

## **4. Remittance Dynamics in Bangladesh**

### **4.1. Emigration Pattern of Bangladesh**

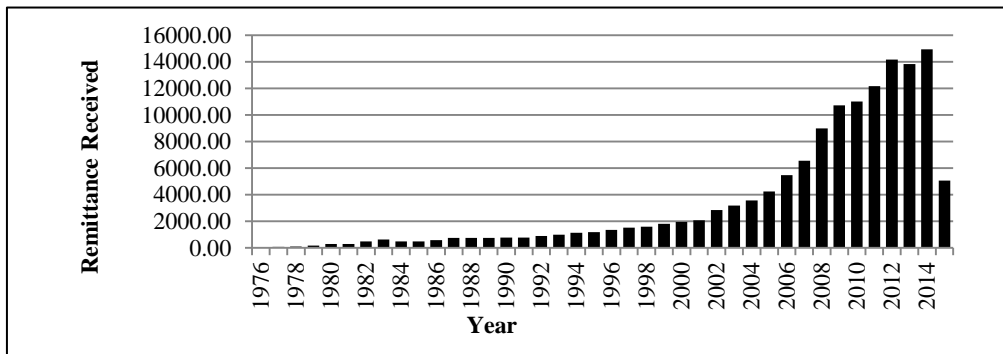
International remittances come to Bangladesh mainly from three large, but distinct types of migrants. Firstly, well-educated, high or middle income earners diasporas<sup>2</sup> of Bangladeshi origin living in USA and UK. Secondly, low-income or unemployed segments of the population in USA and UK and other industrialized countries. Thirdly, a major group of migrant laborers residing in Middle Eastern, South East Asian and some industrialized countries for a specific period (IOM, 2005). The estimated diaspora population living permanently in the industrialized west is about 1.2 million (ILO, 2014).

The origins of migration to industrialized countries mainly to the UK and the USA can be traced back to the colonial period from the eighteenth century onwards as sailors or even stowaways originating from the south-eastern part of Bangladesh (Siddiqui, 2003). During the 1950s and 1960s, Bangladeshi workers migrated abroad, especially to the UK and obtained British citizenship by naturalization after staying four to five years. Also a limited number of Bangladeshi workers had taken up employment in Saudi Arabia and Qatar mostly by individual initiatives during 1960s (Das and Chowdhury, 2011).

After the independence of Bangladesh in 1971, pattern of workers' migration changed drastically.

Bangladesh has emerged as one of the major manpower exporting countries in the South Asia from the early 1990s. Over the last 39 years, the number of Bangladeshi labor migrants gradually increased from around 6,000 in 1976 to more than 200,000 in 2014s. According to BMET data up to May of 2015, the number of total migrant population is 9.35 million. This latest figure represents about 12.04 per cent of the total workforce (Figure 4.1).

**Figure 4.1: Total Number of Bangladeshi Labor Migrants from 1976 to May 2015**

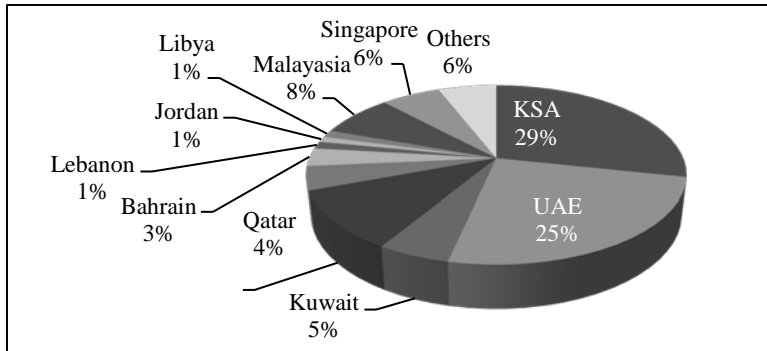


**Source:** Bureau of Manpower, Employment & Training (BMET) & Government of the People's Republic of Bangladesh Data of June, 2015 (<http://www.bmet.org.bd/Flow-Migration.htm>)

An analysis of the migration data since 1976 reveals that around 80% of all labor migration from Bangladesh is directed towards Middle Eastern countries. Most popular destination in the Middle East is Saudi Arabia (with 2.6 million migrants). Saudi Arabia is followed by the UAE (with about 2.34 million migrants) and Kuwait (more than 4.89 million migrants). In South-east Asia, Malaysia has been the main destination with officially more than 711,000 Bangladeshi migrants during the same period. Singapore and South Korea receive a significant number of labor migrants as well (Figure 4.2 and 4.3).

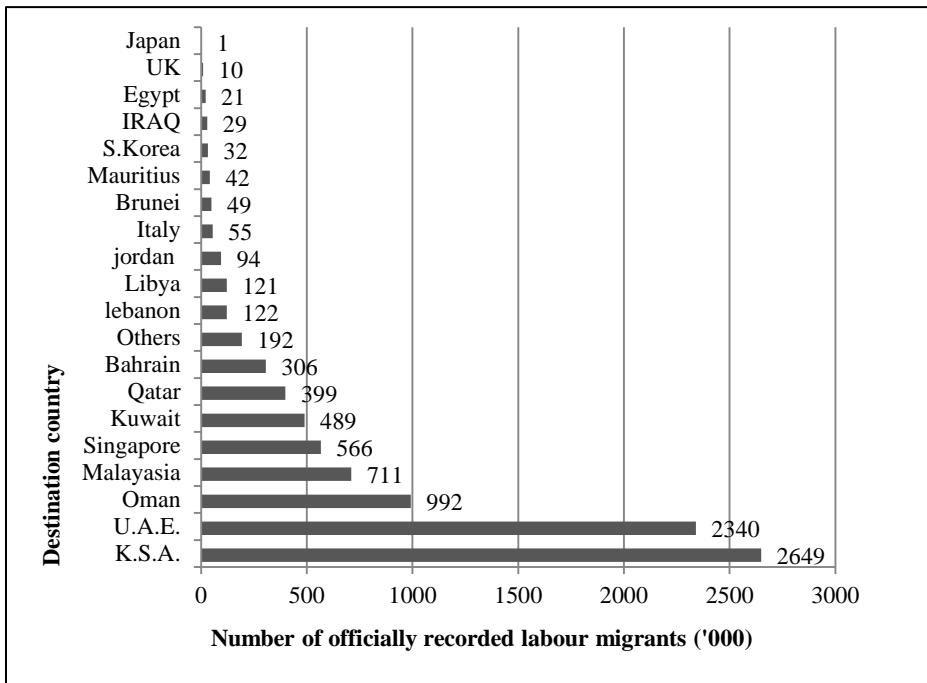


**Figure 4.2: Overseas Employment of Bangladeshi Labor Migrants from 1976 to May 2015**



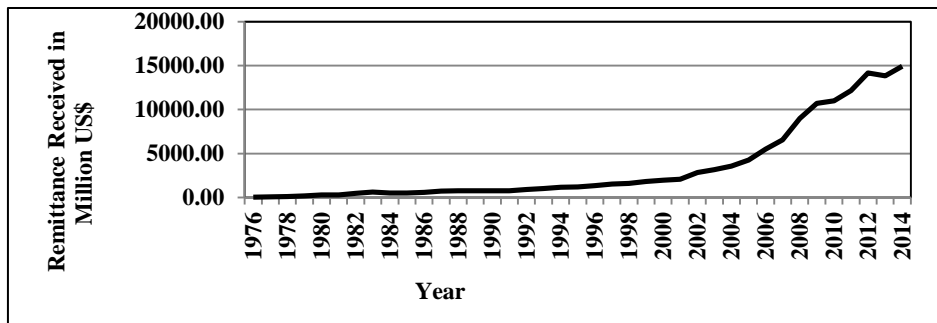
Source: BMET Data at June, 2015 (<http://www.bmet.org.bd/Flow-Migration.htm>)

