

# The Effect of Macroeconomic Variables on the Inflow of Remittance in Bangladesh

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## Abstract

Bangladesh is one of the biggest remittances receiving country in this world and maintains this status from several years. This amount is about 12% of GDP and more than half of total export earnings. According to a World Bank Report Bangladesh is amongst the top ten nations which receive huge amount of remittances from abroad and for this Bangladesh's foreign exchange reserve has significantly gone up in 2013. In the last several years, Bangladesh's foreign exchange reserve continued to puff up crossing the \$16-billion mark. Furthermore, if the total amount of money that is remitted through informal channels is also taken into account, the total amount of remittance that is received in Bangladesh will soar up to higher magnitudes. The major source of remittance inflow in Bangladesh is the from the Middle Eastern countries. As noted by an official associated with labor migration, "remittances have been causing a silent economic revolution in Bangladesh." The country is expected to receive \$15.05 billion in 2014, enough to retain theeighth position it held last year, says the WB's Migration and Remittance Unit.

**Keywords:** Exchange rate, Interest rate, Inflation rate, Developing country, Inflow of remittance, Interest rate movements, Exchange rate movements.



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## 1. Introduction

In the recent past, there have been large flows of Bangladeshi migrant workers especially to Middle East particularly to Malaysia and Singapore, as well to United Kingdom and to United States. Bangladesh received its highest-ever annual remittance of about US\$14.5bn in 2013 fiscal year as expatriate Bangladeshis sent home hard-earned money through formal channels. The remittance grew by 12% over the same period last fiscal year when it was \$12.8bn, registering 10% growth from \$11.6bn of fiscal 2010-11. "It's the highest amount received in a year," said General Manager AFM Asaduzzaman, Bangladesh Bank spokesperson. It is really very important especially for the countries like Bangladesh, to analyze the trends and various other aspects of workers' migration and remittances in Bangladesh. It further discusses the impacts of exchange rate movements and socio-economic variable specially the impact of festivals time on remittances, the basic factors that affect the inflow of remittances. Remittance is one of the most important and current economic issue which is being discussed everywhere as it impacts any country's balance of payments, increases foreign exchange reserves and thus has a positive impact on the overall economy of the country. There are few studies that examine or discuss the effects of exchange rate movement; inflation and interest rate these factors which are influencing mostly the inward remittance.

### 1.1. Problem Statement

Macroeconomic variables have an important effect on the inflow of remittance. Inflow of remittance from the host country is indicate that the home country future development. Remittance is most important part in the developing countries. It's a great issue for a country economy. Most of the developing country economist is concern about that because it increases the country economic development.

Bangladesh is a one of the biggest remittance earners country in this world. Remittances have been playing a very significant role in Bangladesh economy. In recent times Bangladesh has been one of the key receivers of remittances amongst other countries of the world.

This study will show the relationship with changing behavior of transactions that are sending by overseas along with the movements of foreign exchange rate, Differences in interest rates between host and home country and the inflation.

The problem statement is *"To investigate the effects of exchange rate and related implications of interest rate and inflation on the inflow of remittance"*.

### 1.2. Purpose of the Study

The prime objectives of this research paper is of 'exchange rate, interest rate and inflation are affecting mostly the overall time to time changing behaviors of the money sent from the foreign country'. Immigrant people sending money intention from the host country (foreign country) easily can identified from this research. This research can be very effective tool that a country can use to experience higher economic development.

- ✓ To identify the impacts of exchange rate movements by inflow of remittance.
- ✓ To understand the characteristics of exchange rate movements by inflow of remittance.
- ✓ To determine the overall impacts of exchange rate movements by inflow of remittance.
- ✓ To identify the impacts of interest rate movements by inflow of remittance.
- ✓ To understand the characteristics of interest rate movements by inflow of remittance.
- ✓ To determine the overall impacts of interest rate movements by inflow of remittance.
- ✓ To identify the impacts of inflation movements by inflow of remittance.
- ✓ To understand the characteristics of inflation movements by inflow of remittance.
- ✓ To determine the overall impacts of inflation movements by inflow of remittance.
- ✓ To identify the most influencing factor on inflow of remittance.

There have been only a few studies that use to examine the economic effects of remittance in Bangladesh and hardly any work that systematically investigate the overall impacts of exchange rate, interest rate and inflation by the inflow of remittance of Bangladesh. However, studies for other countries have shown that these remittance flows could have been significant macroeconomic consequences.

