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# Remittances, Poverty and Welfare: Evidence from Cumilla, Bangladesh

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**Abstract:** International remittance is now one of talking issues around the world as it has been playing a vital role in socio-economic development of the developing countries like Bangladesh since last few decades. Thus, the present study explores the impact of international remittances on household poverty and welfare in Bangladesh. To achieve this objective, the study analyses primary data collected from 360 households from Cumilla district of Bangladesh. To find out the impact of remittances on poverty, the study employs the Foster-Greer-Thorbecke (FGT) index. On the other hand, a one way ANOVA test is used to examine the impact of remittances on household welfare. The paper finds that the incidence, depth and severity of poverty among remittance recipient households is quite less than that of remittance non-recipient households. Empirically, the study finds that about 6 percent of remittance recipient households lives below the poverty line while this rate is 48 percent for non-recipient households. The study also finds that the average gross per capita expenditure of remittance receiving households is three times higher than that of non-recipient households which interprets that recipient households enjoy higher level of welfare. Thus, it is found that remittances have significant influence on household welfare. The study recommends nursing international remittances as an important tool in reducing poverty and enhancing welfare.

**Keywords:** Remittances, Poverty, Welfare, Bangladesh

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## 1. Introduction

Developing countries like Bangladesh have been generating significant numbers of out-migration due to adverse economic conditions and multi-faceted socio-economic threats [1-3]. At the same time, people of the developing economy, especially rural people, undergo whipping pangs of poverty, unemployment and lower living standards due to a low income based agrarian economy and these dilapidated conditions compel them to opt for migration in search of better and improved economic condition [4]. Similar to many developing nations, Bangladesh is entangled with the challenges of poverty, unemployment, low standard of living and gigantic amount of population. These economic threats are felt deeper in the rural areas than urban centers in the country. The rate of rural poverty in Bangladesh is too higher i.e. 35.2 percent [5]. In order to alleviate the hardship of poverty and unemployment, and to improve living standards, Bangladeshi diaspora, living mainly in Middle East and European countries, send remittances to their

families in Bangladesh. In 2015, about eight million Bangladeshi who work abroad have sent US\$15.8 billion remittances [6-7].

International remittances may affect an economy both at micro and macro level. At micro level, remittance directly augments income and abates budget constraints of remittance recipient households at the time of economic agony [8]. Remittance recipient households spend remittance mostly on consumption purposes which induce demand for local goods, services and labors [9-11]. Moreover, remittance recipient households invest in productive projects which mould new employment opportunities in the community and consequently enhance the income level of community people [9, 12]. In addition, the inflow of remittance reduces infant mortality rate, increases children's school attendance rate and improve the health condition of the children of remittance recipient households [13-14]. Apart from the micro perspective, the effect of remittance is also quite diversified at the macro level. International remittances not only accelerate economic growth and improve the balance of

payment condition of the developing countries but also it is one of the important sources of foreign exchange earnings for some developing countries and it has grown faster than official development assistance [7]. Although a number of positive impacts of international remittances are stated, some researchers have contradicted with it and have asserted some negative impacts as well. For instance, remittance increases the dependency behavior among the members of remittance recipient households, which begets idleness among people [15]. In addition, migration generates moral and social complications such as parentless children, broken family incidents, and sometimes women fall on the psychological pressure to take the strong decision in the absence of male member of the family [16]. Remittance also causes brain drain which has a strong negative effect on a country's long-run economic growth [17]. From the above analysis, it is found that the impact of remittance on poverty and welfare is not clear. The study explores this issue in the context of Bangladesh by analyzing a relationship between remittance, poverty and welfare. That relationship is revealed in Figure 1.