**Figure 4.3: No. of Bangladeshi Labor Migrants to Destination Country (1976 to May, 2015)**



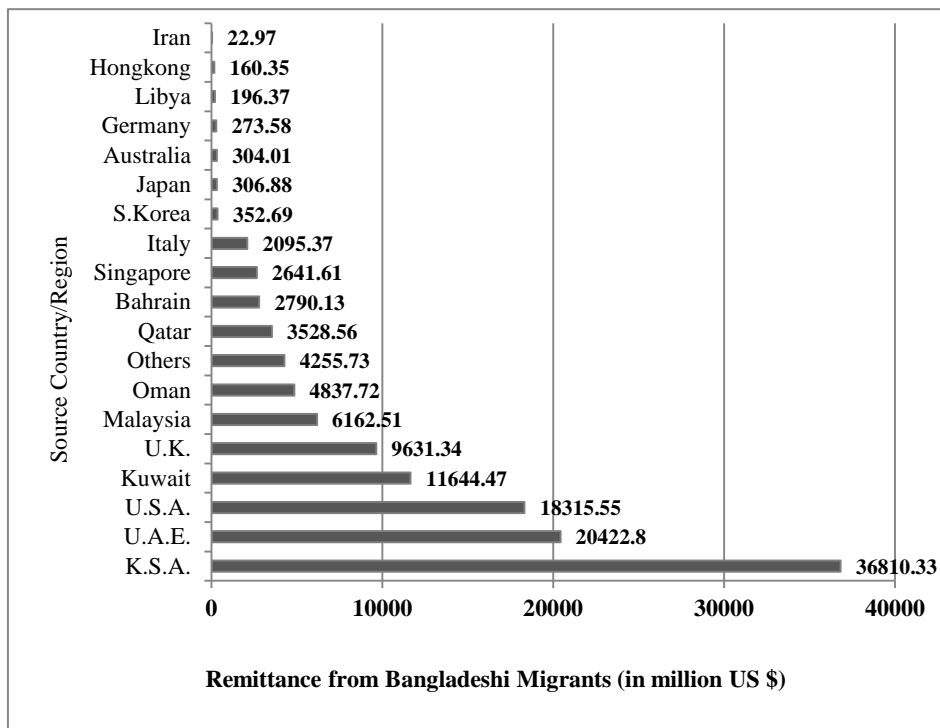
Source: BMET data of June, 2015 (<http://www.bmet.org.bd/Flow-Migration.htm>)

**Figure 4.4: Evolution of Remittance Inflow to Bangladesh from 1976 to May, 2015**



Source: BMET Figure of June, 2015 (<http://www.bmet.org.bd/Flow-Migration.htm>)

**Figure 4.5: Remittance Inflow to Bangladesh from Fiscal Year 1999 to May, 2015**



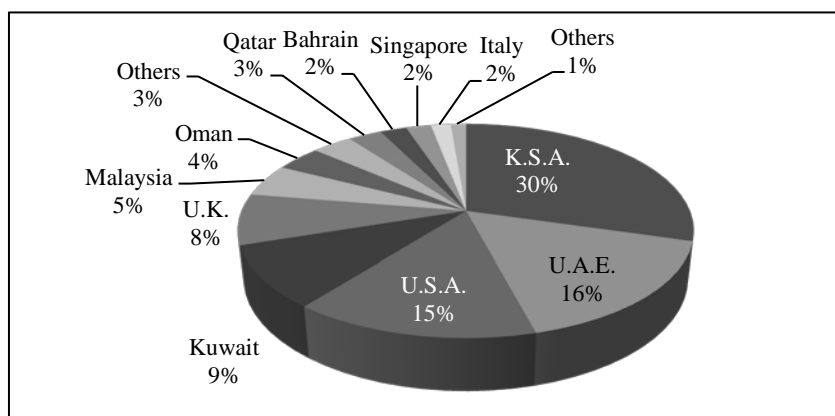
Source: Bangladesh Bank, Economic data (<https://www.bb.org.bd/econdata/wageremittance.php>)

According to official data of the Bangladesh Bank and BMET, Bangladesh received about a total of

US\$ 13.38 billion in remittances between 1976 and 2014 and US\$ 14.94 billion for the year 2014. Figure 4.4 shows that the official flow of remittances to Bangladesh has increased dramatically in last 39 years. Most of the international remittances come to Bangladesh from the Middle East. Saudi Arabia alone accounts for about 30 per cent of the official remittance inflow. UAE accounts for 16% and Kuwait accounts for 9% of total remittance flow (Figure 4.5). An important share of remittances comes therefore from temporary migrant laborers of Middle East. However, the importance of the diaspora should not be underestimated. Over the years, the USA has become the third largest remittance sending country. The UK, another important country for long-term Bangladeshi migrants, accounts for 7 per cent of the remittance flow.

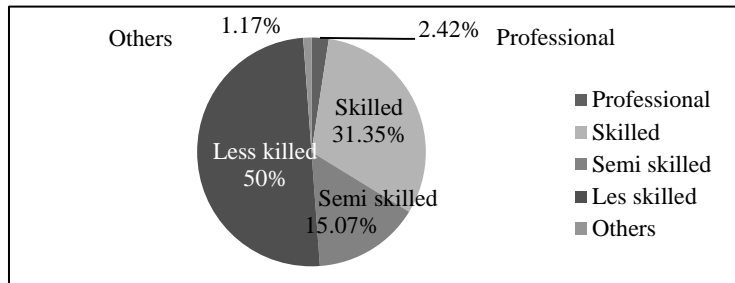
According to “The Migration and Development Brief, 23” of World Bank in 2014, Bangladesh is the 8<sup>th</sup> largest remittance receiving country in the world. According to World Bank Data, Bangladesh receives 2.6 per cent of global remittance flow. This share is 3.5 per cent among developing countries and accounts for 12.8 per cent of the official remittances flowing into South Asia in 2014, holding 3<sup>rd</sup> position. The figure 4.6 shows that Saudi Arabia, UAE and Kuwait are top listed among the Middle-east countries. But among the industrialized countries U.S.A and UK holds position among top 5 remittance sending countries.

**Figure 4.6: Country-wise Remittance Inflow to Bangladesh (1999 to May, 2015)**



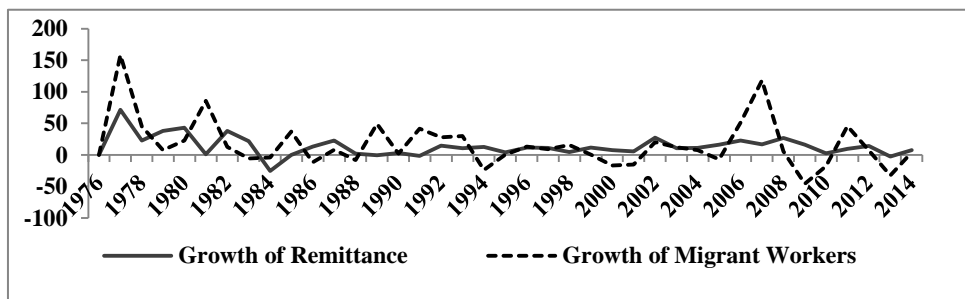
Source: Bangladesh Bank Economic data (<https://www.bb.org.bd/econdata/wageremittance.php>)

**Figure 4.7: Category-wise Overseas Employment from 1976 to 2015**



Source: BMET Figure of June, 2015 (<http://www.bmet.org.bd/Flow-Migration.htm>)

**Figure 4.8: Growth Rate Comparison of Remittance and Migrant Workers (1976-2015)**



Source: Bangladesh Ministry of Finance (MoF) Data, 2015 (<http://www.mof.gov.bd/>)

So, there is an important observation that though a large number of Labor migrants are going to Middle-east countries, they are not earning enough money to remit as compared to diaspora population in the USA and the UK. Two main reasons behind this is the lack of skill composition of workers and the low wage rate of Bangladeshi labor migrants. The above figure 4.7 about skill composition of Bangladeshi workers and figure 4.8 about comparison of growth rate of remittance and Growth of Migrant workers are also evident of such findings.