## 2. Literature Review

### 2.1. Exchange Rate

Exchange rate misalignment, defined as deviations from purchasing power parity, which is assumed to negatively affect the inflow of remittances. As the degree of misalignment increases, migrants will remit less and adjust their targets. Since remittances are exchanged into domestic currency, migrants may hold their savings in foreign currencies or time their remittances with exchange rate corrections. Bilateral exchange rate between host and home country plays an important role in workers' motive to remit. Two opposing effects may arise as a result of exchange rate depreciation; namely, wealth effect and substitution effect (Bouhga-Hagbe, 2004). On the other hand, the remitter is better-off as her income increases in the domestic currency, thereby encouraging her to buy more goods (including real estate's) and services in home country. Bouhga-Hagbe (2004) points out that even though depreciation may temporarily increase the flow of workers' remittances in the home country, in the long run, it might undermine remitters' confidence in the economy. Mandelman (2011), for instance, examines the stabilization role and welfare implications of monetary and exchange rate policies in a small open economy that is subject to remittances fluctuations. The study shows that a fixed exchange regime provides a better outcome for households facing rising trend in remittances, while a flexible regime does better when unanticipated shocks over the business cycle are considered. Yang (2008) the shock is the sudden change in exchange rates during the Asian crisis. Comparing household surveys of June 2007 and October 2008 the study observes that a 10 per cent depreciation of the peso was followed by a 6 per cent increase in peso remittances. Saadi-Sedik and Petri (2006) also obtained very modest results for Jordan by using similar methodology and longer time period (1964-2005). Most of empirical

studies that have explored the rise in exchange rate in countries that have experienced increases of remittances seem to prove my hypothesis. Most research has found that the nominal exchange rate is a significant explanatory variable of migrant remittances. [Lowell and De la Garza \(2005\)](#) found this to be the case with remittances sent from the United States to Latin America and the Caribbean as did [Lianos \(1997\)](#) with remittances sent to Greece from immigrants living in Germany, Belgium and Sweden. Lianos found that Greek migrants adjust their remittances to exchange rate changes so that the same value in terms of drachmas is sent back home ([Lianos, 1997](#)).<sup>20</sup> In contrast, [Orozco](#) concluded that exchange rate fluctuations do not affect remittance transfers to the Dominican Republic ([Orozco, 2004](#)). The behavior of the exchange rate depends also on the impact of emigration on domestic output, which again would tend to offset the effect of remittances on the exchange rate. In addition to these considerations, it is important to include the behavior of other variables, such as domestic policies, international developments (like changes in risk assessments of emerging economies), and the relative importance of remittances in total economic activity and in the external sector. This suggests the need to deal with a more complex general equilibrium model, to determine the exact link between remittances and the exchange rate. Researchers have found that large remittance inflows can cause an appreciation of the real exchange rate and render the production of tradable goods less profitable. This is confirmed by the econometric results in this study. [Amuedo-Dorantes and Pozo](#) found that when workers' remittances doubled, the real exchange rate appreciated by about 22 percent in a selection of 13 Latin American and Caribbean countries ([Amuedo-Dorantes and Pozo, 2004](#)). [Rajan and Subramanian](#) found that remittances do not lead to a loss of competitiveness because they seem to dry up if the exchange rate becomes overvalued. Therefore countries that have sound macroeconomic policies to keep the real exchange rate competitive are able to continually attract remittances ([Rajan and Subramanian, 2005](#)). Actually, this illustrates a different point—the effect of the exchange rate on remittances. In summary, the possible relationship between the exchange rate and remittances is far from simple, and cannot be predicted without specific assumptions about the behavior of remitters, receiving families, and the rest of the economy. Box 1 further elaborates on the matter. However, it is clear that increased remittances tend to lead to an appreciation of the exchange rate. Exchange rate depreciations (caused by other factors) in turn tend to increase remittances and vice versa for appreciations.

## **2.2. Relationship between Exchange Rate and Inflow of Remittance**

Recently, also using fixed effect panel estimation techniques [Higgins et al. \(2004\)](#) found that exchange rate uncertainty (a measure of risk) is an important determinant of remittances. Their results also show that unemployment in the host country and the exchange rate are significant determinants of remittances. [El-Sakka and McNabb \(1999\)](#) analyze the determinants of remittances inflows into Egypt between 1967 and 1991. They find that remittances are positively affected by host country's income and negatively affected by the differential between the official and black market exchange rates (as migrants divert their remittances towards the black market when differentials increase). It was also found that exchange rate differentials between official and black markets have a negative impact on the inflow of remittances through official channels. [Higgins et al. \(2004\)](#) investigate the effect of real exchange rate depreciation on remittances, using fixed effect panel estimation techniques. They find that the real exchange rate depreciation of the home currency has a positive effect on remittances. They also find that the home country income is negatively related to remittances, indicating the behavior of altruism in the remittances received countries. Moreover, their results show that unemployment in the host country and the exchange rate are significantly and negatively related to remittances. [Singh et al. \(2009\)](#) examined the determinants and macroeconomic impact of migrants' remittances, using panel data for 36 Sub-Saharan African countries over the period 1990-2005. They found that the remittances are positively affected by the number of expatriates, financial deepening, the host country income and institutional quality. Their results also argue that remittances flow vary counter cyclically with the variations in GDP per capita, supporting the hypothesis that the inflow of remittances can help mitigate economic shocks. Moreover, they found that the real exchange rate appreciation reduce the flow of remittances. More recently, [Lin \(2011\)](#) studied the factors that affecting the flow of remittances into Tonga, employing the quarterly data over the period 1994 -2009. The study finds that the macroeconomic conditions in the host countries and the exchange rate fluctuations are the most important factors influencing the remittance flow. He found that the remittances flow declines when the Tongan currency appreciates, but increases with higher real GDP growth and lower unemployment in remitting countries. Moreover, his analysis investigates the impact of remittances on exchange rates and the result does not find evidence on the incidence of the Dutch Disease in Tonga, concluded that most of remittances are used for consumption purpose.

