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Migrant Workers Remittance and Economic Growth: Evidence from Bangladesh

Md Shoaib Ahmed*

Abstract

Migrant workers' remittances constitute one of the most significant sources of external finance for many developing countries. Although it reveals an abating trend in recent years, Bangladesh met with regular and enormous labor migration to overseas from 1960s and it is still one of the most remittance gaining countries among the developing ones in Asia. Empirical studies conducted in different countries reveal that workers' remittances may have rising, declining or neutral effect on economic growth. In this study, it is examined whether workers' remittances have growth impact on Bangladesh economy, by using data pertaining to 1995-2006 period. The time series regression results demonstrate that remittance flows to Bangladesh have been statistically significant but have negative impact on growth. On the other hand, exports and domestic investments positively affect the economic growth, while foreign direct investment has no consequential effect.

Keywords: Migrant workers' remittances, Migration, Economic growth, Time Series, Regression.

1. Introduction

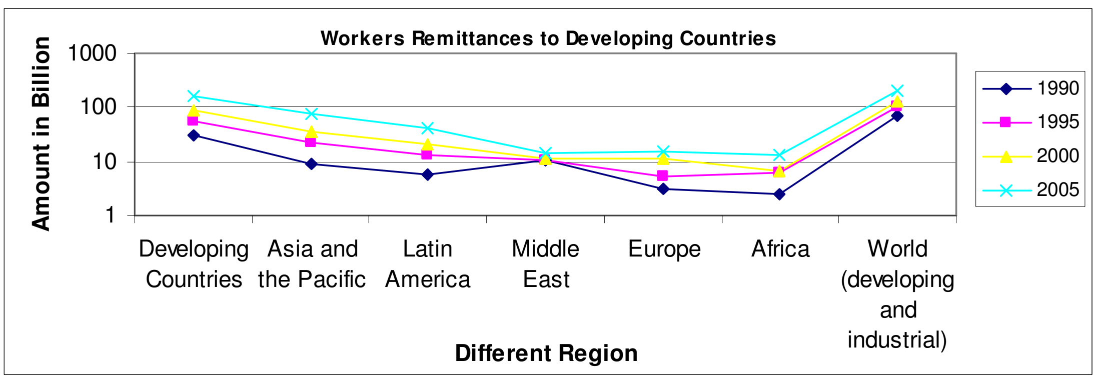
Worldwide, remittance funds are being transferred by workers (remitters) who are living and working away from their homes as well as their friends and families. Examples include Middle Easterners living in Europe, Latin Americans in the United States, Koreans and Filipinos in Japan and Bangladeshis, Pakistanis and Indians in Middle East. Although the use of remittances differs from country to country, the recipients of remittances usually rely on them for living expenses, education and investments (Carrasco and Ro, 2007:1). The remittances have become an admired concern in the international financial literature over a decade because of their volume and their potentials to alleviate poverty. Remittance flows have continued to increase hand-in-hand with ascend in the number of migrants around the world and will likely to continue to do so in the coming years. In 1995, remittances to developing countries totalled about $57.8 billion and this figure shot up to $305 billion by 2008 (see Table-1). The World Bank estimated that in 2009 it will fall to approximately $290 billion due to economic recession. Thus, remittances have developed into a significant source of income for most of the developing countries but economic meltdown has caused turmoil in remittance earnings. The great sizes of remittances related to other external flows and to the GDP in many countries imply that macroeconomic effects of remittances may be of critical importance in many countries. Worldwide top 19 remittance recipients receive more than 10 percent of their GDP in remittances.

* Senior Lecturer, Faculty of Business, ASA University Bangladesh

Remittances may ameliorate some of the problems that plague developing countries, such as credit crunch, inequality in income and in employment opportunities, income volatility and poverty. At the household level, remittances help to solve such problems by supplying the resources necessary to obtain a house, start a business and maintain the education or health expenses, all of that are usually far beyond the reach of enormous segments of the population in the recipient countries. At a macro level, the productive financial and social externalities generated by remittances, which are likely to be large, and offer a constant source of foreign currency, can prevent balance of payment crisis (Lopez-Cordova and Olmedo, 2006:7,8).

