



Household expenditure pattern of foreign remittances: An empirical study in Sylhet region of Bangladesh

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Abstract

Foreign remittance is an important source of income through which most of the emigrant households meet their necessary expenditure. Based on the primary data, this study examines the effects of foreign remittances on household expenditure in rural areas of Sylhet and Moulvibazar districts in Sylhet division of Bangladesh. Descriptive statistics and ordinary least square (OLS) regression model are used to analyze the household survey data that is randomly selected. The estimated result shows that foreign remittances have positive and significant effects on household expenditure where the maximum portion of remittance money is utilized for purchasing food items, consumables, and household amenities. Moreover, a significant share of foreign remittance is used for the construction of houses and purchasing of land, but the tendency of investment and savings among remittance-receiving household is slightly noticeable. The household also makes the necessary expenses for medical purposes, though they spend less on academic purposes. The study reveals that migrant workers' remittances have beneficial effects on household spending; however, it is crucial to make sure the efficient utilization of foreign remittances by the households.

Keywords: Foreign Remittance; Household Expenditure; Sylhet; Bangladesh

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1. Introduction

Foreign remittances and international migration can play a vital role in the social and economic dimensions of sustainable development in Bangladesh. Both international migration and remittances significantly reduce the level, depth, and severity of poverty in the developing world (Adams and Page, 2005). International migration has played a pivotal role in the household economy of people in many of the developing countries (Khan et al., 2009). For availability and cheap labour characteristics, the demand for Bangladeshi migrant workers in the international economy is increasing day by day. Around 8.6 million workers have employed in over 150 different countries of the world which are about 5.5 percent of Bangladesh's population who are migrants (IOM 2016, 2013 and BBS, 2013). About 70 percent of total emigrants were in different countries of the Middle East and most of the remittances also come from the Middle East (Miah et al., 2014). Migration and remittances had mixed impacts on migrant-sending households that helped to sustain their livelihood and improve their living conditions (Ahmed, 2012). Overseas migration conveys substantial benefits to families as measured by household consumption, use of modern agricultural inputs, and level of household savings (Sharma and Zaman, 2009). Remittances play a very important role in Bangladesh regarding macroeconomic stability and household well-being, which are indicated by consumption level and poverty incidence (Raihan et al., 2009). The inflow of foreign remittances in Bangladesh was 14981.69 million US dollar in the fiscal year 2017-18, which was sent by the migrant workers living in different countries of the world (Bangladesh Bank, 2018). Out of all popular formal and informal channels, money transfer agencies were preferred almost majority of the respondents as an efficient channel (Ahmed, *et. al.*, 2017). Presently, foreign remittances become a significant part of household livelihood strategies. Remittances contribute directly to raising household incomes or broadening the opportunities to increase incomes and allow households to increase their consumption of local goods and services (Chimhowu et al., 2003). Foreign remittances help to improve the socio-economic status, standards of living and household welfare of the emigrant families in their country of birth, and for some families, remittance is the major source of income to maintain subsistence (Siddiqui and Abrar, 2003). Remittances have led to improvements in the consumption of food among migrant households (IOM, 2009), and it has a positive impact on per capita incomes (Khan, 2008). In recent years, foreign remittances remain a significant contributor to the economy of Bangladesh. Remittances not only increase household income but also have the potentiality to increase local and national economic growth (Arifeen, 2013). Remittance is 11 percent of the total GDP of Bangladesh (Arman, 2013) and the share of remittance to GDP and export earning has been increasing over the year (Miah et al., 2014). The role that remittances can play at the household level and the consequent effects on the local community, depending on how remittances are perceived by the households (Randazzo and Piracha, 2018). There is a correlation between the receipt of remittance and spending patterns of rural households (Gofere, 2013). The remittance-receiving households spent the stupendous amount of remittance for purchasing land, durables and other alike items (BBS, 2013). Different shreds of evidence reveal that the inflow of remittances increased mostly by the contribution of migrant workers from the Sylhet region in comparison to other parts of Bangladesh. The migrant families were given first importance to build or repair houses; secondly to buy agricultural or residential land after repayment of loan. The other items on which household spent their accumulation were consumer durables, ornaments, furniture, farm management, farm equipment, and machinery, investment in trade and business, savings in

banks, expenditure on wedding, donation to institutions, migrate to other family members, etc. (Haque, 2004). Households receiving remittances spend less on food consumption, consumer durables and other consumer goods than do households who do not receive any remittances, and spend heavily on various investment activities like land purchase, building construction, other investment activities, and this investment constitute more than half of the remittances received (Munshi, 2015). Foreign remittances sent to the family members in Bangladesh are not invested in productive sectors, rather used for household consumption, purchasing of land, buying flats, building luxury houses and enterprise development and development of entrepreneurship did not grow at all in Sylhet region (Das, 2013). However, the Sylhet region plays significant contribution in the national economy of Bangladesh since it attracts a huge amount of remittances, keeping the nation's foreign exchange reserve healthy (Hossain et al., 2010). However, it is more important to empirical pieces of evidence with regard to the effects of foreign remittances on household expenditure in Sylhet region. Hence, the objective of the study is to examine the effects of foreign remittances on household expenditure in rural areas of Sylhet region in Bangladesh.