## **2.3. Interest Rate**

Interest rate differentials defined as the difference between foreign and domestic interest rates. This is expected to negatively impact the inflow of remittances, since low domestic interest rates compared with interest rates in the host or other countries encourage remitters to withhold their savings in countries where interest rates are higher. There is a parallel between the effect of interest rates on remittances and that of exchange rates. An increase in the interest differential (interest rate in the receiving country less that of the host country) can be expected to accelerate flows, to the extent that the funds go into the financial system. However, these flows will be conditioned on the expected behavior of the exchange rate. As with any financial flow, remittances will depend on the real interest rate, or more accurately on the interest differential adjusted for exchange rate expectations.<sup>22</sup> Then again, the behavior of remittances will depend on the degree of financial sophistication of the recipient family/community. To the extent that higher interest rates reflect higher inflationary expectations or increased country risk, remittances may not react positively to increased interest rates. Accordingly it is difficult to establish clearly how remittances will do a priori unless initial conditions are well defined. Many studies show that the increase in interest rates abroad lowers the flow of remittances. [Lowell](#) found that an increase in the interest costs of lending in the remitting country lowers remittance flows. He suggests that this is consistent with the possibility that remitters and receiving households save or invest a portion of remittance flows for economic activity in the country of origin ([Lowell and De la Garza, 2005](#)).

In contrast, Bouhga- Hagbe found that “an increase in the interest rate differential in favor of Morocco will not increase the long-run amount of deposits held in Morocco by Moroccans living abroad,” suggesting that interest rate fluctuation does not impact remittances (Bouhga-Hagbe, 2004).<sup>23</sup> El-Sakka and McNabb (1999) support the idea that interest differentials at home and abroad have a negative impact on the inflow of remittances through the official channels. The amount of remittances in home country can be negatively correlated with the host country real interest rate or positively correlated with the home country real interest rate. Increase in real interest rate differential between home and host country should have effect on the level of remittances, assuming equal market risk in both countries. El-Sakka and McNabb’s research, the Egyptian interest rate was pegged, thus creating a widening difference between domestic and foreign interest rates. The interest rate differential is important variable explaining migrant remittance behavior to Greece from Germany, Belgium and Sweden, although the elasticity is rather small in absolute terms (Lianos, 1997). Alleyne (2008) find a positive impact of the interest differential (defined as the difference between domestic and foreign interest rate), but Bouhga-Hagbe (2004) finds a negative relationship. The rise in the interest rate differential may invite even more remittances or private capital flows. Swamy (1981), Straubhaar (1986) and Glytsos Nicolas (1988) all argue that neither interest rate differentials between the host nor home countries nor variation in exchange rates have any effect on remittance flows. In contrast, Katseli and Glytsos (1986) find per capita remittances to be related to the foreign interest rate. To which extend remittances are affected by the origin country’s currency policies and the interest rate differentials compared with the host country, is another issue for the ongoing debates. Using more recent data (1993- 2003) on Turkey, concludes that remittances are positively affected by the interest and currency rates on the long-term and negatively affected on the short term. Aydas *et al.* (2005) study reveals that remittances are positively related to the differences between domestic and foreign interest rates, indicating that more appealing investment opportunities in the home country attract larger remittance flows.