Migrant workers send money to their families through formal and informal channels. Formal channels include major banks, money transfer operators (MTOs) and authorised agencies. A number of migrant workers use formal channels, but due to language blockade as well as associated costs for these services may discourage the workers from using the formal channel. Consequently, most remittances are transferred through informal channels such as Hundi. For instance, migrant workers may carry cash home themselves or send cash through the mail or a friend (Carrasco and Ro, 2007:3, 4). According to the findings of a survey of central banks in 40 developing countries, as referred by Luna Martinez (2005), existing data in most countries do not reflect the full amount of the remittance inflows, and most countries need to establish better mechanisms that would allow them to maximize the developmental effect of remittance inflows. In this context, Luna Martinez (2005) argues that by establishing new savings and investment instruments for remittance recipient households, a big part of remittance flows might be channelled to productive investments, thus nurturing economic growth.

Figure 1: Workers' Remittances to Developing Countries



Source: World Bank (2006)

On the other hand, there is no common agreement yet on how to measure international workers' remittances in developing countries. Thus, the figures revealed do not reflect the accurate amounts of remittances received by countries. Given measurement uncertainties, remarkably the unidentified amount of unrecorded flows through formal and informal channels, the precise size of remittance flows may be much higher (perhaps 50 percent or more), with significant regional and country variations. Due to this common data deficiency, as Aydas et al. (2004:4) pointed out, empirical analysis on workers' remittances could merely emphasize the "official" aspect of its measurement.

Despite the importance given to remittances from developed countries, remittance flows make up 30-45 percent of total remittances received from developing countries, reflecting the fact that over half of migrants from developing countries migrate to other developing countries. Remittance flows to poor countries originate largely in the middle-income developing countries (World Bank, 2006:85). Studies suggest that there is a positive relationship between remittance and economic growth; capital accumulation and poverty alleviation of recipient countries. Although the results seem varied, most of them employed cross country or panel data and therefore there is a need to authenticate it further into country specific case studies.

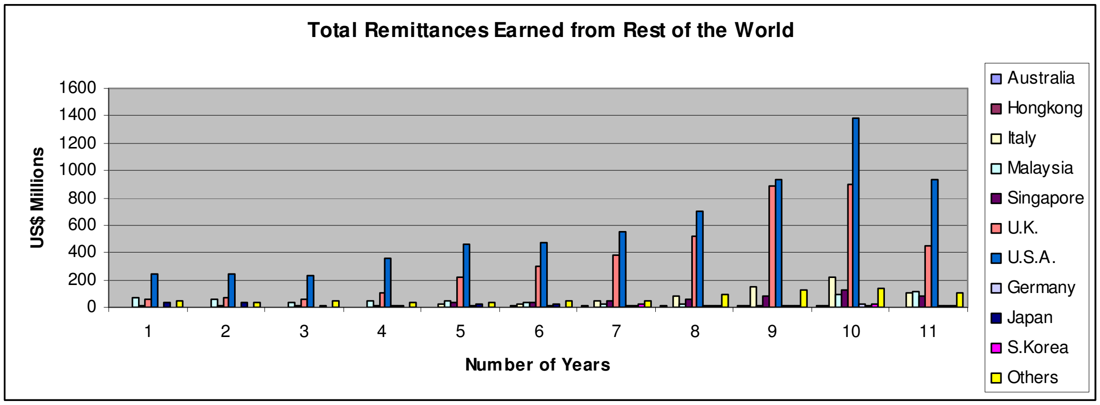
The objective of this study is to scrutinize whether there is an impact of migrant workers' remittances on economic growth of Bangladesh. The concept of this study is inspired from the similar kind of study on Turkish economy by Kadir. K. (2009). Wherefore, Bangladesh has been one of the prominent remittance receiver countries throughout the last twenty years, it is practical to think that migrant workers' remittances could have a significant impact on growth of the economy of Bangladesh. To this end, an econometric procedure is employed which heavily relies on relationship between foreign exchange sources (remittances, exports, foreign direct investments additional to gross domestic investments) and economic growth (GDP per capita).