2. Research methodology

2.1. Sampling technique and survey data

Considering the time and fund constraints, 104 remittance-receiving households were selected which could represent reasonably a true picture of the entire population and met the purpose of the study. Osmani Nagar Upazila of Sylhet District and Sadar Upazila of Moulvibazar District were selected purposively for the study. Then four villages from each Upazila and a total of eight villages in all were selected purposively based on the high incidence of emigrant workers in these villages. A sample list was prepared in consultation with the Upazila officials, chairman and members of *Union Parishad* and local community leaders. After that, a representative sample of 13 respondents from each village and a total of 104 respondents from eight villages in all were selected using random sampling technique on the basis of the intensity of the emigrant workers in the study areas. The entire work was based on the primary data and the data were collected from the selected household respondents through a face-to-face interview with a structured questionnaire during the month of January to March 2016 for the financial year July 2014 to June 2015. However, some secondary information was also collected from various institutional websites, thesis, journals, and newspapers, etc. The remittance-receiving households were categorized into three groups based on the household annual income i.e., (i) Low Income Group (\leq BDT 500000), (ii) Middle Income Group (above BDT 500000 and \leq BDT 1000000) and (iii) High Income Group (greater than BDT 1000000). The entire information was analyzed and discussed based on these income groups.

2.2. Analytical techniques

2.2.1. Descriptive statistics

Descriptive statistics were used for a substantial part of data analysis. Comparatively descriptive statistics such as percentage, ratio, arithmetic mean or average, frequency, statistical deviation was employed to analyze the collected data.

2.2.2. Econometric technique

2.2.2.1. Ordinary least square (OLS) regression

The emigrant workers usually send remittances to households of their home countries, which can help to improve their standard of living upon proper utilization. When households receive, foreign remittances they tend to spend more on basic needs and expenditure on other durable and non-durable goods also increase. Some of them save a portion of remittance money and invest it in setting a business/running a business or other purposes in the future. Many previous studies in the home and abroad revealed that foreign remittances had positive effects on household's expenditure whether they incur expenditure on basic needs or save and invest remittance money in business or other purposes in future.

(Ullah, 2012) used households consumption expenditure as a proxy variable to investigate the household welfare through an OLS regression technique where consumption expenditure ($\ln exp$) was taken as a dependent variable and remittances ($\ln rem$) was taken as an independent variable along with some other control variables. (Abbas et al., 2014; Raihan et al., 2009) and some others used household expenditure as a proxy variable to measure the welfare of households through a multiple regression technique. Linear multiple regression model was, therefore, the best equation for determining the effect of international migrants' remittances and other factors on farm households' real per capita consumption (Etowa et al., 2015).

Following the above and reviewed some other literature, the researchers attempted to examine the effects of foreign remittances on household expenditure in rural areas of Sylhet region in Bangladesh for the undertaken study. The expenditure function used in this study for the remittance-receiving household was estimated by the ordinary least square (OLS) regression technique. Household expenditure can be affected by some other variables such as foreign remittances, age, marital status, education, household size, and farm size. The researcher had assessed household expenditure through the implication of inflow of foreign remittances for controlling all such variables. This functional relationship between these variables is as follows:

$$Y = \ln(Exp) = (\ln Remit, Age, MS, Edu, HHS, FS) \dots \dots \dots (1)$$

Besides foreign remittances, all other variables in the model (1) were used as control variables to standardize the effects of foreign remittances on household expenditure. The functional relationship (model 1) between dependent and independent variables is expressed further in the model (2) as below:

$$Y = \ln(Exp) = \beta_0 + \beta_1 \ln Remit + \beta_2 Age + \beta_3 MS + \beta_4 Edu + \beta_5 HHS + \beta_6 FS + \varepsilon_i \dots \dots \dots (2)$$

2.3. Description of the variables

Y ($\ln Exp$) = ln of household annual average expenditure

$\ln Remit$ = ln of remittances (annual)

Age = Age (years) of household head

MS = Marital Status of household head (dummy; 1 for married and 0 for unmarried)

Edu = Education of household head (years of schooling)

HHS = Household Size (number of family members per household)

FS = Farm Size (acres of land possession per household)

β_0 = Intercept

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$, and β_6 = Regression coefficients associated with each explanatory variable, and ε_i = Error term.

The amount of household annual average expenditure and foreign remittances amounted in Bangladesh Taka (BDT) for the financial year July 2014 to June 2015. The dependent expenditure and independent remittances were measured in log value in order to get control over the effects of outliers. By logging the continuous variable, the result cannot be a change in absolute units but rather in an elastic way.

3. Results and discussion

3.1. Effects of foreign remittances on household expenditure

Remittances tend to have positive effects on living expenditures, including food, food away from home and non-food items (Snyder and Chern, 2009). In this study, foreign remittances were assessed by classifying the remittance-receiving household annual average expenditure into eight broad categories. These are as follows:

- i. Expenditure on Food
- ii. Expenditure on Consumable and Durable Goods
- iii. Expenditure on Education
- iv. Expenditure on Health
- v. Expenditure on Housing and Land Improvements
- vi. Expenditure on Culture and Recreation
- vii. Expenditure on Investment and saving
- viii. Other Expenditure

Information on household expenditure on eight broad categories as mentioned above was determined by asking the household respondents through face to face interview for the financial year July 2014 to June 2015. Based on the above categories, effects of foreign remittances and its proportional contribution to household annual expenditure were ascertained.

3.1.1. Expenditure on food

Remittance-receiving household expenditure on food included expenditure on purchased food items e.g., rice, wheat/flour, pulse, vegetables, egg, milk, meat, fish, oil, spices, salt, sugar, biscuits/bread, fruits, tea leaf, betel leaf, betel nut, cold drinks, etc.

Table 1. Annual Expenditure on Food

Income Group	Total Expenses (BDT)	Amount of Remittances Spent (BDT)	Remittances Spent as a Percentage of Total Expenses
Low Income	165,505	141,428	85.45
Middle Income	229,075	119,777	52.29
High Income	280,474	142,211	50.70
All	235,540	135,193	57.40

Table 1 shows the average annual amount and proportion of foreign remittances spent towards their household expenditure on food. It reveals that in the high-income group, remittance-receiving household's annual average expenditure on food accounted for BDT 280,474, which was comparatively higher than middle and low-income groups. However, low-income group accumulated highest proportion of foreign remittances to total expenditure on food, 85.45 percent, whereas it was slightly higher in the middle-income group than the high-income group (52.29 and 50.70 percent respectively). It is clear that the household of the low-income group was more dependent on foreign remittances as their total expenses on food came from remittance money.