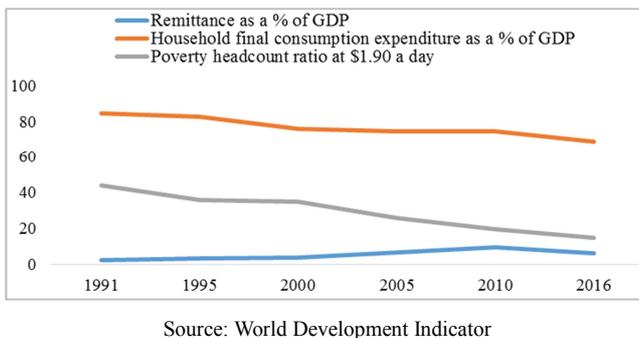


Figure 1. Relationship between remittance, poverty and expenditure.

The above figure shows that rate of poverty decreased and consumption expenditure increased with the increase of remittance.

Earlier researchers have found different impacts of international remittances on poverty and welfare. For instance, Adams and Page conducted a study on the impact of remittance on poverty using the OLS method and they reported that a 10 percent increase in per capita official international remittances leads to a 3.5 percent decline in the share of people living in poverty [18]. In addition, another study using OLS method also revealed that a 10 percent increase in official international remittances reduces 2.9, 2.9 and 2.8 percent poverty headcount, poverty gap and poverty severity, respectively, in Africa [19]. Abbas et al. conducted a primary data based study using a binary logistic regression model where they found that one unit increase in remittance receipt decreases the log odds of poverty by 10.6 percent [15]. Some previous studies have also found that remittance reduces poverty significantly [20-24].

On the other hand, a study by Gupta, et al. revealed that the impact of poverty on international migration and remittance receipt is greater than the impact of remittance on poverty [26]. At the same time, the study revealed that a 10 percent increase in official international remittances as a

share of GDP decreases poverty headcount by 2.9 percent. Each unit increase in remittances to GDP ratio reduces poverty headcounts by 0.4 percent in the Latin America and Caribbean countries [27].

Besides reducing poverty, international remittances enhance the welfare of remittance recipient households. Some previous studies have found a positive relation between remittances and welfare [15, 20, 28-30]. They found that remittance recipient households spend most amount of remittance received on consumption purposes. Kumar et al. found that remittance recipient households in Bangladesh utilize remittance 50 percent on consumption of food purpose while it is 21 percent and 15 percent on non-food and housing purposes [9]. The rate of utilization remittance for investment purposes is too low that is 1.52 percent. Wadood and Hossain found remittance has a positive impact on consumption expenditure and no impact on education and health [31]. On the other hand, Ahmed et al. found that remittances has positive and significant changes on housing condition, sources of drinking water and sanitation facilities, household accessories, education and health status of household members, household economic situation and household expenditure [32].

Despite having the great importance of international remittance, there is still the deficiency of empirical estimation of economic impacts of international remittances at primary level in Bangladesh. Thus, the study aims to examine the economic impacts of international remittance. More specifically, the study seeks the answer to these research questions: (1) what is the impact of international remittances on household poverty? (2) what is the impact of international remittances on household welfare? To find out the answer to these questions, the study employs several statistical approaches.

This paper is organized into four sections as follows. Section 2 presents the methodology of the study while Section 3 describes the estimated results of empirical methods. The final section, Section 4, summarizes the major findings of the study and presents some policy recommendations.

## 2. Data and Methods

### 2.1. Study Area and Sample Selection

This study is mainly based on primary data collected from both rural remittance receiving and non-receiving households. For this study, *Cumilla* district of Bangladesh is selected as the study area because most of the people of the district live in rural area and depends on agriculture. In addition, they have scant non-farm employment opportunities. As a result, in rural areas of the district, per capita income and living standards of people is low. Thus, people migrate abroad to improve their socio-economic conditions.

In order to select sample households, this study employs a multi-stage random sampling technique. *Cumilla* district

consists of 16 police stations of which three stations named *Burichang*, *Daudkandi* and *Debidwar* are selected randomly. Then, two unions from each police station are selected randomly. In the next step, three villages are selected randomly from each union. Finally, from each village twenty households are selected randomly of which ten are remittance recipient and ten are remittance non-recipient households. Thus, a total of 360 households of which 180 are remittance recipient and 180 are remittance non-recipient households are selected for interview for the study from January to February, 2019 following Banik and Kumar [33] and Kumar [34].