#### **2.4. Relationship between Interest Rate and Inflow of Remittance**

Gupta (2005) analyzed the determinants of remittances to India and their impact on economic growth. He found that remittances are positively influenced by the economic environment in the source countries. His result revealed that remittances flow is countercyclical to the growth of the home income; that is, it’s higher during the periods of low economic growth and lower in the periods of high income in India. Moreover, none of the remaining economic or political variables considered in his paper, including political uncertainty, interest rates, or exchange rate depreciation, are found to affect remittances significantly. Wahba (1991) indicates that black market premium, interest rate differentials, political stability, consistency in government policies and financial intermediation all significantly affect the flow of remittances. However, while El-Sakka and McNabb (1999) and Elbadawi and Rocha (1992) agree on the negative effect of the black market premium, they disagree on the effects of differential interest rate and domestic inflation. According to Elbadawi and Rocha (1992), differential between domestic and foreign interest rates has no significant effect on remittances, while El-Sakka and McNabb (1999) argue that it negatively affect the remittances. Moreover, both Katseli and Glytsos (1986) and Elbadawi and Rocha (1992) find significant negative effect of inflation on WR flows, while El-Sakka and McNabb (1999) argue that it has a positive effect. Some countries, if not most, intervene in the foreign exchange market to achieve certain level of exchange for their currencies (Blanchard *et al.*, 2010). However, this traditional form of intervention has declined in recent years, giving way to the use of interest rate policy to influence capital flows and thus the exchange rate (Calvo and Reinhart, 2002). A trend within the literature looks at international reserves from the optimality perspective. Frenkel and Jovanovic (1981) showed that higher volatility in international reserves leads to a higher optimal level of reserves, effect that was later corroborated by Flood and Marion (2002). However, the use of their robust reserve volatility measure rendered the opportunity cost of holding reserves (interest rates) statistically insignificant. Ball and Reyes (2011) more recently reestablished the negative effect of the opportunity cost of holding reserves on the optimal reserves level using an exchange rate regime indicator. According to Elbadawi and Rocha (1992) differential between domestic and foreign interest rates has no significant effect on remittances, while El-Sakka and McNabb (1999) argue that it negatively affect the remittances. Many studies show that the increase in interest rates abroad lowers the flow of remittances. Lowell found that an increase in the interest costs of lending in the remitting country lowers remittance flows. He suggests that this is consistent with the possibility that remitters and receiving households save or invest a portion of remittance flows for economic activity in the country of origin (Lowell and De la Garza, 2005). In contrast, Bouhga- Hagbe found that “an increase in the interest rate differential in favor of Morocco will not increase the long-run amount of deposits held in Morocco by Moroccans living abroad,” suggesting that interest rate fluctuation does not impact remittances (Bouhga-Hagbe, 2004).

#### **2.5. Inflation**

Higher inflation in the home country relative to host country can increase or decrease the flow of remittances. Higher inflation at home, which reduces the purchasing power of migrants’ family, can induce migrants to send more remittances. On the other hand, it also represents more risk and uncertainty in the home country relative to host country, thereby discouraging them to send more remittances. Inflation differential is constructed by using the difference between annual percentage change in the consumer price index of home and the host country. The increased money supply through the inflow of remittance stimulates the demand for goods and services, and increases consumption expenditure on goods and services. The increase in demand puts upward pressure on prices and results in demand pull inflation (Iqbal and Abdus, 2005) and Nishat and Nighat (1991). It also investigated the link between remittances and consumption and postulated the resultant effect for inflation. His study showed that remittances increase the level of consumption followed by the increase in aggregate demand through monetary expansion and result in demand pull inflation. Similarly, Zarate-Hoyos (2004) in their study revealed that with the increment in household income in the form of remittances, consumer expenditures (on housing, furniture, medical care) or investment in productive activities (like education, manufacturing, farming) increases. Resultantly, the

demand for such items increases relatively more than for other items. These shifts in demand combined with price elasticity of supply may result in disproportionate changes in relative prices and overall inflation. Balderas and Hiranya (2005) examined the direct effect of remittances on the distribution of relative price changes and inflation in Mexico for the time period from 1988-2005. The results were obtained through generalized impulse responses derived from the estimation of vector autoregressive model. The results indicated that remittances have a significant and positive impact on inflation and relative price variability since 1995. The evidence suggested that most of the remitted funds are spent on consumption, which through the channel of aggregate demand puts upward pressure on the prices of consumer goods and services. This fact is also supported for Pakistan as Amjad (1986) showed that in Pakistan a major portion of remittances is spent on consumption which is 63.3% of total remitted fund. Aydas, Neyapti and Metin-Ozcan (undated) argue on the basis of their empirical study for the 1965-93 periods that in Turkey black market premium, inflation and military regime influence remittances negatively. The reaction of remittances to inflation will depend also on the expectation about the exchange rate. If there is an expectation of a major depreciation, remitters will retain remittances abroad and conversely under the expectation of an appreciation. Aydas et al. (2005) find a negative impact of domestic inflation on remittances. Their explanation of this result is that although a high inflation rate erodes households' purchasing power and therefore, encourages altruistic emigrants to send more money to their families, it also signals the increased uncertainty in the home country and thereby, discourages those remittance inflows that are guided by investment motives.