3.1.2. Expenditure on consumable and durable goods

Expenditure on consumable and durable goods of remittance-receiving households' include items such as clothing and footwear, fuel and power, kitchen equipment, cosmetics, furniture, fan, air conditioner (AC), refrigerator, mobile, computer/laptop, television, DVD, ornaments, farm appliances, and others. Among them, consumable goods include clothing and footwear, fuel and power and cosmetics where durable goods include kitchen equipment, furniture, fan, AC, refrigerator, mobile, computer/laptop, television, DVD, ornaments and farm appliances.

Table 2 exhibits the proportion of foreign remittance spent to annual expenditure on consumable and durable goods of the remittance-receiving household. Households' annual total expenses on such items were BDT 65,048; BDT 148,884 and BDT 255,582 in low, middle and high groups respectively. The proportion of foreign remittances to total expenditure on the same items was 66.34 percent, 73.05 percent, and 77.45 percent respectively. It is illustrated that the share of foreign remittances spent on consumable and durable goods was comparatively higher in high-income households than the middle and low-income households. Meanwhile, a remarkable amount of foreign remittances were spent on clothing and footwear (BDT 13,019; BDT 17,575 and BDT 20,079), fuel and power (BDT 10,788; BDT 14,350 and BDT 25,211) and mobile phone purchase (BDT 6,552; BDT 18,519 and BDT 30,944) in low, middle and high income group respectively. However, the study found that a significant amount of remittance money spent on air conditioner (AC)

purchasing in the high-income group but there was none, who spends on such head in low and middle-income groups. A noticeable amount of remittance money expensed on ornaments purchase in middle and high-income group, but none spent in this head in the low-income group. In addition, the study also revealed that in low-income group, nobody spent a single coin on purchase of farm appliances, but a small amount of remittance money spent on farming tools in middle and high-income group.

Table 2. Annual Expenditure on Consumable and Durable Goods

Items	Income Group											
	Low Income			Middle Income			High Income			All		
	Total Expenses (BDT)	Amount of Remittances Spent (BDT)	Remittances Spent as a Percentage of Total Expenses	Total Expenses (BDT)	Amount of Remittances Spent (BDT)	Remittances Spent as a Percentage of Total Expenses	Total Expenses (BDT)	Amount of Remittances Spent (BDT)	Remittances Spent as a Percentage of Total Expenses	Total Expenses (BDT)	Amount of Remittances Spent (BDT)	Remittances Spent as a Percentage of Total Expenses
Clothing & Footwear	17,365	13,019	74.97	23,700	17,575	74.16	29,921	20,079	67.11	24,389	18,101	74.22
Fuel and Power	15,596	10,788	69.17	25,285	14,350	56.75	32,166	25,211	78.38	25,377	13,774	54.28
Kitchen Equipment	808	385	47.62	1,443	525	36.40	2,374	434	18.29	1,624	457	28.12
Cosmetics	2,231	1,719	77.07	3,588	1,925	53.66	5,171	2,197	42.49	3,827	1,973	51.56
Furniture	3,885	1,269	32.67	10,080	6,070	60.22	17,926	12,224	68.19	11,398	7,618	66.84
Fan	1,500	923	61.54	2,659	1,549	58.25	4,035	1,294	32.07	2,872	1,299	45.24
Air Conditioner	-	-	-	-	-	-	20,144	17,677	87.76	7,360	6,459	87.76
Refrigerator	8,366	5,446	65.10	15,763	12,093	76.72	20,789	15,541	74.76	16,135	10,441	64.71
Mobile	9,402	6,552	69.69	21,144	18,519	87.59	32,649	30,944	94.78	22,412	20,317	90.65
Computer/Laptop	-	-	-	10,673	8,783	82.29	28,074	24,897	88.69	14,363	12,475	86.86
Television Purchase	3,069	1,608	52.38	3,925	2,488	63.38	6,400	4,171	65.17	4,365	2,883	66.04
Ornaments	-	-	-	21,425	19,300	90.08	41,447	33,526	80.89	23,385	17,038	72.86
Farm Appliances	-	-	-	1,175	488	41.49	1,750	553	31.58	1,091	389	35.68
Others	2,827	1,442	51.02	8,025	5,103	63.58	12,737	9,211	72.31	8,447	5,578	66.03
Total	65,048	43,152	66.34	148,884	108,766	73.05	255,582	197,959	77.45	167,045	118,803	71.12

Note: '-' indicates not applicable

3.1.3. Expenditure on education

In this study, remittance-receiving household expenditure on education included expenditure on buying of books, pen, pencil, eraser, sharpener, uniform/clothes, paying of tuition fee and for a private tutor, communication and tiffin cost, etc. Table 3 depicts the annual expenditure on education incurred by remittance-receiving household. As is seen, the proportion of remittances to total expenditure in low, middle and high-income groups were 67.22 percent, 71.99 percent, and 75.93 percent respectively. Remittances spent to total expenses on education were relatively higher in the high-income group than the middle and low-income group since the high-income households earned higher and they had more educated family members in comparison to middle and low-income group. It is revealed that foreign remittances annually contributed about 70 percent to household annual total expenses on education, as most of the remittances receiving households were dependent on remittance money for bearing their educational expenses.

Table 3. Annual Expenditure on Education

Income Group	Total Expenses (BDT)	Amount of Remittances Spent (BDT)	Remittances Spent as a Percentage of Total Expenses
Low Income	38,769	26,062	67.22
Middle Income	62,200	44,775	71.99
High Income	80,579	61,184	75.93
All	63,058	44,169	70.05

3.1.4. Expenditure on health

Remittance-receiving household expenditure on health included expenditure on medicine and medical treatment i.e. doctor's fees, hospitalization, and other health-related expenses. Table 4 presents the remittance-receiving household annual expenditure on health and the proportion of remittances spent.