## 4.2 Remittances and the Macro-Economy

Remittance inflows can help to improve a country's development prospects, maintain macroeconomic stability and mitigate the impact of adverse shocks. Remittance is a steadily growing external financial source for developing countries. It can generate substantial welfare gains for migrants and thereby could play an important role in reducing poverty. Migration generates a relatively stable source of income that contributes

to the support of migrant workers' family members back home, enabling them to invest in education, health and housing, thus improving household living conditions and reducing vulnerability of family members, especially women and children. Remittances therefore constitute a steady source of poverty reduction (IOM, 2009). In comparison of remittance flow and ODA; it appears that remittances are larger than ODA, FDI, and portfolio investment flows in many developing countries (Ratha and Mohapatra, 2007). A study of World Bank (2008) finds that migrant remittances impact positively on the balance of payments in many developing countries.

Remittances do augment consumption and increase the diversity of consumption and investment and thereby have an important role in stimulating the economy. Remittances augment savings which the recipients store in land and saving deposits. Remittances can be used for investment which further stimulates demand for goods and services, as well as contribute to financial development. So, remittances have multiplier effect on economy.

#### **4.2.1 Remittance Reduces Poverty**

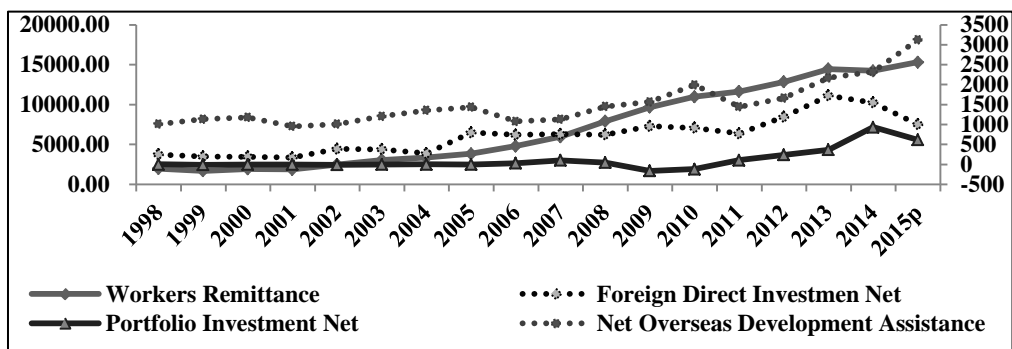
At present, remittances play a crucial role in the economy of Bangladesh. It has emerged as a key driver of economic growth and poverty reduction. Bangladesh earns around US\$14 billion a year as remittances from nearly 8.0 million expatriate workers across the globe mainly in the Middle East and the Gulf regions. In Bangladesh just 13 per cent of households that receive remittances from abroad are below the poverty line, compared to 34 per cent of non-remittance-receiving households, according to an updated data of the UN (UN, 2011). According to the survey conducted by Bangladesh Bureau of Statistics (BBS) on the use of remittance, remittances constitute 78 percent of income of the receiving households. On average, RRHs (Remittance Receiving Household) receive BDT<sup>3</sup>205,642 per annum in remittances—more than two times the per capita annual GDP in FY14. Non-remittance income on average constitutes 21.4 percent of total income of RRHs. The survey does bring home the reality that migration continues to be a rewarding transition to higher income for the migrants and their families relative to opportunities in the domestic economy. So it helps to alleviate poverty and also improve the standard of living of the RRHs (BBS, 2013).

#### **4.2.2 Remittance as Important Source of External Funds**

Remittance is an important source of foreign exchange earnings in Bangladesh. At the macro level, it helps to relieve our foreign exchange constraint, stabilize the exchange rate fluctuation, and improve the balance of payments. Besides, remittances are used to pay for imports and to repay foreign debt. At micro level,

remittance has a good impact on household consumption, poverty reduction and self employment. It also improves country’s creditworthiness. However, it has been more stable source of foreign earnings than both FDI and foreign aid (Bangladesh Bank, 2014).Remittances now represent the 2<sup>nd</sup> largest source of external finance after FDI for Bangladesh, and the tentative impacts on macroeconomic development cannot be ignored. Figure-4.9 gives us a clear view on the growing importance of remittances. The critical factor is the relative rise of remittances against external debt and imports. Bangladesh has remained a trade deficit country in most of the years since independence, but, after 2000s, it has been continuously posting current account surplus mainly because of remittance income.

**Figure 4.9: Comparison of Source of External Funds with Remittance**



Source: Bangladesh Bank Annual Report and Bangladesh Economic Review Data

#### 4.2.3 Strong External Liquidity Position

Large remittance inflows to Bangladesh have also bettered its international credit rating. The importance of remittances to Bangladesh is further underscored by explicit inclusion in assessments by credit ratings agencies (World Bank, 2014). Earlier in April 2014, Moody’s affirmed Bangladesh’s government ratings at Ba3 with a stable outlook. According to Moody’s statement, the country’s external liquidity position is comfortable, with foreign reserves providing ample cushion to meet maturing debt obligations (Moody’s Report, 2014). In May 30, 2014, the Standard & Poor’s (S&P) assigned Bangladesh its rating for the first time BB- for long term international credit and a B for short term credit. Bangladesh’s strong external liquidity position and declining external leverage support the ratings. Remittance inflows to Bangladesh, averaging 11% of GDP over the past three years generally ensures current account surpluses. Foreign exchange reserves (as of end April) stood at US\$20.4 billion, equivalent to an estimated 5.5 months of current

account payments. These all are the positive outcomes of large remittance inflow from migrant workers' (Standard & Poors' Report, 2014).

### 5. Empirical Model and Data

After reviewing the empirical studies, the models to examine the relationship between workers' remittances and economic growth has been developed through a simple regression model as follows:

$$GDP_t = \beta_0 + \beta_1 GFCF_t + \beta_2 ELF_t + \beta_3 WR_t + \varepsilon_t \dots \dots \dots (i)$$

Where,  $GDP_t$  is the real gross domestic production,  $GFCF_t$  is the gross fixed capital stock,  $ELF_t$  is the total employed labor force, and  $WR_t$  represents the workers' remittances and  $\varepsilon_t$  is the error term at time  $t$ . The same model has been used by Iqbal and Sattar (2005), Waheed and Aleem (2008), Jawaid and Raza (2012), and Jawaid and Raza (2014). In this study, time series data have been used for the period of 24 years (1990 to 2013) [Annexure-IV]. All data has been gathered from the official database of World Bank (available at <http://data.worldbank.org/indicator>).