### 2.6. Relationship between Inflation and Inflow of Remittance

The inflation rate at the origin country is another macroeconomic determinant of migrants' remittances. As high inflation affects the left-behind family's income level negatively, remittances may increase because of the altruism motive explained above. However, high inflation may be interpreted as a signal of instability as well and therefore generates a decrease in remittances (Glytsos Nicolas, 1988; Elbadawi and Rocha, 1992; Aydas et al., 2004) corroborated that the strength of relationship between remittances and inflation depends on the choice of exchange rate regime of the economy El-Sakka and McNabb Suggest that migrants might remit more during periods of inflation to secure the "purchase of real assets, such as land and jewelry, the real value of which may be constant or actually rising in times of inflation" (El-Sakka and McNabb, 1999). He found that remittances were positively related to economic growth in the host countries and inflation in the home country. Elbadawi and Rocha (1992) examine the determinants of migrants' remittances for six labor-exporting countries in North Africa and Europe. Their results show that the length of stay and macroeconomic variables play an important role in determining remittance flows. They found that the real income in the host country positively affect the flow of remittances, while inflation and black market premium in the home country are found to be negatively influence the variation in workers' remittances. Recently Shabbaz and Aamir (2009) estimated a macro model of migrants' remittances flows to Pakistan. The inflation rate and home income are found to be positively correlated with the flows of migrants' remittances to their families in the home country. Elbadawi and Rocha (1992) argue that domestic inflation negatively affect the remittance flow, while El-Sakka and McNabb (1999) argue that it positively affect the remittances. The study suggested that capital inflows have finally contributed to the asset price appreciation in this region, while capital inflow shocks describe a relatively small part of asset price fluctuations. The same study says capital inflow need not lead toward inflation and by strong inflow into emerging markets including the Philippines could still be absorbed by the domestic economy without encouraging up inflation. Elbadawi and Rocha (1992) argue that a high inflation should lead to lower official remittances since it reflect increased risk and uncertainty. They also note that since the premium is directly related to the market for remittances, it should have a greater impact on remittances than domestic inflation. Katseli and Glytsos (1986) also argue that remittances are negatively related to inflation rates in the home country. Durand found that the likelihood of Mexican migrants returning with savings is greater during periods of high inflation (Durand et al., 1996).

### 3. Conceptual Framework

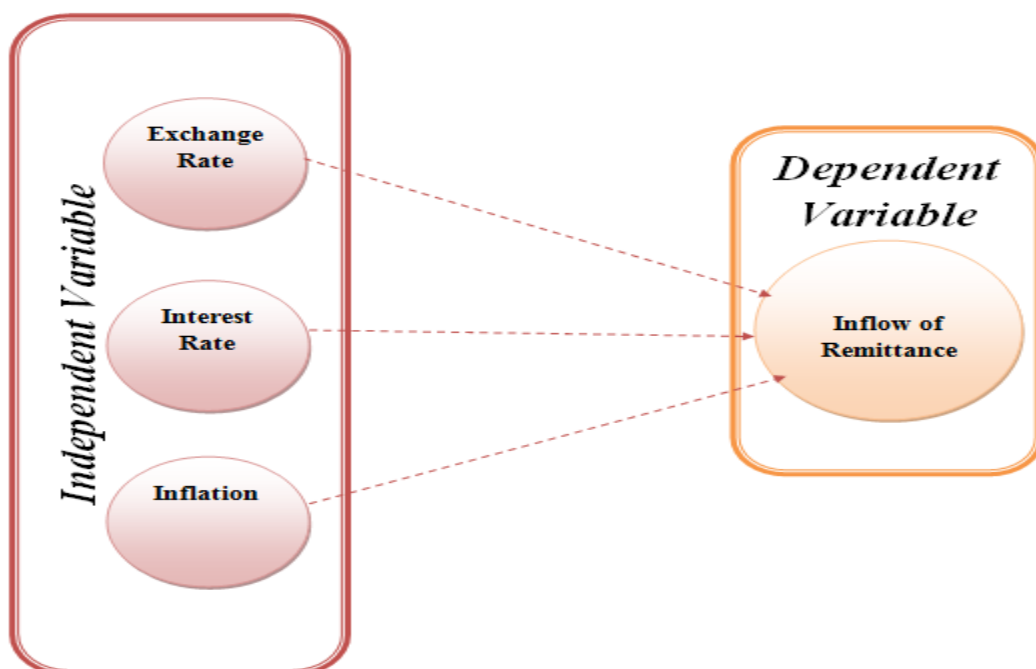


Figure-1. Research Framework

### **3.1. Research Question**

- Q1. Is there any relationship between the exchange rate movements and inflow of remittance?  
Q2. Is there any relationship between the interest rate and inflow of remittance?  
Q3. Is there any relationship between the inflation and inflow of remittance?