## 2.2. Empirical Methods

The study applies both descriptive statistics and statistical tools in the analysis. Firstly, the study applies descriptive statistics to present the demographic and economic features of sampled households. Secondly, the study uses the Foster-Greer-Thorbecke (FGT) index to measure the impact of international remittances on household poverty. Finally, the study uses a one way ANOVA test to measure the impact of international remittances on household welfare.

### 2.2.1. Foster-Greer-Thorbecke (FGT) Index

Foster-Greer-Thorbecke index measures the incidence, depth and, severity of poverty. It was first stated and used by James Foster, Joel Greer and Erik Thorbecke in their article published in Economics Journal [35]. The initial formula of the index is as follows:

$$FGT_{\alpha} = \frac{1}{N} \sum_{i=1}^H \left( \frac{z - y_i}{z} \right)^{\alpha} \quad (1)$$

Where N is the total number of households, H is the total number of poor households whose income is below the poverty line,  $y_i$  is the income of  $i^{\text{th}}$  individual household and  $z$  is the poverty line. In this study, following the World Bank's declaration in 2008 for developing countries daily income US\$1.25 per person (monthly Tk. 2925) is used as poverty line in measuring household poverty. Here,  $\alpha$  is a parameter. With the variation of the value of the parameter, the index gives different measures of poverty. When the value of  $\alpha$  is 0, the formula reduces to headcount index. The formula also gives poverty gap and poverty severity when the value of  $\alpha$  equals to 1 and 2, respectively.

In this study, the Foster-Greer-Thorbecke index is used to estimate the level of household poverty of both remittance recipient and non-recipient households following Kumar [34] and Wurku and Marangu [21].

### 2.2.2. One Way ANOVA Analysis

International remittances not only affect household poverty but also welfare. In order to examine the impact of remittances on household welfare, the study applies a one-way ANOVA test which shows the variation of welfare with the variation of remittance receiving status. In this study, household welfare is measured with per capita household expenditure as a proxy variable of welfare following Abbas,

et al. [15] and Raihan, et al. [20]. To make a variation, sampled households are divided into two groups such as remittance recipient households and non-recipient households. The one-way ANOVA test is applied to find out the welfare impact of international remittances with respect to different sectors of household expenditure as follows:

- (1) Annual expenditure on food and non-food items (Tk./person/year)
- (2) Annual expenditure on education (Tk./person/year)
- (3) Annual expenditure on housing (Tk./person/year)
- (4) Annual expenditure on health (Tk./person/year)
- (5) Annual expenditure on investment (Tk./person/year)

Annual expenditure on food includes rice, potato, vegetable, fish, meat, egg, fruit, milk, oil, sugar, flour and spices and so on; non-food items include clothing and shoes, cosmetics and stationary goods, festivals and donations, travelling and entertainment, utility bills, bicycle or motorcycle, mobile phone, TV/CD/DVD player, solar panel, computer, fridge, watch, electric fan, ornaments and furniture; expenditure on education; expenditure on housing includes repairing and building a new house, expenditure on health and expenditure on investment sector includes shop building, purchase of business equipment, buying of land, purchase of machineries and livestock.

## 3. Results and Discussion

### 3.1. Demographic Features of Household Head

This section presents the demographic features of sampled household head including age, sex, marital status, education, household size, dependency ratio and occupation. These features are analyzed with SPSS 23 and the result is presented in Table 1 which emerges a comparison of demographic features between remittance recipient and non-recipient household head.

Table 1. Demographic features of household head.