Table 4. Annual Expenditure on Health

Income Group	Total Expenses (BDT)	Amount of Remittances Spent (BDT)	Remittances Spent as a Percentage of Total Expenses
Low Income	48,076	37,884	78.80
Middle Income	73,448	51,860	70.61
High Income	112,724	74,658	66.23
All	81,456	56,696	69.60

It is examined from the Table 4 that low-income households spent a small amount of remittance money (BDT 37,884) to annual expenses (BDT 48,076) on health. A remarkable amount of remittance money (BDT 51,860) was spent to annual expenses (BDT 73,448) in middle-income group, while in high-income group, it was slightly higher (BDT 74,658) to annual expenses (BDT 112,724) on health. Around 70 percent of the remittances receiving household's annual expenses on health was spent from remittance money. The study reveals that comparatively, a low-income household spent more portion of their annual remittance money (78.80 percent) to annual health expenses than the middle income (70.61 percent) and high income (66.23 percent) group.

3.1.5. Expenditure on housing and land improvements

Expenditure on housing and land improvements of remittance-receiving household, include items such as house construction/building, house repairing, residential land purchase, and agricultural land purchase. Table 5 illustrates the proportion of annual remittances spent to annual expenditure on housing and land improvements of remittance-receiving households.

As can be presented, in low-income group, a household spent a little amount of remittance money, BDT 12,942 to annual expenses (BDT 15,250) on housing and land improvements. They only spent on house repairing and no amount was spent for other housing and land improvements items. A significant annual

amount of remittance money (BDT 82,436) to annual average expenses (BDT 122,213) on housing and land improvements was spent in the middle-income group with compared to expenses on house construction/building, house repairing, residential land purchase, and agricultural land purchase. Moreover, the high-income group spent, BDT 192,553 on housing and land improvements, and the highest portion (77.27 percent) was spent on the residential land purchase, whereas in all group, it is found that maximum amount of remittance money was expensed on house construction/building.

Table 5. Annual Expenditure on Housing and Land Improvements

Income Group	Particular	Total Expenses (BDT)	Amount of Remittances Spent (BDT)	Remittances Spent as a Percentage of Total Expenses
Low Income	House Construction/Building	-	-	-
	House Repairing	15,250	12,942	84.87
	Residential Land Purchase	-	-	-
	Agricultural Land Purchase	-	-	-
	Total	15,250	12,942	84.87
Middle Income	House Construction/Building	52,564	39,744	75.61
	House Repairing	31,795	19,615	61.69
	Residential Land Purchase	26,316	15,385	58.46
	Agricultural Land Purchase	11,538	7,692	66.67
	Total	122,213	82,436	67.45
High Income	House Construction/Building	107,895	76,316	70.73
	House Repairing	72,447	51,763	71.45
	Residential Land Purchase	57,895	44,737	77.27
	Agricultural Land Purchase	30,526	19,737	64.66
	Total	268,763	192,553	71.64
All	House Construction/Building	59,135	42,788	72.36
	House Repairing	42,207	29,505	69.91
	Residential Land Purchase	31,068	22,115	71.18
	Agricultural Land Purchase	15,481	10,096	65.22
	Total	147,890	104,505	70.66

Note: '-' indicates not applicable

3.1.6. Expenditure on culture and recreation

Expenditure on culture and recreation of remittance-receiving household include items such as the celebration of social festivals (e.g., *Eid*, *Puja*, *Pahela Baishakh* etc.), expenditure on *hajj*, marrying off family members and expenditure on gifts. Table 6 describes the households proportion of annual remittances spent to annual expenditure on culture and recreation.

It is examined that remittance-receiving households annually spent an amount of remittance money BDT 36,731; BDT 67,963 and BDT 155,000 on culture and recreation in low, middle and high groups respectively. The proportion of remittances to total expenditure was 62.68 percent, 65.99 percent; and 67.10 percent respectively. In the low-income group, an amount of remittance money BDT 19,808; BDT 15,385 and BDT 1,538 were spent and BDT 28,100; BDT 37,500 and BDT 2,363 were annually spent on the celebration of social

festivals, marrying of family members and for gifts respectively in middle-income group. In addition, in high-income group, an amount of remittance money BDT 37,763; BDT 38,158; BDT 75,789 and BDT 3,289 spent annually on the celebration of social festivals, *hajj*, marrying of family members and for gifts respectively. It is found that high-income group comparatively spent a large amount of remittance money on the celebration of social festivals and marrying off family members than the low and middle-income group. A small amount of remittance money BDT 38,158 expensed on *hajj* only in the high-income group and no such expenditure incurred in middle and low-income groups. As the income level was higher in the high-income group, they could able to bear more expenses on culture and recreation than other groups.

Table 6. Annual Expenditure on Culture and Recreation

Income Group	Particular	Total Expenses (BDT)	Amount of Remittances Spent (BDT)	Remittances Spent as a Percentage of Total Expenses
Low Income	Celebration of Social Festivals	30,962	19,808	63.98
	Expenditure on <i>Hajj</i>	-	-	-
	Marrying off Family Members	25,000	15,385	61.54
	Expenditure on Gifts	2,635	1,538	58.39
	Total	58,596	36,731	62.68
Middle Income	Celebration of Social Festivals	41,750	28,100	67.31
	Expenditure on <i>Hajj</i>	-	-	-
	Marrying off Family Members	55,375	37,500	67.72
	Expenditure on Gifts	5,863	2,363	40.31
	Total	102,988	67,963	65.99
High Income	Celebration of Social Festivals	60,184	37,763	62.75
	Expenditure on <i>Hajj</i>	50,263	38,158	75.92
	Marrying off Family Members	110,526	75,789	68.57
	Expenditure on Gifts	10,013	3,289	32.85
	Total	230,987	155,000	67.10
All	Celebration of Social Festivals	45,788	29,558	64.55
	Expenditure on <i>Hajj</i>	18,365	13,942	75.92
	Marrying off Family Members	67,933	45,962	67.66
	Expenditure on Gifts	6,572	2,495	37.97
	Total	138,659	91,957	66.32

Note: '-' indicates not applicable

3.1.7. Expenditure on investment and savings

Remittance-receiving household expenditure on investment and savings include items such as investment in setting a business, investment in apartment purchase/apartment building, savings in banks/deposit in saving scheme and other savings (e.g., own savings/savings in co-operative society/friends/relatives, etc.). Table 7 delineates the annual expenditure on investment and savings of remittance-receiving household.