### **3.2. Hypotheses**

- H1. There is a relationship between the exchange rate movements and inflow of remittance.  
H2. There is no relationship between the exchange rate movements and inflow of remittance.  
H3. There is a relationship between the interest rate and inflow of remittance.  
H4. There is no relationship between the interest rate and inflow of remittance.  
H5. There is a relationship between inflation and inflow of remittance.  
H6. There is no relationship between inflation and inflow of remittance.

## **4. Research Design**

Research design is a blue print, a plan, a guideline or a framework of the research for a researcher. The description below is describing which research designs are being followed in the research.

### **A. Degree of Research Question Crystallization**

The research is formal study research, because it begins with a hypothesis and research questions and involves precise procedures. The research goal is to test the hypotheses and for these reason the research is formal study research.

### **B. Method of Data Collection**

Under the method of data collection, we selected communication study. Because we wanted to communicate with different person through questionnaire to understand their perception about the exchange rate, interest rate and inflation, which have significant impact on the remittance.

### **C. The Purpose of the Study**

Our study was causal explanatory as we tried to explain the relationship among different variable such as we tried to discover whether exchange rate, interest rate and inflation can affect the remittance or not.

### **D. The Time Dimension**

The research will be carried out once and will be represent a snapshot of one point of time.

### **E. The Topical Scope-breadth and depth-of the study**

We focused on statistical study. Our study was designed for testing hypotheses quantitatively which required a good number of samples which reflected the overall scenario.

### **F. The Research Environment**

Our research occurred in actual environment conditions. This option was chosen because we had to receive information from our sample on field and relationships in variables of our study were required. Participants were aware of our presence and knew the reason of being selected as sample. We tried to find out their natural behavior as much as we could via questionnaire.

## **5. Sampling**

It is very much impossible to ask each and every person who is closely involve to the inflow of the inward remittance and come to know about the information about the remittance. So, to conduct our research and to obtain all possible data, we have applied the sampling. The sample is a subset of the inward remittance that is used to estimate the characteristics of the entire Inflow of remittance.

### **A. Sample Unit**

The first and foremost question we have been asked that whom should we to survey. To work on this category, we had to know about the gender, age, income per month and educational qualification information. We have done some categorization based on which we have decided our sample unit.

Gender- our target participant gender might be male or female.

Age- Our target participant might be in the age group of 18-25, 26-35, 36-45, 46 and above.

Income- Our target participant would be consists all generation or middle income level. Therefore, their estimated income is 20000-35000, 36000-50000, 51000-75000, 76000-100000, more than 100000.

Education- They must be complete at least S.S.C or equivalent, H.S.C. or equivalent, Graduation/Masters, PhD and others.

Location- All the respondents are from Dhaka city.

### **B. Sample Size**

To conduct this research, we chose a number of participant to whom we did questionnaire survey. As we didn't have that much budget, resource and time, we could effectively do our study with fifty (50) participants who are directly include to the inflow of the inward remittance.

### C. Sample Procedure

The study demands random sampling technique. Random sampling is a process whereby every sampling unit in a fixed population has an equal chance of being selected or not selected for participation in a research study, thus the biasness of this type of sampling minimizes among sampling techniques. The result of purposeful sampling are usually expected to be more accurate than those achieved with an alternative form of sampling which could assure this to achieve its desired result.

### 6. Instrument Design

A questionnaire was designed in a reasonable sequence that could convince the respondents and also increasingly gave the respondent confidence and trust in both the participant and the interviewer. Hence, questionnaire development process was started by identifying the related information used to develop the question such as the independent variable. Questionnaires are used to gather information that cannot be found elsewhere from any secondary information such as books, newspapers and internet resources. Because of this reason, we made use of a questionnaire. There are three factors in my research model. The independent variables are exchange rate, interest rate and inflation. Each independent variable has some questionnaires. There were 20 questions in the questionnaire except gender, age, income per month, educational qualification question and in our research the Independent Variables are Exchange rate (has 8 question), Interest rate (has 7 question) and Inflation (has 5 question). The dependent variable of this research is macroeconomic variable affects the inflow of remittance. I have used open-ended questionnaire because of its question format which doesn't restrict appellant with a series of answer selections and also for the research demand. The measurement of the questionnaire items in this study is by means of "five-point of Likert scale from 1 to 5" rating from strongly agreed to strongly disagree. The questionnaire was designed to draw out information on respondents' gender, age, income per month, educational qualification their experience in the inflow of remittance. The questionnaire was divided into five scales which is [1 (Strongly disagree), 2 (agree), 3 (Neither Agree nor Disagree), 4 (Disagree), 5 (Strongly Disagree)].

### 7. Data Collection

The study for this paper is about the exchange rate; interest rate and inflation are affecting mostly the overall time to time changing behaviors of the money sent from the foreign country and to achieve the purpose of the study the data will be gathered mostly from secondary sources and a little from primary sources.