Characteristics	Categories	% of households	
		Remittance recipient	Remittance non-recipient
Age (years)	25 and below	6	4.8
	25 to 35	26.1	17.9
	35 to 45	17.9	38.1
	45 to 55	16.7	20.2
	55 and above	33.3	19
Sex	Male	70.2	85.7
	Female	29.8	14.3
	Unmarried	8.8	20.2
Marital Status	Married	82.2	76.6
	Divorced	3.7	2
	Widow/Widower	5.3	1.2
	Sign only (no formal education)	16.7	21.5
Level of education (years)	Primary (1 to 5)	9.5	8.3
	Secondary (6 to 10)	16.7	26.2
	Higher secondary (11 to 12)	45.2	28.5
	Higher studies (12 and above)	11.9	15.5
Household size	3 and below	11.9	20.2

Characteristics	Categories	% of households	
		Remittance recipient	Remittance non-recipient
Dependency ratio	3 to 5	65.4	50.7
	5 to 7	15.5	15.5
	7 and above	7.2	3.6
	0.25 and below	50.1	34.5
	0.25 to 0.50	27.4	26.4
Occupation	0.50 to 0.75	8.2	11.8
	0.75 to 1.00	14.3	27.3
	Agriculture	69	64.3
	Non-agriculture	31	35.7

Note: No. of observations 360 where 180 are remittance recipient and 180 are non-recipient households

Source: Field survey, 2019

From the Table 1, it is found that most of the remittance recipient household heads' age is 55 years and above while it is between 35 and 45 years for remittance non-recipient household heads. The cause of being higher age of the head of remittance recipient households is that relatively younger member migrates abroad and now relatively old aged member maintains the family. It is found that most of the household heads are male of both types of families. Similarly, most of the household heads are married and they have higher secondary level of education. However, the rate is larger for remittance recipient households. Although the household size of both categories of households is same i.e. between 3 and 5 members, the percentage of households is greater for remittance recipient categories. On the other hand, it is found that most of the households of both categories belong to the same level of dependency ratio i.e. 0.25 and below. Moreover, the percentage of households belonged to the class is greater for remittance recipient categories than non-recipient categories. This interprets that members from those families migrates abroad more which have households higher ratio of dependency. Finally, the table reveals that the occupation of the household heads of both categories is agriculture. This can be interpreted by the fact that most of the households live in rural areas where there is few opportunities of non-farm employments.

### 3.2. Economic Features of Households

The economic features of sampled households are analyzed with SPSS 23 and the result is presented in Table 2 which emerges a comparison of economic features between remittance recipient and non-recipient households.

The Table 2, shown below, reveals that most of the remittance recipient households (42.9 percent) have brick and tin made home and they have also a significant number of pucca home. On the contrary, most of the remittance non-recipient households (72.6 percent) have mud and tin made home and negligible number of households has pucca home. The table also shows that most of the remittance recipient households have large size of land (9 bighas and above) while it is small (3 bighas and below) for remittance non-recipient households. The causes behind this big differences between remittance recipient and non-recipient households in terms of house pattern and size of land is that remittance

recipient households expense more on housing and buying land. In addition, the above table reveals that most of the remittance recipient households have Tk. 10000 and above monthly per capita income while the figure is Tk. 2500 and below for remittance non-recipient households. Similarly, the monthly per capita expenditure of remittance recipient households is from Tk. 4000 to Tk. 5500 while it is Tk. 1000 and below for non-recipient households. The inflow of remittance has increased the size of income and expenditure of the recipient households than non-recipient households. Here, income sources are agriculture, services, business, remittance, gifts and so on while the sectors of expenditure are consumption of food and non-food items (cloths, shoes, festivals, donations, utility bills and so on), durable goods (TV/DVD, fridge, motorcycle, bicycle, mobile phone, furniture, ornaments and so on), education, housing, medical treatment and investment on business and so on.

Table 2. Economic features of households.