Table 7. Annual Expenditure on Investment and Savings

Income Group	Particular	Total Expenses (BDT)	Amount of Remittances Spent (BDT)	Remittances Spent as a Percentage of Total Expenses
Low Income	Investment in Setting/Running a Business	-	-	-
	Investment in Apartment Purchase/ Apartment Building	-	-	-
	Savings in Banks/Deposit in Saving Scheme	13,269	5,962	44.93
	Other Savings	10,115	6,269	61.98
	Total	23,385	12,231	52.30
Middle Income	Investment in Setting/Running a Business	12,750	7,375	57.84
	Investment in Apartment Purchase/ Apartment Building	-	-	-
	Savings in Banks/Deposit in Saving Scheme	31,875	19,500	61.18
	Other Savings	16,000	8,875	55.47
	Total	60,625	35,750	58.97
High Income	Investment in Setting/Running a Business	35,526	22,368	62.96
	Investment in Apartment Purchase/ Apartment Building	42,105	31,579	75.00
	Savings in Banks/Deposit in Saving Scheme	90,263	57,368	63.56
	Other Savings	31,447	17,500	55.65
	Total	199,342	128,816	64.62
All	Investment in Setting/Running a Business	17,885	11,010	61.56
	Investment in Apartment Purchase/ Apartment Building	15,385	11,538	75.00
	Savings in Banks/Deposit in Saving Scheme	48,558	29,952	61.68
	Other Savings	20,173	11,375	56.39
	Total	102,000	63,875	62.62

Note: '-' indicates not applicable

As is observed, an amount of remittance BDT 12,231 (52.30 percent) spent to annual expenditure (BDT 23,385) on investment and savings in low income group in which BDT 5,962 and BDT 6,269 spent on savings in banks/deposit in saving scheme and other savings and none spent on setting a business or an apartment purchase/apartment building. In the middle-income group, annual expenses on investment and savings were BDT 60,625 in which the annual amount of remittances spent was BDT 35,750 (58.97 percent). Similarly, an annual amount of remittance BDT 7,375; BDT 19,500 and BDT 8,875 were spent on setting a business, savings in banks/deposit in saving scheme and other savings respectively and no amount was spent in apartment purchase/apartment building in middle-income group. In high income group, an annual amount of remittance money BDT 128,816 (64.62 percent) was spent to annual expenses (BDT 199,342) on investment and savings in which BDT 22,368; BDT 31,579; BDT 57,368 and BDT 17,500 were spent on setting a business, apartment purchase/apartment building, savings in banks/deposit in saving scheme and other savings respectively. In addition, an annual average amount of remittance BDT 63,875 (62.62 percent) was spent to annual average expenses (BDT 102,000) on investment and savings in which BDT 11,010; BDT 11,538; BDT 29,952 and BDT 11,375 were spent on setting a business, apartment purchase/ apartment building, savings in banks/deposit in saving scheme and other savings in all group respectively. The study reveals that high-income household

spent a remarkable amount of annual remittances on saving and investment activities whereas in the middle-income household it was well below. In low-income households, a subtle amount of annual remittances was spent on saving but no amount was spent on investment activities.

3.1.8. Other expenditure

Other expenditure of remittance-receiving households incurred for the household servant, farm activities, livestock purchase, migrate of household members, paying off debts, assistance to relatives/friends/others, welfare activities (donation to the Mosque, Madrasah, School, College or other institutions) and taxes on income.

Table 8 elucidates that in low-income group, the substantial portion of remittance money (72.78 percent) was spent to annual expenses on household other expenditure in which a small amount was spent for paying of household servant, doing farm activities, for paying off debts, assistance to relatives/ friends/others and for welfare activities. Likewise, an annual amount of remittance BDT 28,795 was spent to an annual expenses on household other expenditure (BDT 40,780) where BDT 6,610; BDT 2,910; BDT 7,800; BDT 7,625 and BDT 3,850 were spent for paying of household servant, doing farm activities, for paying off debts, assistance to relatives/friends/others and for welfare activities in middle-income group respectively. In the high-income group, an annual amount of remittance money BDT 85,189 (75.81 percent) was spent to annual expenses (BDT 112,368) on household other expenditure. Moreover, an annual amount of remittance money BDT 45,330 (70.10 percent) was spent on annual expenses on household other expenditure (BDT 64,665). It was found from the study that low and middle-income household spent a small amount of annual remittance (BDT 12,885 and BDT 7,800 respectively) for paying off debts whereas in the high-income group; a remarkable amount of annual foreign remittances (BDT 31,579) was spent for migrating of households' members. Besides, a noticeable amount of annual remittances (BDT 24,132 and BDT 13,947) was spent for household servant and assistance to relatives/friends/others comparatively in the high-income group than other groups.