#### Primary Sources

In the context of Bangladeshi people, as researchers I used primary data to examine the research problem and verify hypothesis.

- ✓ Surveying the bank's customers.
- ✓ Surveying Bank employees.

#### Secondary Sources

Secondary Data are those which have already been collected and analyzed by someone else

- ✓ Different types of journals and articles on Inflow of inward remittance.

### 8. Data Analysis

After collecting, the completed questionnaires were coded and entered into SPSS sheet for analysis

- A. Descriptive Analysis
  - a) Frequency
  - b) Crosstabs
- B. Reliability Analysis
- C. Hypotheses Analysis
  - a) Spearman's correlation
  - b) Pearson's Correlation
  - c) Regression Analysis

#### A. Descriptive Analysis

Measures of frequency and crosstabs were used to evaluate the biographical information and the distribution of gender, age, income and education groups. Personal and demographic information such as gender, age, income and education are in the following tables. The frequency and crosstabs of are given below:

##### Frequencies

Table-1. Sample Size

Statistics		Gender	Age	Income	Education
N	Valid	50	50	50	50

In the above table shows 50 valid for gender, age, income and education. And there have no missing values. This valid number 50 is equal to the sample number.

**Table-2.** Gender Frequency Distribution

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	28	56.0	56.0	56.0
	female	22	44.0	44.0	100.0
	Total	50	100.0	100.0	

**Gender:** Frequency distribution was which have been given below. There were 28 male which 56% and 22 female which 44% out of total 50 sample size.

**Table-3.** Age Frequency Distribution

Age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25	5	10.0	10.0	10.0
	26-35	23	46.0	46.0	56.0
	36-45	17	34.0	34.0	90.0
	46 and above	5	10.0	10.0	100.0
	Total	50	100.0	100.0	

**Age:** Out of 50 participants 23 participants was between 26-35 years of age that was 46%. We have 17 participant 36-45 years of age and that consists 34%, 10% of the participant are 18-25 years old and 10% of participant was more than 46 and above years old.

**Table-4.** Income Frequency Distribution

Income					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20000-35000	8	16.0	16.0	16.0
	36000-50000	20	40.0	40.0	56.0
	51000-75000	14	28.0	28.0	84.0
	76000-100000	7	14.0	14.0	98.0
	more than 100000	1	2.0	2.0	100.0
	Total	50	100.0	100.0	

**Income:** In our surveyed information shows that 40% of the participant monthly income is 36000-50000 that are consists 20 people. 28% of the participant monthly income is 51000-75000 that consist 14 people, 16% of the participant monthly income is 20000-35000 that consists 8 people, 14% of the participant monthly income is 76000-100000 that consists 7 person and 1 people that are the 2% of the participant monthly income is more then 100000.

**Table-5.** Education Frequency Distribution

Education					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	H.S.C. or equivalent	2	4.0	4.0	4.0
	Graduate/Masters	39	78.0	78.0	82.0
	ph.D	4	8.0	8.0	90.0
	others	5	10.0	10.0	100.0
	Total	50	100.0	100.0	

**Education:** In our questionnaire we have surveyed 50 people whose 78% educational qualification is Graduate/Masters that consist 39 members, no one have S.S.C. or equivalent, 4% are H.S.C. or equivalent 8% are PhD holder and 10% educational qualification is others.

## B. Reliability Analysis

Internal consistency reliability is the accuracy or precision of a measuring instrument, which is the extent of dimension that is the detail item (questions) measure the same thing. A commonly accepted rule of thumb for describing internal consistency using Cronbach's alpha is as follow-

- $\alpha \geq 0.9$  Excellent
- $0.7 \leq \alpha < 0.9$  Good
- $0.6 \leq \alpha < 0.7$  Acceptable
- $0.5 \leq \alpha < 0.6$  Poor
- $\alpha < 0.5$  Unacceptable

**Table-6.** Reliability Test Result: Cronbach Alpha

Variables	Cronbach alpha	Items
Exchange rate	.618	8
Inflation	.701	5
Interest rate	.842	7

The Most highly recommended measure of internal consistency is provided by co-efficient alpha or Cronbach's Alphas it is provided a good reliability estimates in most situations. Over all Cronbach's alphas of all variables in our



study are more than acceptable and recommended values of 0.50. Cronbach’s Alpha value should be .50 -.60 which is sufficient; .7 or above is desirable.

- ✓ The eight (8) questions about exchange rate is .618 which is above .6 that means the reliability of these eight (8) items is acceptable.
- ✓ The five (5) questions about inflation is .701 which is above more than .7 that mean the reliability of these five (5) items is good.
- ✓ The seven (7) questions about interest rate is .842 which is more than .8 that mean the reliability of these seven (7) items is excellent.