2. Workers' Migrating from Bangladesh

2.1. Historical Perspective

Bangladesh has a long history of migration and overseas remittances. It is reported that as far back as in 1942 Bangladeshi nationals had migrated to the port cities of London and Liverpool in the UK (Mahmood 1991). The British had a scheme of issuance of employment voucher to overseas workers seeking work abroad. The scheme, during the British regime, opened up a great opportunity for Bangladeshi workers to migrate to United Kingdom (UK). It is believed that thousands of Bangladeshis, especially from Sylhet, took the opportunity and created a flow of migration towards UK. For certain reasons, however, this flow had weakened by the 1960s and the direction of the migration flow changed in the 1970s. After the birth of Bangladesh, most Bangladeshi migrants sought to look for job opportunities in the Middle East countries as well as selected EU destinations (mainly Germany). A tendency to find employment in developed countries like USA, Canada, and Italy and in some Asian countries like Japan, Malaysia and Singapore was observed in the 1990s and onward. The process of migrating abroad from Bangladesh is continuing strongly till now. During the period from 1976 to 2006, the migration of labour totalled 4.55 million with yearly migration being 6,087 in 1976 and 3, 77,591 in 2006. The huge increase in outward migration as indicated above makes Bangladesh as one of the major remittance recipient countries in the world.

Figure 2: Remittances Earned from Rest of the World

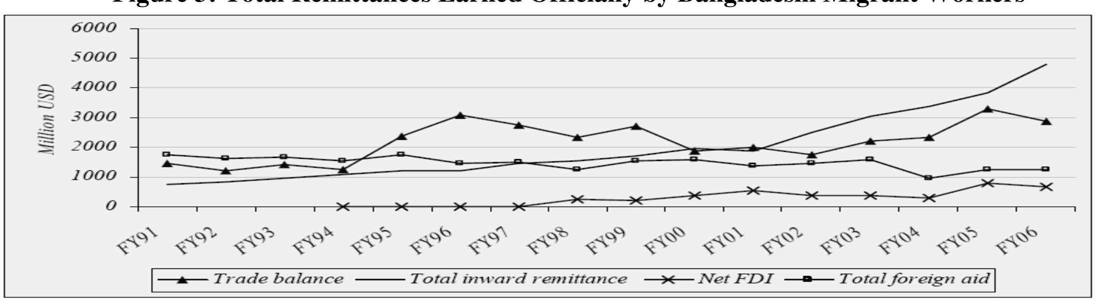


Source: Bangladesh Bank

2.2. Bangladeshi Workers Remittances

The total amount of remittances gradually increased over the years with a very minor decline in recent years (Figure 3). It is also noticeable from the figure that international remittances have been outpacing foreign aid and trade deficit for quite a few years and net Foreign Direct Investment (FDI) for the whole period under study. It implies that remittance is one of the most important sectors among all types of inflows and big enough to balance the general negative gap between export and import in Bangladesh. In Bangladesh Bank's Annual Report 2003-04, it was indicated that the recent boost of remittances has been attributed to the efforts to encourage remittances through official channel by implementation of measures such as opening of new exchange houses in source countries, expansion of drawing arrangements, setting an annual remittance threshold, close monitoring and supervision of banks, speeding up of delivery to the beneficiaries and more importantly, surveillance measures under the Money Laundering Prevention Act.

Figure 3: Total Remittances Earned Officially by Bangladeshi Migrant Workers



It is clearly understood from the above figure that while export, net FDI and foreign aid show unsteady movement, remittances have retained a moderately Table uptrend in spite of frequent economic shocks.

2.3. Importance of remittance vis-à-vis other macroeconomic variables

An interesting way to analyze the dynamics of remittances is to observe the trend lines of remittances as a share of key macroeconomic variables such as export, import, GDP, Annual Development Program (ADP) etc. The contributions of remittances as presented in Table-1 provide an idea about the relative importance of remittances vis-à-vis to the key macroeconomic variables and the variation of this importance over time. According to the Table, remittances in Bangladesh as a percentage of most key macroeconomic variables showed upward trend during the period from 1995 to 2006. Most significantly, the remittance-GDP ratio touched 7.75 percent mark in 2006 as compared to 3.5 percent in 1997. Over all, upward tendency of the share testify to the popular view that remittances are gradually making more and more important contribution in our GDP over time.