Table 8. Other Expenditure

Income Group	Particular	Total Expenses (BDT)	Amount of Remittances Spent (BDT)	Remittances Spent as a Percentage of Total Expenses
Low Income	Household Servant	2,538	1,462	57.58
	Farm Activities	2,250	865	38.46
	Purchase of Cattle	-	-	-
	Migrate of Household Members	-	-	-
	Paying off Debts	16,538	12,885	77.91
	Assistance to Relatives/Friends/Others	5,115	4,000	78.20
	Welfare Activities	2,173	1,615	74.34
	Taxes on Income	-	-	-
	Total	28,615	20,827	72.78
Middle Income	Household Servant	10,035	6,610	65.87
	Farm Activities	4,210	2,910	69.12
	Purchase of Cattle	-	-	-

	Migrate of Household Members	-	-	-
	Paying off Debts	11,125	7,800	70.11
	Assistance to Relatives/Friends/Others	10,300	7,625	74.03
	Welfare Activities	5,110	3,850	75.34
	Taxes on Income	-	-	-
	Total	40,780	28,795	70.61
High Income	Household Servant	27,158	24,132	88.86
	Farm Activities	3,184	1,571	49.34
	Purchase of Cattle	3,684	2,505	68.00
	Migrate of Household Members	39,474	31,579	80.00
	Paying off Debts	5,395	2,500	46.34
	Assistance to Relatives/Friends/Others	21,421	13,947	65.11
	Welfare Activities	12,053	8,955	74.30
	Taxes on Income	-	-	-
	Total	112,368	85,189	75.81
All	Household Servant	14,417	7,629	52.91
	Farm Activities	3,345	1,763	52.72
	Purchase of Cattle	1,346	769	57.14
	Migrate of Household Members	14,423	11,538	80.00
	Paying off Debts	10,769	7,519	69.82
	Assistance to Relatives/Friends/Others	13,452	11,625	86.42
	Welfare Activities	6,913	4,486	64.89
	Taxes on Income	-	-	-
	Total	64,665	45,330	70.10

Note: '-' indicates not applicable

3.2. Magnitude of household expenditure of foreign remittances

In this study, among the eight broad categories of expenditure, fifteen prime avenues of annual remittances spent by the household was taken into account for ranking the expenditure pattern of foreign remittances. These avenues were food expenses, clothing and footwear, education, health, house construction/building, house repairing, celebration of social festivals, marrying off family members, paying off debts, purchase of mobile, farm activities, residential land purchase, agricultural land purchase, investment in setting/running a business and savings in banks/deposit in saving scheme. A rank of 1 was given for the avenue in which the highest portion of remittances was spent, 2 for the next highest and the process was ongoing. A rank of 0 was given for the avenue in which no portion of remittances was spent. Table 9 exhibits that food expenses were the most important avenue of remittance utilization among the three income groups and it was ranked in 1. In the low-income group, the avenue of farm activities was ranked, 11 and house construction/building, residential land purchase, agricultural land purchase, investment in setting/running a business were ranked, 0 as no portion of remittances were used in these avenues. Besides food expenses, the next priority was given to health which was ranked 2 in the low and middle-income group whereas house construction/building was ranked 2 in the high-income group. A rank of 15 was given for farm activities respectively in middle and high-income group. The study found that in all group, foreign remittances were mainly used for food expenses (Rank 1), health care (Rank 2), marrying off family members (Rank 3), bearing educational expenses (Rank 4) and

for house construction/building (Rank 5). A significant portion (5.93 percent) of foreign remittances was used for saving purposes (Rank 6) and a slightly lower portion (5.86 percent and 5.85 percent) were used for celebrating social festivals and house repairing (Rank 7 and Rank 8 respectively). A noticeable portion of remittance money was also used for unproductive purposes such as residential land purchase (Rank 9), purchase of mobile phone (Rank 10) and for clothing and footwear (Rank 11). One of the major findings of the study is that 2.18 percent and 2 percent were used in productive avenues respectively for investment in setting/running a business (Rank 12) and for agricultural land purchase (Rank 13). There is also a small portion (1.49 percent) was used for paying off debts (Rank 14). The most significant finding of this study is that a very small portion (0.35 percent) of foreign remittances used for farm activities and the dependence on farm activities of remittance-receiving households was almost not at all.

Table 9. Magnitude of Foreign Remittances Expenditure in Different Avenues

Avenues of Foreign Remittances Expenditure	Income Group											
	Low Income			Middle Income			High Income			All		
	Remittances Spent (BDT)	Percent	Rank	Remittances Spent (BDT)	Percent	Rank	Remittances Spent (BDT)	Percent	Rank	Remittances Spent (BDT)	Percent	Rank
Food Expenses	14,1428	48.30	1	11,9777	27.34	1	142,211	19.78	1	135,193	26.78	1
Clothing and Footwear	13,019	4.45	6	17,575	4.01	10	20,079	2.79	12	18,101	3.59	11
Education	26,062	8.90	3	44,775	10.22	3	61,184	8.51	5	44,169	8.75	4
Health	37,884	12.94	2	51,860	11.84	2	74,658	10.38	4	56,696	11.23	2
House Construction/Building	-	-	0	39,744	9.07	4	76,316	10.61	2	42,788	8.48	5
House Repairing	12,942	4.42	8	19,615	4.48	7	51,763	7.20	7	29,505	5.85	8
Celebration of Social Festivals	19,808	6.77	4	28,100	6.41	6	37,763	5.25	9	29,558	5.86	7
Marrying off Family Members	15,385	5.25	5	37,500	8.56	5	75,789	10.54	3	45,962	9.11	3
Paying off Debts	12,885	4.40	7	7,800	1.78	12	2,500	0.35	14	7,519	1.49	14
Purchase of Mobile Phone	6,552	2.24	9	18,519	4.23	9	30,944	4.30	10	20,317	4.03	10
Farm Activities	865	0.30	11	2,910	0.66	15	1,571	0.22	15	1,763	0.35	15
Residential Land Purchase	-	-	-	15,385	3.51	11	44,737	6.22	8	22,115	4.38	9
Agricultural Land Purchase	-	-	-	7,692	1.76	13	19,737	2.75	13	10,096	2.00	13