Characteristics	Categories	% of households	
		Remittance recipient	Remittance non-recipient
House pattern	Mud and thatch	1.2	11.9
	Mud and tin	32.1	72.6
	Brick and tin	42.9	14.3
Size of land (Bighas = 33.33 decimals)	Pucca	23.8	1.2
	3 and below	15.5	44
	3 to 6	23.8	26.2
	6 to 9	23.8	8.3
Size of monthly income per capita (Tk.)	9 and above	36.9	21.5
	2500 and below	2.04	63.1
	2500 to 5000	4.76	25
	5000 to 7500	16.15	9.5
Size of monthly expenditure per capita (Tk.)	7500 to 10000	28.24	1.20
	10000 and above	48.81	1.20
	1000 and below	3.6	47.24
	1000 to 2500	7.16	42.76
Expected value of existing livestock (Tk.)	2500 to 4000	30.95	7.5
	4000 to 5500	45.24	1.25
	5500 and above	13.05	1.25
	No livestock	72.62	30.28
Value of durable assets bought in last one year (Tk.)	25000 and below	14.29	35.72
	25000 to 50000	5.95	17.4
	50000 to 100000	3.57	11.9
	100000 and above	3.57	4.7
Value of durable assets bought in last one year (Tk.)	No durable assets	41.05	57.15
	1000 and below	3.55	2.75
	1000 to 4000	2.4	23.1
	4000 to 8000	5.95	7.15
	8000 and above	47.05	9.85

Note: No. of observations 360 where 180 are remittance recipient and 180 are non-recipient households

Source: Field survey, 2019

The Table 2 shows that most of the remittance recipient households have no livestock while remittance non-recipient households have the expected value of existing livestock Tk. 25000 and below. This finding interprets that remittance recipient households do not like to rear livestock like cow, goat, sheep, buffalo and so on rather they utilize their remittance on consumption and investment on business, transport and others purposes. Finally, the table reveals that

the value of durable assets bought in last year is higher for most of remittance recipient households than that of non-recipient households. This is because remittance recipient households expense their remittance on purchasing of durable assets like TV/DVD, fridge, motorcycle, bicycle, mobile phone, furniture, ornaments and so on. Therefore, it is found that the inflow of international remittances has a significant influence on improving the economic conditions of the remittance recipient families.

### 3.3. Results of FGT Index

The Foster-Greer-Thorbecke (FGT) index is used to measure the level of household poverty as well as to compare the level of poverty between remittance recipient and non-recipient households. The index calculated through MS-Excel -2010 and the result is presented in Table 3.

Table 3. The result of Foster-Greer-Thorbecke index.

Scenarios	Remittance recipient households	Remittance non-recipient households	Total households
Headcount poverty ( $P_0$ )	0.0595	0.4853	0.3631
Poverty gap ( $P_1$ )	0.0072	0.3559	0.1806
Poverty severity ( $P_2$ )	0.0013	0.2101	0.1056

Source: Field survey, 2019

The value of headcount poverty index for all households in the study area is 36.31 percent which explains that among total households 36.31 percent of households live below the poverty line. This result is almost similar to the national poverty rate of Bangladesh [5]. The poverty gap index for all households in the study area is found as 18.06 percent which reveals the average shortfall of the total population from the poverty line. On the other hand, the poverty severity index is found as 10.56 percent which determines the depth of poverty. The table also shows that 5.95 percent households from remittance recipient group live below the poverty line while the figure is about 48.53 percent for remittance non-recipient households. A rational explanation for this huge difference may be that most of the people in the study area are dependent on agriculture and their per capita total household income is very low. In addition, there are few non-farm employment opportunities where they can get involved. For these reasons, people of this region migrate abroad and send remittance to their families which reduced remittance recipient families' poverty significantly. On the other hand, although the government takes a number of policies and actions for poverty alleviation, the benefits mostly do not reach to all the poor households due to administrative deficiency. Therefore, it is expected that remittance is significantly affecting poverty reduction of remittance recipient households. Table 3 also describes the poverty gap index. The cost of eliminating poverty is 0.72 percent of the poverty line for remittance recipient households whereas it is 35.59 percent for remittance non-recipient households. The FGT analysis also reveals that the squared

poverty gap or poverty severity of remittance recipient households is 0.13 percent while it is 21.01 percent for remittance non-recipient households.