Table 1: Remittances as Percentage of Key Macroeconomic Variables

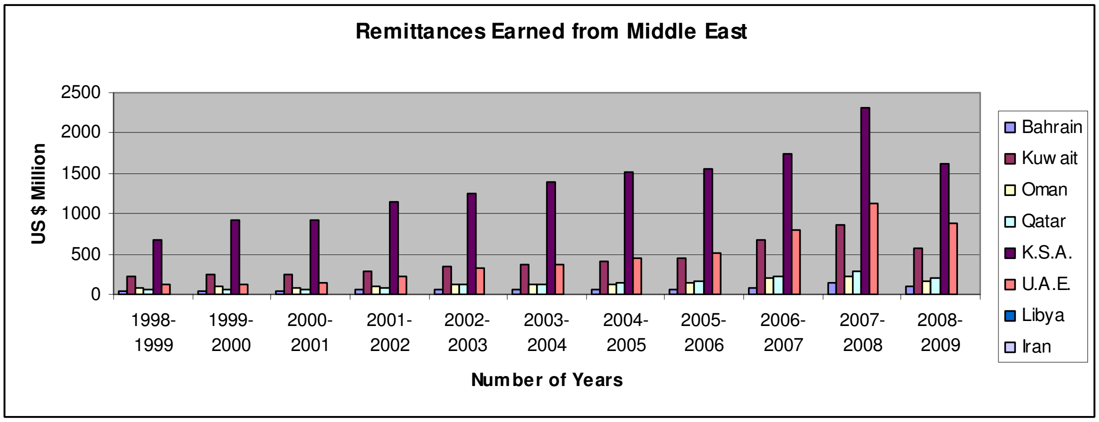
Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Remittances / Tax Revenue	45	46	52	57	52	66	71	70	74	87
Remittance / ADP	57	63	66	63	63	102	115	118	126	186
Remittances / Domestic Saving	22	20	21	23	22	29	32	31	32	38
Remittances / Domestic Investment	17	16	17	18	17	23	25	25	26	31
Remittances / Export	33	29	32	34	29	42	47	45	45	46
Remittances / Import	21	20	21	26	22	32	35	34	32	36
Remittances / Trade Deficit	54	65	63	105	94	141	138	145	117	167
Remittances / Reserve	87	89	112	122	144	158	124	125	131	138
Remittance / GDP	3.49	3.46	3.73	4.14	4.01	5.26	5.90	6.17	6.37	7.75
Remittances / FDI	92.2	61.3	86.1	52	34.2	64	81.4	122.2	48.1	71.3
Remittances / Foreign aid	100	116	116	124	137	200	193	353	306	388

Source: Policy Analysis Unit, Bangladesh Bank (June 2007)

2.4. Source pattern

From Bangladesh most of the workers have been migrating to Middle-Eastern countries (such as Saudi Arab, Kuwait, Bahrain and Oman) and they have been contributing the greater portion (70 percent or above throughout except 2006) of remittances to Bangladesh with a minor downtrend since 1995-2006. The recent boost in health in Rest of the World (ROW) share and a fall in Middle-East share can be moderately explained by a transfer in migration to USA, Canada, UK, Germany, Italy, Japan, Malaysia, and Singapore. The change in the region of migration has been conveyed mainly about two purposes of the migrants; one is higher education and another is to earn more. Apart from the migration flow, tighter inspection by immigration and finance authorities especially in the USA and Europe after the 9/11 tragedy appears to be responsible for increasing the share of ROW in remittances. In addition, remittances from Iraq, a middle-eastern country, have been zilch since 1991-92, which contributed somewhat to the decreasing or increasing share of middle-east/ROW region. Another important feature of source pattern of remittance is that the Kingdom of Saudi Arabia (K.S.A.) dominates the remittance flow among the Middle-East region.