Investment in Setting/Running a Business	-	-	-	7,375	1.68	14	22,368	3.11	11	11,010	2.18	12
Savings in Banks	5,962	2.04	10	19,500	4.45	8	57,368	7.98	6	29,952	5.93	6
Total	292,792	100		438,127	100		718,988	100		504,744	100	

Note: '-' indicates not applicable

3.3. Descriptive statistics for expenditure of foreign remittances

For obtaining more reliable information, descriptive statistics of utilization pattern of foreign remittances were also examined. Table 10 describes the total number of remittance-receiving households, mean value and standard deviation of annual foreign remittances. Since the standard deviation in each category of expenditure was smaller than the mean value, it indicates that information on different expenditure categories was almost reliable. The study found that more reliable mean BDT 36,453 with standard deviation 19,335 for bearing education expenses of remittance-receiving households.

Table 10. Descriptive Statistics for Expenditure of Foreign Remittances

Variables (Categories of Expenditure)	Number	Mean	Standard Deviation
Expenditure on Food	104	135,193	49,658
Expenditure on Consumable and Durable Goods	104	118,803	80,590
Expenditure on Education	104	36,453	19,335
Expenditure on Health	104	56,696	40,276
Expenditure on Housing and Land Improvements	104	104,505	89,359
Expenditure on Culture and Recreation	104	91,957	62,809
Expenditure on Investment and Savings	104	63,875	56,096
Other Expenditure	104	45,330	34,965

3.4. OLS regression for the effects of foreign remittances on household expenditure

In order to accomplish the objective, the researchers used an econometric model (OLS regression) for determining the effects of foreign remittances on household expenditure and the estimated results are presented in Table 11.

Before carrying out the OLS regression in this study, a diagnostics test for multicollinearity and goodness of fit were carried out by the researcher. In some previous studies, it was found that many researchers now use the variance inflation factor (VIF) as an indicator of multicollinearity. In this study, to test for the presence of multicollinearity, the researcher also used VIF by estimating OLS regression with the response variable and each with the explanatory variables. If the VIF of a variable exceeds 10, that variable is said to be highly collinear (Gujarati, 2003). All the variables used for OLS regression in this study had found VIF below 2 i.e. there was no multicollinearity as VIF for all explanatory variables did not exceed 10.

The results of the OLS regression have shown for each income group separately and also for all income groups together. The multiple coefficients of determination (R^2) and the adjusted R^2 determine the goodness of fit of the OLS regression model used in this study. Besides R^2 and adjusted R^2 as the goodness of fit measures, the other criteria are often used to judge the adequacy of a regression model (Gujarati, 2003). Following (Gujarati, 2003), the R^2 is defined in measures the goodness of fit of the regression equation; that is it gives the proportion or percentage of the total variation in the dependent variable explained by the explanatory variables. The R^2 of low, middle, high and all income groups were estimated 0.813, 0.855, 0.876 and 0.928 that indicate 81.3 percent, 85.5 percent, 87.6 percent and 92.8 percent of the total variation in the dependent variable (response variable) explained by the explanatory variables used in the OLS regression model respectively. The R^2 value of 0.928 considering in all income groups means that about 92.8 percent of the variation in total expenditure of households explained by the explanatory variables selected in the regression model. Moreover, the estimated adjusted R^2 were 75.3 percent, 82.8 percent, 85.2 percent, and 92.4 percent in low, middle, high and all income groups respectively. Since the value of adjusted R^2 in each income group was satisfactory. Considering estimation results of all income groups (0.924) implying that the accuracy of OLS regression model used in the present study and shows that 92.4 percent of the variation in total expenditure of households can be taken into account by foreign remittances and other explanatory variables specified in the regression model. The estimated values of F statistics was found significant at 1 percent level in low, middle, high, and all income groups, which mean there is a significant relationship between household expenditure and independent variables used in the model. In addition, in view of all income groups, the value of F statistic estimated 98.081 at a significance level of 1 percent verifying the fact that the explanatory variables significantly explain the variations in total expenditure of remittance-receiving households. It is, therefore, can be said that better, the model fitted the data and it is statistically significant and hence reliable.

The estimated result in table 11 exhibits the explanatory variables *i.e.* foreign remittances, age, education, household size, and farm size were significant at the level of 1 percent, 5 percent and 10 percent in low, middle, high, and all income groups respectively. However, marital status is not significant in low and middle-income group but its respective coefficient is positive. The key intention was to analyze the effects of foreign remittances on household expenditure, which is measured by household expenditure. Based on the several previous research studies, the investigator considered that the coefficient of foreign remittances is the direct measure of elasticity and one percent change in the inflow of foreign remittances will increase or decrease household welfare measured by household expenditure.

The coefficient of foreign remittances estimated 0.666, 0.779, 0.796 and 0.825 at the significance level of 1 percent in low, middle, high, and all income groups respectively. Having intimate attention on the respective income groups, the effects of foreign remittances was the strongest in the high-income group where 1 percent increase in the inflow of foreign remittances leads to 79.6 percent increase in household expenditure. In the middle group, these effects were slightly low strongest as compared to the high-income group. At low-income group, the effects of foreign remittances were low strongest relatively than the middle and high-income group because of a 1 percent increase in the inflow of foreign remittances leads to 66.6 percent increase in household expenditure. It is examined that there was a stronger effect of foreign remittances in all income groups where a 1 percent increase in the inflow of foreign remittances leads to 82.5 percent increase in household

expenditure. Therefore, the study revealed that foreign remittances had significant positive effects on household expenditure.

The coefficient of age (years) of household head estimated 0.012 and 0.015 at 10 percent level of significance in low and middle-income group whereas it was 0.016 and 0.018 at 5 percent level of significance in high and all income groups respectively. It means that with the increase of age composition of households, the expenditure of households also increases.