### 6. Estimation and Results

**Table 6.1: Correlation Matrix**

	<b>GDP</b>	<b>GFCF</b>	<b>ELF</b>	<b>WR</b>
<b>GDP</b>	1	0.999**	0.985**	0.984**
<b>GFCF</b>	0.999**	1	.963**	0.981**
<b>ELF</b>	0.958**	0.963**	1	0.946**
<b>WR</b>	0.984**	0.981**	0.946**	1

\*\* Correlation is significant at the 0.01 level (2-tailed).

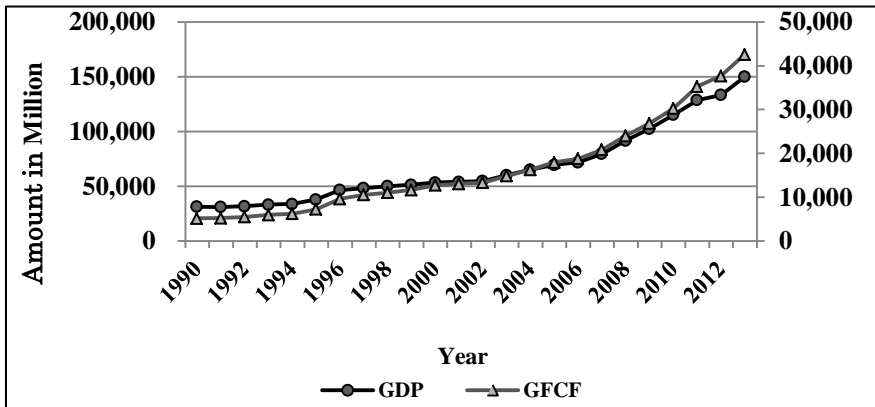
**Table 6.2: Results of Regression Model\***

Dependent Variable: Growth Rate of GDP; Method: Least Squares				
Sample: 1991-2013; Included Observations: 23				
Variable	Coefficient	Standard Error	t-Statistics	Probabilities
C	-3.395	2.265	-1.499	0.150
GFCF	0.821	0068	12.131	0.000
ELF	1.095	0.994	1.102	0.284
WR	0.030	0.046	0.652	0.522
R	0.944			
R-squared	0.891			
Adjusted R-squared	0.874			
Sum squared Residual	77.773			
Standard error of regression	2.02320			
F-statistics	51.814			
Probability (f-statistics)	0.000			
*Calculated based on the growth rate of GDP, GFCF, ELF & WR.				

Pearson Correlation test has been used to examine and measure the co-relation of the concerned variables. The above table 6.1 shows strong positive relationship among all the variables with each other. In the above table 6.2, the results of regression model has been shown. The model is best fit as the adjusted  $R^2$  value is very close to 1 (i.e. 0.891). The t-statistic shows the positive figure 0.652. The R-squared Value is very high in this case. But the R-square value simply show that all variables shows only rising trend; they do not necessarily account for a close relation between the variables. So, it is necessary to get rid of trend effect by using some appropriate method for reducing the trend effect.

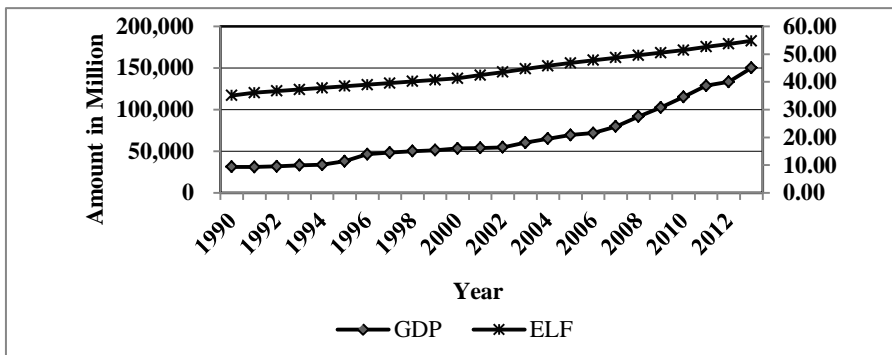


Figure 6.1: Trend analysis of GDP & GFCF



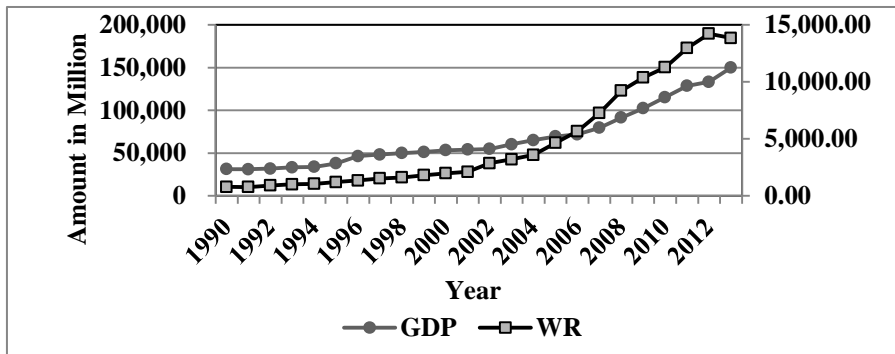
Source: Constructed based on the data on Annexure-IV

Figure 6.2: Trend analysis of GDP & ELF



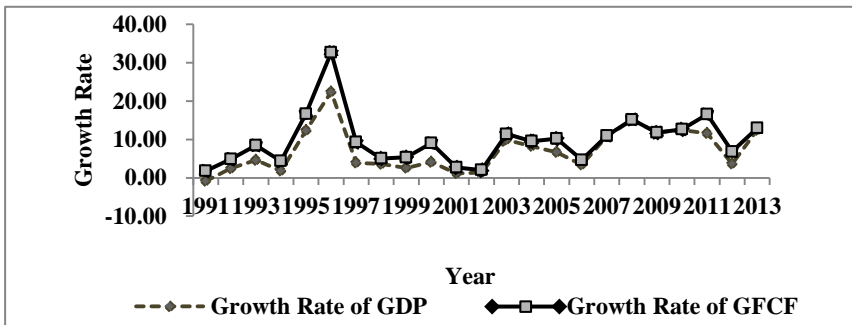
Source: Constructed based on the data on Annexure-IV

Figure 6.3: Trend analysis of GDP and WR



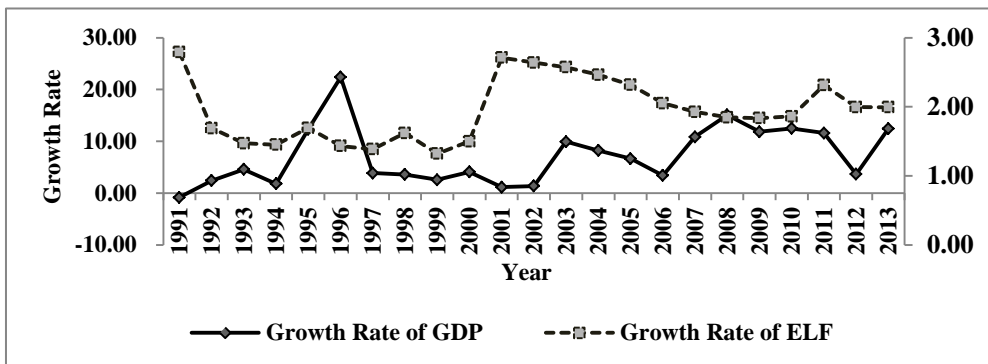
Source: Constructed based on the data on Annexure-IV