Figure 4: Remittances Earned from Middle East Countries



Source: Bangladesh Bank

3. Workers' Remittances and Growth

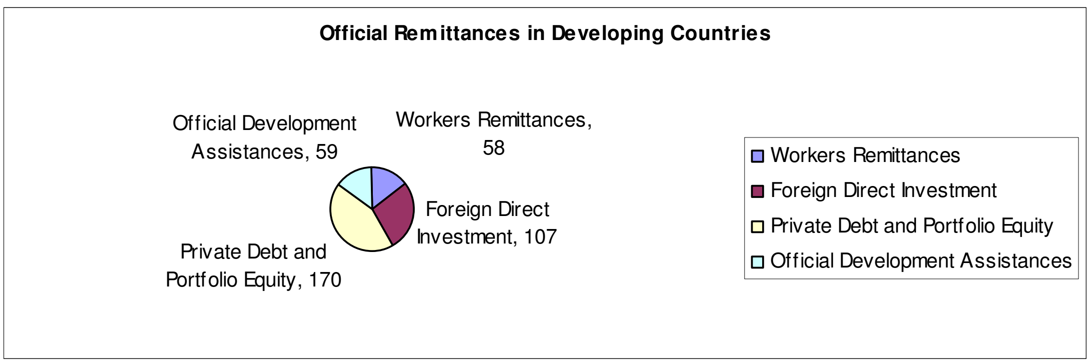
3.1. Growth effect of remittances

Remittances have a potential positive impact as a development tool for the recipient countries. The growth effects of remittances can be decomposed into its impact on savings, investments, growth, consumption, poverty and income distribution. The impact of remittances on economic growth in the receiving economies is expected to proceed through savings and investment as well as a short-run effect on aggregate demand and output during consumption. Workers' remittances are a component of foreign savings and they balance national savings by increasing the total pool of resources available for investments (Solimano, 2003:6).

For some recipient countries, remittances are large enough to have broader macroeconomic implications. As Ratha (2003:164) pointed out, remittances enhance the recipient individuals' incomes and increase the recipient country's foreign exchange reserves. If remittances are invested, they contribute to output growth, and if they are consumed, then they also generate positive multiplier effects. By generating a steady stream of foreign exchange earnings, they can improve a country's creditworthiness for external borrowing and through innovative financing mechanisms (such as securitization), they can expand access to capital and lower borrowing costs. While large and sustained remittance inflows can contribute to currency appreciation and so affect the production cost-sensitive trade goods (such as labor-intensive manufactures). Furthermore, the "Dutch-disease" effects of remittances are of relatively minor concern insofar as remittances grow gradually over long periods (World Bank, 2006: 86). Additionally, remittances are more stable in comparison with other source of external finance such as official development aids (ODA) and foreign direct investments (FDI), and may be countercyclical. Large remittance inflows, however, can lead to exchange rate appreciation and lower export competitiveness.

Although the evidence on the effect of remittances on long-term growth remains inconclusive, in economies where the financial system is underdeveloped, remittances appear to alleviate credit constraints and may stimulate economic growth, via financing education and health and increasing investments. Some analysts and scholars argue that remittance benefits are only felt at the individual receiver level, but some case studies suggest that the benefits of remittances to individuals have spill-over effects that can translate into a positive impact on the local economy (Carrasco and Ro, 2007: 9). To the extent that they increase consumption, remittances may increase per capita income levels and reduce poverty and inequality, even if they do not directly impact growth. On the other hand, large outflow of workers, especially skilled workers, can reduce growth in labor-skilled countries. Remittances may also indirectly affect labor supply, by encouraging some remittance-recipient households to choose more leisure than labor.

Figure 5: Total official Remittance in Developing Countries



Source: World Bank (2006)

4. Review of literature

Much of the current literature on the workers' remittances has concentrated on two broad strands. Studies related with macroeconomics, especially growth impact of remittances constitute one of them. The other one is concerned with determining factors of remittance inflows. (For detailed literature review-please see Hagen-Zanker and Siegel (2007)).

Various studies on the effect of remittances to economic growth have shown diverse results. For instance, Chami et al. (2003), covering 113 countries found that remittances had a negative effect on growth. The authors of the study attribute this negative effect on the moral hazard problem that remittances create. Essentially, the study concluded that income from remittances allows receiving families to decrease their own work and productivity, which then translates into a reduction in the labor supply for the developing country. In a study conducted by IMF (2005) about the impact of remittances on growth over an extended period (1970-2003) for 101 developing countries found no statistical link between remittances and per capita output growth, or between remittances and other variables such as education or investment rates. However, this inconclusive result may be attributed to measurement difficulties arising from the fact that remittances may behave countercyclical with respect to growth.

Faini (2002) and Ang (2007) found that the impact of remittances on growth is positive. Faini (2002) argues that remittances overcome capital market imperfections and allow migrant households to accumulate positive assets. Ang (2007) shows the relationship between workers' remittances and economic growth at the national and at the regional levels in the case of Philippines. He found that at the national level remittances do influence economic growth positively and significantly. When he broke down his analysis at the regional level to confirm the national results, he found that mixed results giving rise to his anecdotal observations those remittances do not positively affect economic growth. In sum, he concludes that remittances have to be translated to value-added activities and investments which are more foundational sources of development and growth.