The Forster-Greer-Thorbecke (FGT) index analysis reveals that the level of poverty in all forms such as poverty headcount, poverty gap and poverty severity of remittance recipient households is conspicuously lower than that of remittance non-recipient households in the study area. Therefore, it can be concluded that international remittances have significant roles in reducing household poverty. This result is in line with Kumar [34] and Wurku and Marangu [21].

### 3.4. Results of One Way ANOVA Analysis

One-way ANOVA test is performed to investigate the impact of international remittances on household welfare which implies the statistically significant variation in welfare outcomes in different categories of households like remittance recipient households and remittance non-recipient households. The welfare impact of remittances respect to two types of households is analyzed through SPSS 23 and presented in Table 4.

Table 4. The result of One Way ANOVA test

Welfare representatives	Mean per capita expenditure of households (Tk.)		P value
	Remittance recipient	Remittance non-recipient	
Food and non-food purpose	39744.28	12902.33	0.00*
Housing purpose	12614.97	1990.96	0.00*
Education purpose	2385.60	2856.97	0.45
Health purpose	1552.96	1058.87	0.03**
Investment purpose	1839.08	396.71	0.00*
Gross per capita expenditure	58136.89	19205.85	0.00*

Note: \* and \*\* represents 1 percent and 5 percent level of significance  
Source: Field survey, 2019

The above table reveals the mean per capita expenditure for different purposes like food and non-food, housing, education, health and investment purposes of both remittance recipient and non-recipient households. The table also shows the gross per capita expenditure of both types of households. Table 4 reveals that expenditure on each purpose of remittance recipient households is higher than that of non-recipient households. It is found from the above table that the mean per capita expenditure on food and non-food purpose of remittance recipient households is Tk. 39744.28 while it is Tk. 12902.33 of non-recipient households. This difference is significant at 1 percent level of significance. Like per capita expenditure on food and non-food purpose, per capita expenditure on housing and investment purposes are also significant at 1 percent level of significance. On the contrary, the mean difference of per capita expenditure on education purpose between two types of households is insignificant. The big mean difference of gross per capita expenditure between remittance recipient and non-recipient households is significant at 1 percent level of significance. The gross per capita expenditure of remittance recipient households is Tk. 58136.89 while it is Tk. 19205.85 of remittance non-recipient households.

From the one-way ANOVA analysis, it is found that the welfare status is diversified at different categories of households. This means that remittance recipient households enjoys better welfare than non-recipient households. Therefore, international remittance is an important factor which has the significant influence on the improvement of household welfare.

#### 4. Conclusion and Policy Recommendations

The study mainly highlights two questions for investigation. Such as: (1) what is the impact of international remittances on household poverty? and (2) what is the impact of international remittances on household welfare? To seek the answer to these questions, the study uses primary data collected from remittance recipient and non-recipient households and employs several statistical approaches.

Employing these methods, this paper finds two interesting results. The results are interesting in many aspects. First, by using Foster-Greer-Thorbecke analysis, this paper finds that the incidence, depth and severity of poverty among remittance recipient households are quite less than that of remittance non-recipient households because remittance directly reduces households' budget constraint and increase the level of income. Second, a one-way ANOVA analysis reveals that households who receives international remittances can expense more on food and non-food items, housing, education, health and investment purpose. This interprets that they enjoy higher level of welfare. Therefore, it can be concluded that remittance significantly affects household welfare.

On the basis of findings, the study recommends government and non-government organizations to aware households about utilizing international remittances in productive purposes like investment in the business, education, commercialized farming, transportation and so on. Thus, remittance can be able to generate new employment opportunities and income which may reduce poverty and enhance welfare. Since the study has been carried out within very short time and budget, the study suggests to carry out further study on it so that the real scenario of this issue is brought out.

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