Figure 6.4: GDP and GFCF Growth Rate



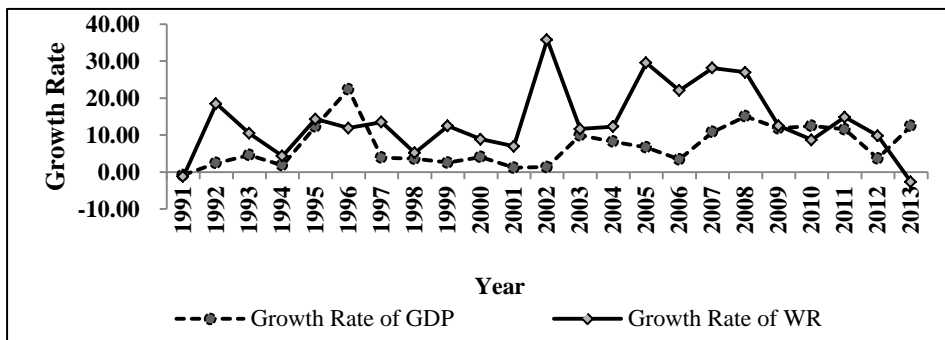
Source: Constructed based on the data on Annexure-IV

Figure 6.5: GDP and ELF Growth Rate



Source: Constructed based on the data on Annexure-IV

Figure 6.6: GDP and WR Growth Rate



Source: Constructed based on the data on Annexure-IV

Now, the above graphs with absolute figure and growth rate of variable GDP, GFCF, ELF and WR, indicate a very strong relation between GDP and GFCF. But as for GDP and WR, it is doubtful that there is such a strong relation between them. Same is true for GDP and ELF. In order to determine the significance of each dependent variable (GFCF, ELF and WR) with GDP, regression analysis has been conducted individually for dependent variable (GDP) with each independent variable (GFCF, ELF and WR respectively).

**Table 6.3: Individual Regression Analysis of GFCF, ELF and WR with GDP\***

GDP & GFCF			GDP & ELF			GDP & WR		
Variable	Co-efficient	t-statistics	Variable	Co-efficient	t statistics	Variable	Co-efficient	t statistics
Constant	13191.352	17.368	Constant	-133005.293	-10612	Constant	33160.174	17.595
GFCF	3.259	66.126	ELF	4484.955	15.322	WR	6.914	17.709
R	0.998		R	0.962		R	0.971	
R <sup>2</sup>	0.996		R <sup>2</sup>	0.925		R <sup>2</sup>	0.943	
Adjusted R <sup>2</sup>	0.995		Adjusted R <sup>2</sup>	0.921		Adjusted R <sup>2</sup>	0.940	
F-statistics (probability)	4372.692 (0.000)		F-statistics (probability)	234.772 (0.000)		F-statistics (probability)	313.611 (0.000)	
*Based on absolute figure of each variable.								

**Table 6.4: Individual Regression Analysis of GFCF, ELF and WR with GDP\***

GDP & GFCF			GDP & ELF			GDP & WR		
Variable	Co-efficient	t-statistics	Variable	Co-efficient	t statistics	Variable	Co-efficient	t statistics
Constant	-0.647	-0.853	Constant	11.711	20195	Constant	6.476	3.009
GFCF	0.800	12.426	ELF	-2.310	-0.867	WR	0.053	0.409
R	0.938		R	0.186		R	0.089	
R <sup>2</sup>	0.880		R <sup>2</sup>	0.035		R <sup>2</sup>	0.008	
Adjusted R <sup>2</sup>	0.875		Adjusted R <sup>2</sup>	-0.11		Adjusted R <sup>2</sup>	-0.039	
F-statistics (probability)	154.411 (0.000)		F-statistics (probability)	0.751 (0.396)		F-statistics (probability)	0.167 (0.687)	
*Calculated based on growth rate data of each variable.								

According to the results presented in table 6.3 and table 6.4,  $R^2$  of absolute figure of GDP and WR is extremely high (0.968), but  $R^2$  of growth rates of GDP and WR is positive (0.008) but very low. So, the difference is only on the ground of trend effect. To obtain result closer to the real world situation, de-trending of data is required.

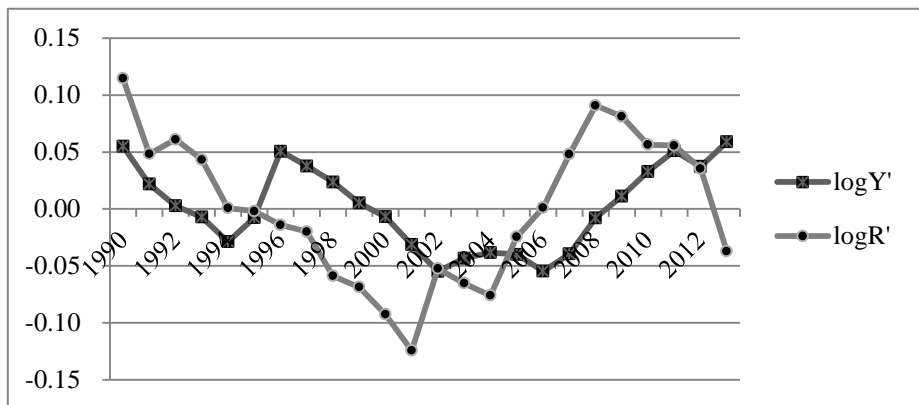
Firstly, logarithms of variables have been taken to linearize the data. However, to get rid of the trend effect, linear trend has been taken into consideration for calculating the predictive value of GDP ( $\log Y$ ) & WR ( $\log R$ ). The equations for GDP & WR are as follows;

$$Y_t (\text{GDP}) = \alpha + \beta_1 \times t \quad t : \text{time } 1, 2, 3, 4, \dots, 24 \quad \dots\dots\dots(\text{ii})$$

$$R_t (\text{WR}) = \alpha + \beta_1 \times t \quad t : \text{time } 1, 2, 3, 4, \dots, 24 \quad \dots\dots\dots(\text{iii})$$

By regression analysis, value of  $\alpha$  and  $\beta_1$  are determined. By substituting the value of  $\alpha$  and  $\beta_1$  and time  $t$  into the equation no. (ii) and (iii),  $\log Y'$  and  $\log R'$  respectively have been calculated (by subtracting the predictive value from real value of each variable)[Annexure-V]. Moreover, regression with time series variables sometimes involve time lag between variables. One variable can influence another with a time lag. Again in this case the following figure of  $\log y'$  and  $\log r'$  represents that there is a time lag between this two variables.