Glytsos (2005) using data for 1969-1998 for Egypt, Greece, Jordan, Morocco, and Portugal shows that the impact of remittances on output varies over time and across countries. For Egypt, Jordan, and Morocco the growth-generating capacity of rising remittances characteristic is smaller than the growth-destroying capacity of falling remittances. Therefore the large fluctuations in the real value of remittances contribute to large fluctuations of output growth and cause instability in the economies concerned. Remittances, like aid, may be more effective in a good policy environment. For instance, a good investment climate with well-developed financial systems and sound institutions is likely to imply that a higher share of remittances is invested in physical and human capital. Giuliano and Ruiz-Arranz (2005) show that in the economies where the financial system is underdeveloped, remittances alleviate credit constraints and work as a substitute for financial development, improving the allocation of capital and therefore accelerating economic growth.

5. Empirical Analysis

5.1. Variables, data and the model

In this section the impact of remittances on macroeconomic growth are estimated. A modified version of the model developed by Chami et al. (2003) was employed, which posits that because remittances transfer takes place under asymmetric information and uncertainty, remittances are burdened with a moral hazard problem that limits their ability to contribute to positive business and human capital investment in developing economies, thus leading to negative economic growth. After briefly outlining their model the result of this study estimates, using the same general empirical methodology but making slight modifications and adding some different variables. Using panel data on workers' remittances, per capita GDP, gross capital formation (gross domestic investment), and net private capital flows Chami et al. (2003) estimate the model below:

$$\Delta y_i = \beta_0 + \beta_1 y_{0i} + \beta_2 wr_i + \beta_3 gcf_i + \beta_4 npcf_i + \varepsilon_t$$

Where y is the log of real GDP per capita, y_0 is the initial value of y, wr is the log of worker remittances to GDP ratio, gcf is the log of gross capital formation to GDP ratio, and $npcf$ is the log of net private capital flows to GDP ratio. They also use an alternative specification using change in the log of workers' remittances to GDP ratio as an independent variable:

$$GDPPC_t = \beta_0 + \beta_1 GDPPC_{t-1} + \beta_2 RREM_t + \beta_3 REXPO_t + \beta_4 RINV_t + \beta_5 RFDI_t + \varepsilon_t$$

where *GDPPCt* is per capita GDP, *GDPPCt-1* is one period lagged per capita GDP, *RREMt* is ratio of workers' remittances to GDP, *REXPOt* is ratio of exports to GDP, *RINVt* is ratio of gross domestic investments (include both private and public sectors fixed capital investments) to GDP, and *RFDIt* is ratio of foreign direct investment inflow to GDP. εt is usual white noise error term which includes the effects of omitted factors. All variables are used in their logarithmic values and in USD figures. The remittance data was obtained from World Bank, Bangladesh Bank, while others from BBS (Bangladesh Bureau of Statistic), Economic Review (Ministry of Finance) database. Sample period covers the time period of 1995 to 2006. When dealing with time series data, it is necessary to asses whether the series are stationary or not.

The reason being that regression of a non-stationary series on another non-stationary series lead to what is known as spurious regression. Furthermore, statistical tests of the parameters resulting from such regression may be biased and inconsistent. The standard approach to investigate the stationary of a time series is through unit root tests. Several tests are available but the most commonly used is the augmented Dickey-Fuller (ADF) test. If two series are non-stationary but their linear combination is, the two series are said to be co-integrated. Series that are co-integrated move together in the long run at the same rate; in other words, they obey an equilibrium relationship in the long run. The implication being that if economic growth and remittances are co-integrated then they should move together in the long run at the same rate. That is, economic growth is remittance-oriented. This is true for other variables.

5.2. Empirical results

The results of the ADF unit root test are shown in Table-2. These results suggest that none of the variables under analysis are stationary in their levels. After first differencing all variables turned to stationary.