**C. Hypothesis Testing**

**Spearman’s Correlation**

Spearman’s correlation is used to see whether there is any relationship among variables or not. For Spearman’s correlation- if correlation coefficient  $\rho$  (rho)  $\neq 0$  and significance,  $\alpha$  (alpha)  $< 0.05$  then accept the alternative hypothesis (which actually indicate having relationship between the variables).

For, Hypothesis 1, correlation coefficient  $\rho$  (rho) not equal to 0 and significance,  $\alpha$  (alpha) is less than 0.05, accept the alternative hypothesis (which actually indicate having relationship between Exchange rate and Inflow of Remittance).

For, Hypothesis 2, correlation coefficient  $\rho$  (rho) not equal to 0 and significance,  $\alpha$  (alpha) is less than 0.05, accept the alternative hypothesis (which actually indicate having relationship between Inflation and Inflow of Remittance).

For, Hypothesis 3, correlation coefficient  $\rho$  (rho) not equal to 0 and significance,  $\alpha$  (alpha) is less than 0.05, accept the alternative hypothesis (which actually indicate having relationship between Interest rate and Inflow of Remittance).

**Table-7.** Nonparametric Test: Spearman’s Correlation

Spearman’s Correlation		
H1	H2	H3
$\rho=.816$	$\rho=.964$	$\rho=.935$
$\alpha=.000$	$\alpha=.000$	$\alpha=.000$

**Pearson’s Correlation**

Pearson’s correlation is used to see the strength of relationship between variables. If significance or  $p \leq 0$ , then null hypotheses (H0) will be rejected and alternate one will be considered.

- .00-.19 “very weak”
- .20-.39 “weak”
- .40-.59 “moderate”
- .60-.79 “strong”
- .80-1.0 “very strong”

**Table-8.** Pearson’s Correlation

Pearson’s Correlation		
H1	H2	H3
$r=.904$	$r=.971$	$r=.963$
$P=.000$	$P=.000$	$P=.000$

For Hypothesis 1, correlation coefficient is between .80-1.0, so relationship between Exchange Rate and Inflow of Remittance is very strong.

For Hypothesis 2, correlation coefficient is between .80-1.0, so relationship between Inflation and Inflow of Remittance is very strong.

For Hypothesis 3, correlation coefficient is between .80-1.0, so relationship between Interest Rate and Inflow of Remittance is very strong.

**8.1. Regression Analysis**

Linear regression analysis estimates the coefficients of a linear equation, involving one or more independent variables (that best predict the value of the dependent variable).

**Table-9.** Regression Analysis

Regression Analysis		
H1	H2	H3
$R2 =.818$	$R2 =.943$	$R2 =.928$

R-Square – This is the proportion of variance in the dependent variable which can be explained by the independent variables. From the table, "R-Square" tells how much the dependent variable is explained by independent variables. The described calculation is being added in the appendix.

**9. Findings**

1. **For Hypotheses 1,**Spearman’s and Pearson’s correlation show there have relationship between Exchange rate and Inflow of Remittance. And also the Exchange rate explaining Inflow of Remittance too strong. So the decision is there have relationship between Exchange rate and Inflow of Remittance.

2. **For Hypotheses 2**, Spearman's and Pearson's correlation shows there have relationship between Inflation and Inflow of Remittance. And also explaining Inflation explaining Inflow of Remittance much strongly. So the decision is there have relationship between Inflation and Inflow of Remittance.
3. **For Hypotheses 3**, Spearman's and Pearson's correlation show there have relationship between Interest rate and Inflow of Remittance. And also the Interest rate explaining Inflow of Remittance much strongly. So the decision is there have relationship between Interest rate and Inflow of Remittance.

## 10. Conclusion

For a developing country like Bangladesh remittance income is one of the biggest sources of export income. Migrant worker plays a very important role to promoting a host country economy, standard of living of the people, decrease the budget deficit and obviously the foreign reserve development etc. In Bangladesh, international migration has become an increasingly important avenue for employment and poverty reduction. This mass movement of migrant workers and the growth of GDP have persuaded this study to investigate the impact of different determinants on inward remittance in Bangladesh. The reason for attending this research paper was desire for, finding the factors that are affecting mostly the overall time to time changing behaviors of the transactions sent from overseas This research paper have sketched the determinants that are mostly affecting the inflow of inward remittance and the overall impact of each discussed variable. Despite of all limitations, however, this study provides insights into the mostly affecting factors on the inflow of inward remittance. This research would deliver with necessary information about the changing behavior of transactions that are sending by overseas along with the Movements of foreign exchange rate, Differences in interest rates between host and home Country and difference inflation between host and home country. The research will help us to predict the average economic effects of remittances in Bangladesh, the impact of migrants in different regions and gradually the study has investigated the overall impacts of exchange rate movements, inflation and interest rate on inward remittance of Bangladesh.

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