**Figure 6.7: Comparison of GDP and WR after Detrending**

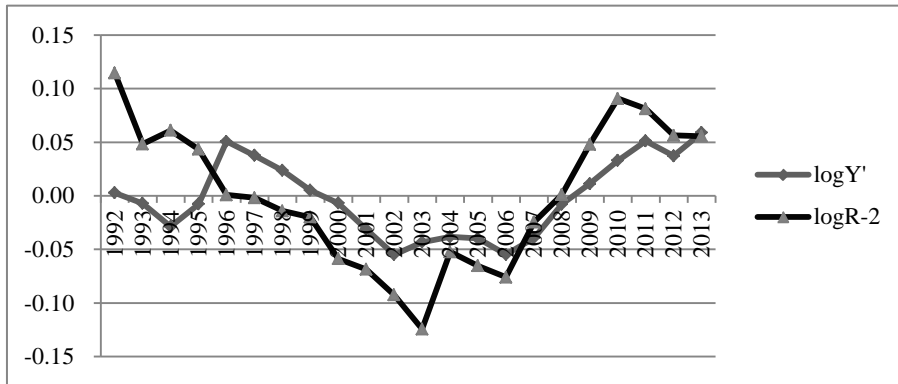


Source: Constructed based on the data on Annexure-V

Because as WR increases, effective consumption demand increases, and also investment for raising productive capacity of consumption goods for their future increases. As for time lag, a single year WR rise does not stimulate consumption. It could take a few years for the WR to fuel the spending for consumption. The lag length is considered 2 years in this case. The graph of  $\log Y'$  and  $\log R'$  lagged for 2 years (figure 6.8)

demonstrate strong relation with GDP and WR,

**Figure 6.8: Comparison of GDP and WR after Detrending (with WR lagged 2 years)**



Source: Constructed based on the data on Annexure-VI

**Table 6.5: Individual Regression Analysis of GDP & WR after removing trend effect**

(Based on Data of Annexure-V & VI)

With linear trends			With linear trends (WR lagged 2 years)		
Variable	Co-efficient	t-statistics	Variable	Co-efficient	t statistics
Constant	0.001	0.107	Constant	-0.002	-0.409
WR	0.200	1.772	WR	0.354	3.791
R	0.353		R	0.647	
R <sup>2</sup>	0.125		R <sup>2</sup>	0.419	
Adjusted R <sup>2</sup>	0.085		Adjusted R <sup>2</sup>	0.390	
F-statistics(prob)	3.141(0.090)		F-statistics(prob)	14.414(0.001)	

This time, R<sup>2</sup> of GDP and WR provides value 0.085 (for linear) and 0.419 (for linear with 2 periods lag for WR). So, it can be concluded that there is strong positive relationship between workers' remittances and GDP. Therefore, WR is an important factor in the economic development of Bangladesh.

## **7. Conclusion**

This paper investigated the impact of workers' remittance on economic growth through time series empirical regression and correlation analysis. From the result, we can probably conclude that workers' remittances is an important factor in the economic development of Bangladesh and there exists a significant positive relationship between workers' remittances and economic growth. Remittance is an important source of private capital flow. These flows could potentially become an important tool for economic development. Because, inflows of remittances have multiplier effect on different macro-economic indicators such as, poverty alleviation, mobilization of savings, boosting up investment. Capital accumulation and so on.

## **End Notes**

1. The information about Bangladesh has been collected from Bangladesh National Information Window, Ministry of Information-Government of the People's Republic of Bangladesh (<http://www.moi.gov.bd/>).
2. The term "diaspora" conveys the idea of transnational populations who may live in one place but still maintain relations with their homelands. According to the definition of Cambridge Advanced Learner's Dictionary & Thesaurus, "diaspora" means the spreading of people from one original country to other countries. In Bangladesh, the term "diaspora" usually refers to long-term Bangladeshi expatriate populations abroad and people of Bangladeshi descent who are born abroad.
3. Currency symbol of Bangladesh is BDT (Bangladesh Taka).

## Annexures

### Annexure-I

#### Comparison of Source of External Funds of Bangladesh

Year	Million USD			
	Remittance	FDI	ODA	Portfolio Investment
FY-1998	1975.00	249	1057.7	3
FY-1999	1706.00	198	1192.1	-6
FY-2000	1949.00	194	1241.3	0
FY-2001	1882.10	174	1023.5	0
FY-2002	2501.10	391	1091.7	-6
FY-2003	3062.00	376	1310.5	2
FY-2004	3372.00	276	1470.7	6
FY-2005	3848.30	800	1554.4	0
FY-2006	4801.90	743	1182.1	32
FY-2007	5978.50	760	1240.5	106
FY-2008	7914.80	748	1583.8	47
FY-2009	9689.30	961	1716.0	-159
FY-2010	10987.40	913	2182.8	-117
FY-2011	11650.30	775	1605.7	109
FY-2012	12843.40	1191	1872.5	240
FY-2013	14461.20	1726	2451.9	368
FY-2014	14228.30	1550	2619.3	937
FY-2015 <sup>P</sup>	15317.00	1700	3470.5	618
P=Provisional				

Source: Constructed from Bangladesh Bank Annual Report, BOP Data different Years

**Annexure-II****Top 10 Remittance Recipient Countries in Developing World (2004-2014)\***

Region/ Country	Remittance inflow in (billion USD)										
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014e
World	234	266	303	337	457	436	453	507	531	551	582
Developing World	163	194	226	251	324	303	333	373	400	414	435
South Asia	29	33	40	44	72	75	82	96	108	111	117
India	18.75	22.13	28.33	37.22	49.98	49.20	53.48	62.50	68.82	69.97	71.00
China	6.64	23.63	27.57	38.40	47.74	41.60	52.46	61.58	57.99	59.49	64.14
Philippine	11.47	13.73	15.50	16.44	18.85	19.96	21.56	23.05	24.61	26.70	28.38
Mexico	19.83	22.74	26.54	26.88	26.04	22.08	22.08	23.59	23.37	23.02	24.23
Nigeria	2.27	14.64	16.93	18.01	19.21	18.37	19.82	20.62	20.63	20.89	21.29
Egypt	3.34	5.02	5.33	7.66	8.69	7.15	12.45	14.32	19.24	17.83	18.00
Pakistan	3.94	4.28	5.12	6.00	7.04	8.72	9.69	12.26	14.01	14.63	17.06
Bangladesh	3.58	4.64	5.67	7.26	9.22	10.74	11.28	12.96	14.24	13.86	15.05
Vietnam**	2.31	3.15	3.80	6.18	6.81	6.02	8.26	8.60	10.00	11.00	11.40
Ukraine	0.41	2.41	3.10	5.29	6.78	5.94	6.54	7.82	8.45	9.67	9.00
Indonesia	1.87	5.42	5.72	6.17	6.79	6.79	6.92	6.92	7.21	7.62	8.35
Poland	4.72	6.47	8.49	10.47	10.41	8.09	7.58	7.64	6.94	6.98	7.96
Morocco	4.22	4.59	5.45	6.73	6.89	6.27	6.42	7.26	6.51	6.88	6.82
Romania	0.13	4.71	6.67	8.46	9.29	4.88	3.88	3.89	3.67	3.52	3.63
*Data in this table are arranged according to top countries of remittance recipients in the year 2013											
**Data for Vietnam in the year 2004 is collected from Annual Report, 2004 of The State Bank of Vietnam, The central bank of Vietnam. e= Estimated value											

Source: The official database of World Bank (<http://data.worldbank.org/indicator>).