Table 2: Result of ADF Unit Root Test

Variables	Lag	Intercept	Intercept + Trend	Intercept	Intercept + Trend
	0	-0549	-4534	-8711*	-7812*
GDPPC	1	-0256	-3245	-4512*	-4231**
	2	-0123	-5189	-5311**	-4678
	0	-1674	-1277	-6084*	-8710*
RREM	1	-1629	-1755	-3671***	-6234
	2	-1593	-1756	-3680***	-5132
	0	-0811	-3423	-6447*	-6549*
RFDI	1	-0987	-2321	-5123*	-5643**
	2	560	-0896	-1893	-1943
	0	-911	-2786	-5337*	-6240*
REXPO	1	0987	-1438	-5211*	-5332**
	2	890	-0887	-2114	-1980
	0	-1991	-3790	-6754*	-6550*
RINV	1	-1781	-3889	-4099**	-3945
	2	-1603	-4332	-3545	-3359

Notes: (*), (**) and (***) denotes 1%, 5% and 10% respectively

Table-3 presents the results of Johansen co integration test procedure. This Table shows whether there is any long run co-movement between the variables under investigation. These results suggest that there is at least one long run meaningful relationship between the variables. Therefore a regression equation can be set up between economic growth and explanatory variables in levels.

Table 3: Result of Johansen cointegration test

Variables	Hypotheses		Test Statistics	
	H_0	H_1	Eigen Value	Likelihood Ratio
GDPPC, RREM, REXPO, RINV	r = 0	r > 0	0679	56788*
	$r \leq 1$	r > 2	0364	21900
	$r \leq 2$	r > 3	0325	10100
	$r \leq 3$	r > 4	0453	1452

Notes: (*), denotes that rejection of null hypotheses at 1% significant level.

Table-4 presents results from the ordinary least squares estimation of the relationship between per capita GDP and remittances and other variables. The *RFDIt* variable is omitted from the final model because it turned to be insignificant. The model is meaningful as a whole (F statistic is 292.0083) and has a strong explanatory power (R-square is 0.9709). It appears from these results that the per capita GDP variable and workers' remittances ratio to GDP were negatively correlated over the time period of 1995 to 2006. The growth elasticity of remittances in that time period was – 0.5467. This result is in accordance with that of Chami et al. (2003), which points to moral hazard problem. On the other hand, ratios of exports and gross domestic investments to GDP have a meaningful and positive effect on the per capita income.

Table 4: Dependent Variables: GDPPCt

Variable	Coefficient	Std Error	t-Statistic	Probability
Intercept	4.4345661	0.9897345	4.9087904	0.0005
GDPPCt-1	0.9178991	0.2234510	2.5667892	0.0001
RREMt	-0.546783	0.3425638	-2.554890	0.0245
REXPOt	0.5968323	0.0124892	5.3457123	0.0008
RINVt	0.0879564	0.0508340	3.5129083	0.0089
R square	0.970942	Mean Dep Var		7.267890
Adj R square	0.970684	SD Dep Var		0.238790
Log Likelihood	72.54980	F Statistic		292.0083
D W statistic	1.789043	Prob (F statistic)		0.000001

6. Conclusion

The remittances have become a popular issue in the international financial literature over a decade because of their volume and potential to condense poverty. Recent literature has posited that a positive relation exits between remittance and economic growth, capital accumulation and poverty alleviation of recipient countries. Though the results seem varied, most of them utilized cross country or panel data and therefore, they are required to validate it further into country specific case studies. In this study, it is attempted to investigate whether there is any impact of workers' remittances on growth in Bangladesh economy. Whereas, Bangladesh has been one of the prominent remittance receiver countries throughout the last twenty years, it is reasonable to think that workers' remittances are able to have a meaningful impact on growth of Bangladesh economy. To this end, an econometric procedure can be employed, which heavily relies on relationship between foreign exchange sources (remittances, exports, foreign direct investments additional to gross domestic investments) and economic growth (GDP per capita).

As Chami et al. (2003) pointed out moral hazard problem created by remittances, can be severe enough to reduce economic activity. The empirical results of this study suggest that remittances have negative affects on economic growth in the example of Bangladesh. At the very least, it has been demonstrated that remittances differ greatly from investment and exports in terms of their motivation and their effects. Unlike some other developing countries, remittances in the case of Bangladesh do not appear to be a significant source of capital for economic development. It seems quite difficult, in the near future to gain advantage from remittances in the way of growth. Because, the structure of workers' remittances have changed substantially and remittance inflow is far away from it's past high level.

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