The coefficient of the marital status of household head is significant in high and all income groups whereas in low and middle-income group, it is not statistically significant but its respective coefficient is positive. The coefficient of marital status implies that married households incurred more expenditure as compared to unmarried households, means it has positive effects on household expenditure.

Table 11. Regression Results (OLS) of the Effects of Foreign Remittances on Household Expenditure

Independent Variables	Households by Income Group															
	Low Income				Middle Income				High Income				All			
	Coeff.	S.E.	t	Sig.	Coeff.	S.E.	t	Sig.	Coeff.	S.E.	t	Sig.	Coeff.	S.E.	t	Sig.
Constant	3.502	1.482	2.363	.029	2.089	1.047	1.995	.034	2.930	1.190	2.462	.020	2.018	.521	3.871	.000
Remittances (<i>lnRemit</i>)	.666***	.116	5.725	.002	.779***	.076	10.268	.001	.796***	.087	9.165	.000	.825***	.044	18.965	.000
Age (years) of Household Head	.012*	.004	2.004	.060	.015*	.003	.550	.059	.016**	.004	1.731	.043	.018**	.002	1.629	.032
Marital Status of Household Head (MS)	.274	.079	1.739	.118	.382	.180	2.120	.162	.237*	.170	1.615	.098	.182**	.078	2.340	.021
Education of Household Head (Edu)	.022**	.017	2.359	.029	.034**	.006	2.119	.012	.039***	.014	1.504	.010	.028***	.006	1.498	.009
Household Size (HS)	.018*	.017	.469	.088	.035**	.012	2.801	.038	.031**	.018	1.736	.042	.023***	.010	2.358	.010
Farm Size (FS)	.006*	.022	.029	.096	.012*	.014	1.123	.056	.019**	.018	.568	.044	.014***	.011	1.045	.008
F Statistics	10.077***				13.462***				16.584***				98.081***			
R ²	.813				.855				.876				.928			
Adjusted R ²	.753				.828				.852				.924			

N.B.: Dependent variable: Expenditure (*lnExp*); ***, ** and * indicates significant level at 1 %, 5 % and 10 % respectively

The coefficient of education of household head (years of schooling) estimated 0.022, 0.034, 0.039 and 0.028 in low, middle, high and all income groups respectively whereas it is significant at 5 percent level of significance in low and middle-income group and in high and all income groups at 1 percent level of significance. This implies that when 1 percent increases in education lead to 2.2 percent increase in household expenditure in low-income group, 3.4 percent in middle-income group, 3.9 percent in the high-income group and considering all income groups it was 2.8 percent increase in household expenditure. This is because educated people spend more on better food, health, sanitation, education, clothing, housing, etc. that leads to a positive and significant impact on household welfare. Relatively this percentage was more in the high-income group than the middle and low-income group.

The coefficient of household size in low, middle, high and all income groups was positive and significant. That means that when the number of people in a household increases, household expenditure also increases i.e. household size had positive and significant effects on household expenditure.

The coefficient of farm size also found significant and positive in different income groups meaning that with an increase in farm size leads to an increase in household expenditure.

Considering all income groups in the study area, besides foreign remittances, other explanatory variables such as age (years) of household head, marital status of household head, education of household head (years of schooling), household size (number of family members per household) and farm size (acres of land possession per household) also had positive effects on household expenditure. Education and age are in fact maturity indicators and maturity often links to rational decisions and enhance household welfare (Ullah, 2012). The study also found, in the study area, foreign remittances had strongest effects on household expenditure in the high-income group since they received a large volume of remittances and spent more as compared to the middle and low-income group. Therefore, it is revealed that foreign remittances had positive and significant effects on household expenditure.

4. Conclusion

The study ascertains the effects of foreign remittances on the utilization pattern of households. The findings reveal that foreign remittances contribute significantly to the household expenditure in the Sylhet region of Bangladesh. Most of the households in this region are dependent on foreign remittances in order to meet their spending on different heads. The receiving household spends a remarkable portion of remittance money on food as well as on consumables and durable goods. Following these, the next priority sector is housing and land improvements, in which they expense a significant amount. In addition, a considerable proportion of foreign remittances are expensed on the cultural and recreational activities of the household. A subtle portion of remittance money is used for investment and savings. Similarly, the expense of education by the household is comparatively less and a little more on health. Though the remittance-receiving household spends relatively more on unproductive sectors compared to productive sectors, the study concludes that foreign remittances have positive effects on household expenditure as it helps to improve their living standard. Therefore, households need to be more focus on the productive utilization of foreign remittances.

5. Limitations of the study and Suggestions

The study might have some limitations as follows:

- It was not easy to convince the household respondents in the study areas because most of them had no such knowledge about a research study related to foreign remittances.
- A few numbers of migrant workers were in their home country. That is why data were collected mostly from household respondents and the majority of them were the household head. As a result,

they could not provide exact information about emigrant workers actual income and their nature of the occupation.

In addition, according to the findings, this study generate the following suggestions and push the call for further research:

- Rather than solely depend on foreign remittances, household members need to engage themselves in some income-generating activities to be self-dependent and keep their families more protective and solvent.
- Investment of foreign remittances in productive activities by the remittance-receiving households were not impressive. It is important that they need to increase investment of foreign remittances in productive sectors including business and enterprise development.
- As foreign remittances have a positive impact on household expenditure, the government of Bangladesh can adopt proper policies to export more workforces and create more job opportunities in different countries of the world in order to bring development at household and community level in Bangladesh.
- This study gives an indication to household expenditure pattern of foreign remittances in selected areas of Sylhet region with its limitations. This may not represent the homogenous picture for entire Bangladesh; that is why further research is indeed called for to investigate the utilization pattern of foreign remittances and its impact on macro-level in Bangladesh.

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Conflicts of Interest

The authors declare no conflict of interest.

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