**Annexure-III**

Top remittance recipient countries around the world\*

SL No.	Country	Remittance inflow in (billion US\$)										
		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
1.	India	18.75	22.13	28.33	37.22	49.77	49.20	53.48	62.50	68.82	69.97	71.00
2.	China	6.64	23.63	27.57	38.40	47.74	41.60	52.46	61.58	57.99	59.49	64.14
3.	Philippines	11.47	13.73	15.50	16.44	18.85	19.96	21.56	23.05	24.61	26.70	28.38
4.	France	12.26	11.95	13.03	14.45	16.28	16.06	19.46	22.56	22.05	23.34	24.73
5.	Mexico	19.83	22.74	26.54	26.88	26.04	22.08	22.08	23.59	23.37	23.02	24.23
6.	Nigeria	2.27	14.64	16.93	18.01	19.21	18.37	19.82	20.62	20.63	20.89	21.29
7.	Egypt	3.34	5.02	5.33	7.66	8.69	7.15	12.45	14.32	19.24	17.83	18.00
8.	Germany	6.58	6.87	7.48	9.77	10.97	12.34	12.79	14.52	15.14	15.20	15.99
9.	Pakistan	3.94	4.28	5.12	6.00	7.04	8.72	9.69	12.26	14.01	14.63	17.06
10.	Bangladesh	3.58	4.64	5.67	7.26	9.22	10.74	11.28	12.96	14.24	13.86	15.05
11.	Belgium	6.87	6.89	7.27	8.99	10.42	10.44	10.29	10.98	10.16	11.11	11.54
12.	Vietnam	-	3.15	3.80	6.18	6.81	6.02	8.26	8.60	10.00	11.00	11.40
13.	Spain	7.54	6.66	7.58	9.30	10.15	8.95	9.10	9.92	9.66	9.58	9.67
14.	Ukraine	0.41	2.41	3.10	5.29	6.78	5.94	6.54	7.82	8.45	9.67	9.00
15.	Indonesia	1.87	5.42	5.72	6.17	6.79	6.79	6.92	6.92	7.21	7.62	8.35
16.	Poland	4.72	6.47	8.49	10.47	10.41	8.09	7.58	7.64	6.94	6.98	7.96
17.	Morocco	4.22	4.59	5.45	6.73	6.89	6.27	6.42	7.26	6.51	6.88	6.82
18.	Romania	0.132	4.71	6.67	8.46	9.29	4.88	3.88	3.90	3.67	3.52	3.63
19.	UK	5.92	1.77	1.73	1.97	1.94	1.83	1.70	1.80	1.78	1.71	1.91

\*country data has been arranged according to the ranking based on the year, 2014.

Source: The official database of World Bank (<http://data.worldbank.org/indicator>).

**Annexure-IV****Empirical Data**

Year	GDP	GFCF	ELF	WR	Yearly Growth Rate of			
	Million USD	Million USD	In Millions	Million USD	GDP	GFCF	ELF	WR
1990	31,219	5,138	35.11	778.87	-	-	-	-
1991	30,957	5,231	36.09	769.37	-0.84	1.81	2.79	-1.22
1992	31,709	5,487	36.70	911.76	2.43	4.89	1.69	18.51
1993	33,167	5,952	37.24	1,007.38	4.60	8.47	1.47	10.49
1994	33,769	6,214	37.78	1,050.88	1.82	4.40	1.45	4.32
1995	37,940	7,254	38.42	1,201.66	12.35	16.74	1.69	14.35
1996	46,438	9,627	38.97	1,344.66	22.40	32.71	1.43	11.90
1997	48,244	10,525	39.51	1,526.50	3.89	9.33	1.39	13.52
1998	49,985	11,057	40.15	1,606.08	3.61	5.05	1.62	5.21
1999	51,271	11,649	40.68	1,806.79	2.57	5.35	1.32	12.50
2000	53,370	12,707	41.29	1,967.53	4.09	9.08	1.50	8.90
2001	53,991	13,052	42.41	2,104.55	1.16	2.72	2.71	6.96
2002	54,724	13,321	43.53	2,858.06	1.36	2.06	2.64	35.80
2003	60,159	14,847	44.65	3,191.66	9.93	11.46	2.57	11.67
2004	65,108	16,272	45.75	3,583.82	8.23	9.60	2.46	12.29
2005	69,443	17,937	46.81	4,642.39	6.66	10.23	2.32	29.54
2006	71,819	18,776	47.77	5,667.36	3.42	4.68	2.05	22.08
2007	79,612	20,841	48.69	7,262.50	10.85	11.00	1.93	28.15
2008	91,631	24,009	49.59	9,222.94	15.10	15.20	1.85	26.99
2009	102,478	26,855	50.50	10,378.69	11.84	11.85	1.84	12.53
2010	115,279	30,257	51.44	11,281.69	12.49	12.67	1.86	8.70
2011	128,638	35,274	52.63	12,960.35	11.59	16.58	2.31	14.88
2012	133,356	37,689	53.68	14,236.41	3.67	6.85	2.00	9.85
2013	149,991	42,582	54.75	13,857.13	12.47	12.98	1.99	-2.66

Source: The official database of World Bank (<http://data.worldbank.org/indicator>)

**Annexure-V**

**Calculation for Avoiding Trend Effect of Data (Linear trend)**

Year	Y(GDP)	R(WR)	Time	Calculation $Y_t$ and $R_t$		logY'	logR'
	logY	logR	t	$Y_t (\log Y) = \alpha + \beta_1 \times t^*$	$R_t (\log R) = \alpha + \beta_1 \times t^{**}$		
1990	4.49	2.89	1	4.44	2.78	0.05	0.11
1991	4.49	2.89	2	4.47	2.84	0.02	0.05
1992	4.50	2.96	3	4.50	2.90	0.00	0.06
1993	4.52	3.00	4	4.53	2.96	-0.01	0.04
1994	4.53	3.02	5	4.56	3.02	-0.03	0.00
1995	4.58	3.08	6	4.59	3.08	-0.01	0.00
1996	4.67	3.13	7	4.62	3.14	0.05	-0.01
1997	4.68	3.18	8	4.65	3.20	0.04	-0.02
1998	4.70	3.21	9	4.68	3.26	0.02	-0.06
1999	4.71	3.26	10	4.70	3.33	0.01	-0.07
2000	4.73	3.29	11	4.73	3.39	-0.01	-0.09
2001	4.73	3.32	12	4.76	3.45	-0.03	-0.12
2002	4.74	3.46	13	4.79	3.51	-0.05	-0.05
2003	4.78	3.50	14	4.82	3.57	-0.04	-0.07
2004	4.81	3.55	15	4.85	3.63	-0.04	-0.08
2005	4.84	3.67	16	4.88	3.69	-0.04	-0.02
2006	4.86	3.75	17	4.91	3.75	-0.05	0.00
2007	4.90	3.86	18	4.94	3.81	-0.04	0.05
2008	4.96	3.96	19	4.97	3.87	-0.01	0.09
2009	5.01	4.02	20	5.00	3.94	0.01	0.08
2010	5.06	4.05	21	5.03	4.00	0.03	0.06
2011	5.11	4.11	22	5.06	4.06	0.05	0.06
2012	5.13	4.15	23	5.09	4.12	0.04	0.04
2013	5.18	4.14	24	5.12	4.18	0.06	-0.04

\* $\alpha=4.411$ ,  $\beta_1=0.029$ ; \*\* $\alpha=2.716$ ,  $\beta_1=0.061$

**Annexure-VI**

**Calculation for Avoiding Trend Effect of Data with 2 years' time lag for WR**

<b>Year</b>	<b>logY'(GDP)</b>	<b>logR'(WR) lagged 2 years</b>
1992	0.00	0.11
1993	-0.01	0.05
1994	-0.03	0.06
1995	-0.01	0.04
1996	0.05	0.00
1997	0.04	0.00
1998	0.02	-0.01
1999	0.01	-0.02
2000	-0.01	-0.06
2001	-0.03	-0.07
2002	-0.05	-0.09
2003	-0.04	-0.12
2004	-0.04	-0.05
2005	-0.04	-0.07
2006	-0.05	-0.08
2007	-0.04	-0.02
2008	-0.01	0.00
2009	0.01	0.05
2010	0.03	0.09
2011	0.05	0.08
2012	0.04	0.06
2013	0.06	0.06

## REFERENCES

- Abu Siddique, E. A., Selvanathan & Saroja Selvanathan., (2012). “Remittances and Economic Growth: Empirical Evidence from Bangladesh, India and Sri Lanka”, *The Journal of Development Studies*, 48(8), 1045-1062.
- BMET, (2015). *Statistical Reports*, BMET (Bureau of Manpower, Employment and Training). Ministry of Expatriates Welfare and Overseas Employment Government of the People’s Republic of Bangladesh. Retrived from [http://www.bmet.gov.bd/BMET/Statistical DataAction](http://www.bmet.gov.bd/BMET/Statistical>DataAction) (Accessed on 15-03-2015).
- Bangladesh Bank, (2014). *Quarterly Report on Remittance Earnings October-December 2014*. Bangladesh Bank, Research Department, External Economics Division. Retrieved from [https://www.bb.org.bd/pub/quarterly/remittance earnings/oct dec2014.pdf](https://www.bb.org.bd/pub/quarterly/remittance_earnings/oct_dec2014.pdf) (Accessed on 24-05-2015).
- Bangladesh Bank, (2015). *Various Issues*, The Central Bank of Bangladesh, Government of the People's Republic of Bangladesh, Dhaka. Retrieved from <http://www.bangladesh-Bank.org/econdata/Wageremittance> (Accessed on 04-02-2015).
- BBS, (2013). *Report on Survey on the Use of Remittance (SUR) 2013*, BBS (Bangladesh Bureau of Statistics), SID (Statistics and Information Division), Ministry of Planning. Retrieved from [http://www.bbs.gov.bd/WebTestApplication //userfiles/Image/LatestReports/SUR\\_2013.pdf](http://www.bbs.gov.bd/WebTestApplication//userfiles/Image/LatestReports/SUR_2013.pdf).
- Chami, R., Fullenkamp, C., Jahjah, S., (2003). “Are immigrant remittance flows a source of capital for development?”, *IMF Working Paper* 03/189. IMF, Washington.
- CPD, (2014), *Country Illustration Report: Bangladesh*. Centre for Policy Dialogue (CPD), Bangladesh. European Report on Development, 2014: Counry Illustration Workshop. Retrived from <http://cpd.org.bd/index.php/erd-country-workshop-erd-on-development-2014/>(Accessed on 30-07-2014 )
- Das, A., and Chowdhury, A., (2011). “Remittances and GDP Dynamics in 11 Developing Countries: Evidence from Panel Cointegration and PMG Technique”, *Romanian Economic Journal*, 14, 3–24.
- Datta, K., and Sarkar, B., (2014). “Relationship between Remittances and Economic Growth in Bangladesh: An Econometric Study”, *Bangladesh Development Research Working Paper Series.BDRWPS-19*. Bangladesh Development Research Center (BDR) Bangladesh. [http://www. Bangladeshstudies.org/wps/](http://www.Bangladeshstudies.org/wps/).
- Giuliano, P., & Ruiz-Arranz, M., (2005). “Remittances, Financial Development and growth”, IMF Working Paper, WP/05/234.<http://www.imf.org/external/pubs/ft/wp/2005/wp05234.pdf>(Accessed on 15-06-2015)
- GoB, (2013). *Flow of External Resources into Bangladesh*. Government of Bangladesh (GoB), Dhaka: Economic Relations Division (ERD), Ministry of Finance, Government of Bangladesh.

Remittance Inflows and Its Contribution to the Economic Growth of Bangladesh (Shirin Akter)

- ILO, (2014). *Reinforcing Ties: Enhancing Contributions from Bangladeshi Diaspora Members*, International Labour Organization, ILO Country Office for Bangladesh. – Dhaka. Retrived from [http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilo-dhaka/documents/publication/wcms\\_308803.pdf](http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilo-dhaka/documents/publication/wcms_308803.pdf) (Accessed on 31-12-2014 ).
- IOM, (2005). “Dynamics of Remittance Utilization in Bangladesh”, *IOM Migration Research Series.No.18* International organization for Migration, Geneva, Switzerland. Retrived from [http://publications.iom.int/bookstore/ free/MRS\\_18.pdf](http://publications.iom.int/bookstore/free/MRS_18.pdf).
- IOM, (2009). *IOM and Remittances*, International Organization for Migration. Retrieved from [http://publications.iom.int /systemem/files/pdf/iom/files/pdf/iom\\_and\\_remittances.pdf](http://publications.iom.int/systemem/files/pdf/iom/files/pdf/iom_and_remittances.pdf).
- Iqbal, Z., & Sattar, A., (2005). *The Contribution of Workers' Remittances to Economic Growth in Pakistan*, Research Report, Pakistan Institute of Development Economics. Retrived from <http://www.pide.org.pk/Research/Report187.pdf>.
- Jawaid, S. T., & Raza, S. A., (2012). “Workers' remittances and economic growth in China and Korea: an empirical analysis”. *Journal of Chinese Economic and Foreign Trade Studies*, 5(3), 185–193.
- Jawaid, S. T. and Raza, S. A., (2014). “Effects of Workers' Remittances and its Volatility on Economic Growth in South Asia”, *International Migration*. (<http://onlinelibrary.wiley.com/doi/10.1111/imig.12151/epdf>).
- Moody's Report, (2014). *Credit analysis Bangladesh Government of*. Moody's Investor Service Moody's Corporation, Moody's Investors Service, Inc., Moody's Analytics. (<https://www.bb.org.bd/openpdf.php>)
- Paul, B.P., and Das, A., (2011). “The Remittances Remittance-GDP Relationship in the Liberalized Regime of Bangladesh: Cointegration and Innovation Accounting”, *Theoretical and Applied Economics*, 18(9): 41–60.
- Rao, B. B. and Hassan, G. M., 2012. “Are the Direct and Indirect Growth Effects of Remittances Significant?”, *World Economy*, 35, 351–372.
- Ratha, D., & Mohapatra, S., 2007. *Increasing Marco Economic Impact of Remittances on Development*. Development Prospect Group, The World Bank. ([http://dilipratha.com/index\\_files/G8Berlin.pdf](http://dilipratha.com/index_files/G8Berlin.pdf))
- Siddiqui, T., 2003. *Migration as a Livelihood Strategy of the Poor: the Bangladesh Case*, Paper presented at the Conference on Migration, Development and Pro-poor Policy Choices in Asia, Dhaka, 22-24, June. Retrieved from [http://livelihoods.org/hot\\_topics/docs/Dhaka\\_CP\\_5pdf](http://livelihoods.org/hot_topics/docs/Dhaka_CP_5pdf).
- Standard & Poors' Report, (2014). *Research Update: Ratings On Bangladesh Affirmed At 'BB-/B', Outlook Stable 2014*. Standard & Poor's Financial Services LLC, a part of McGraw Hill Financial. (<https://www.bb.org.bd/openpdf.php>).
- UN. (2011), *Impact of Remittances in Poverty in Developing Countries*. United Nations Conference on Trade and Development. Retrieved from ([http://unctad.org/en/Docs/ditctncd20108\\_en.pdf](http://unctad.org/en/Docs/ditctncd20108_en.pdf))
- Waheed, A., & Aleem, A., (2008). “Workers' remittances and economic growth: empirical evidence from Pakistan”,

*Journal of Social Science and Humanities*, 47(1), 1–12.

World Bank, (2014). *The World Bank Migration and Development Brief*. 23, Migration and Remittances Team, Development Prospects Group. Retrieved from <http://sitesources.worldbank.org/INTPROSPECTS/Resources>.

World Bank, (2015). *World Tables. Various Issues*. Washington, DC. Retrived from [http:// data.worldbank.org](http://data.worldbank.org) .(Assessed on June 2015).

主指導教員（佐藤芳行教授）、副指導教員（石川耕三准教授・巖成男准教授）