The Effects of Remittances on Household Consumption Expenditure and Educational Expenditure in Selected South Asian Countries

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Abstract

There are several positive aspects to the remittance inflow to South Asian nations like Bangladesh, Sri Lanka, Pakistan, India, and Nepal. The main goals of this paper are to investigate the effects of workers' remittances on households' consumption expenditure and educational expenditure. Secondary annual time series data for the five South Asian countries is collected from 1993 to 2019, so the panel data set contains 135 observations. Scatter plots, the pairwise Dumitrescu Hurlin panel causality test, and a fixed effects model are applied in this study. Between workers' remittances and household consumption expenditure, the inverted "U" shape pattern is reflected in the scatter plots of quadratic fitted lines for Bangladesh, India, and Nepal.On the other hand, in Pakistan and Sri Lanka, we see a roughly linear relationship between household consumption expenditure and worker remittances. For Sri Lanka and Nepal, the scatter plots of quadratic fitted lines show a non-linear form pattern between workers' remittances and educational expenditure, while Bangladesh, India, and Pakistan demonstrate a nearly linear relationship. Based on the Pairwise Dumitrescu Hurlin panel causality test, there are two unidirectional homogenous causal relationships between workers' remittances and household consumption expenditure and educational expenditure. According to fixed effects estimation, workers' remittances have significant and positive effects on households' consumption expenditure and educational expenditure. Furthermore, a substantial share of workers' remittances is spent on household consumption expenditure and educational expenditure. The main suggestions of the study are to reduce the cost of remittances sending; improve exchange house facilities; transfer remittances through legitimate banking channels; proper utilization of remittances; stop discount broker transfer systems; and award a prize to the highest remittances sender.

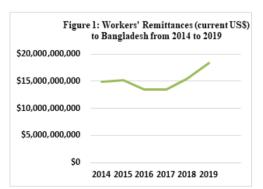
Keywords: Workers' Remittances, Consumption expenditure, Educational Expenditure, Scatter plots, Panel Causality, Fixed Effects

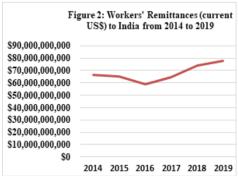
Introduction

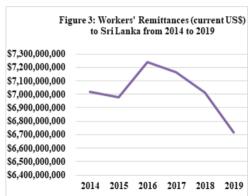
In South Asia, workers' remittances are a crucial source of income for households in developing countries. Many migrant workers send money back to their families, which can have a significant effect on household spending on consumption and education. However, the effects of workers' remittances on these expenditures are not well understood due to their complexity. The objective of this study is to examine the effects of workers' remittances on household consumption

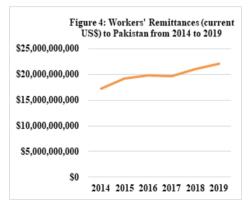
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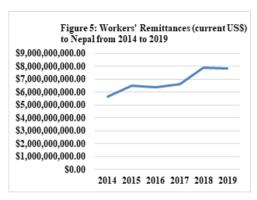
and educational spending in five South Asian countries, namely Bangladesh, India, Nepal, Pakistan, and Sri Lanka. Figures 1, 2, 3, 4, and 5 depict the remittance inflows to Bangladesh, India, Sri Lanka, Pakistan, and Nepal, respectively, from 2014 to 2019. According to the diagrams, Bangladesh, India, and Nepal show upward trends, while in Sri Lanka the trend of remittance inflow is downward.











Source: International Monetary Fund, 2019.

Remittances are defined as money sent by migrants to a family or individual in their community of origin from where they live and work. Remittances can provide developing nations with up to twice the amount of money as official help (World Bank, 2008). All of the South Asian nations rely heavily on remittances as a source of income. In terms of dollars, India received the most remittances in 2019, whereas Nepal ranked third globally in terms of remittances to GDP at 27percent. Remittances to South Asia are expected to increase by 5.2 percent in 2020, and they appear to have been especially important during the COVID-19 pandemic (Mercer-Blackman and Li, 2021).

The inflow of remittances in developing countries like Bangladesh has many good aspects. Workers' or migrant remittances are remittances sent by migrants to their families back home, whether in the form of money or commodities. It has grown rapidly in recent years and is now the principal source of foreign exchange for many South Asian emerging economies. Remittances are classified into four types. Potential remittances are money that migrants of the first type still have after paying all of their expenses in the host country. In the second type, fixed remittances refer to the minimal amount of money that migrants send to their family members and relatives to cover their essential needs. In contrast, discretionary remittances are sums of money sent to relatives over and above the predetermined amount stated by the sender of the remittance. The amount of money that remains with the immigrant after sending a predetermined amount to friends and family in the nation from which the immigrant went to another country is known as retained savings, which makes up the fourth type of remittances (Acevedo, 2020; Wahba, 1991).

Spending remittances on food, consumption, leisure, or investing is all possible. Education is an essential factor in order to reduce poverty, promote economic development, and improve household and individual welfare. The cost of education is covered in part by remittances. International remittances, particularly those flowing from the United States, have a significantly positive effect on retention rates in schools, according to Edwards and Ureta's (2003) research. Education expenditure and economic growth are directly correlated (Musila and Belassi, 2004). By examining the long-term relationship between education spending and economic development, we may learn how economic growth impacts educational expenditure and how it explains the importance and relevance of human capital formation in the study (Hanushek and Woessmann, 2010).

For people who stay in their places of origin as a result of international labor migration, remittances can affect how households' budget for particular items and expenses, shift the share of expenditure on specific expenses, and serve as major

supplements to overall family income (Wang et al. 2021). In South Asian nations, a sizeable amount of remittances is used for household consumption expenses. Households spend remittances on both durable (cars, furniture, washing machines, jewelry, home computers, and so on) and non-durable things (food, beverages, clothes, shoes, gasoline, etc.). Household consumption expenditure includes payments and fees to governments for permits and licenses.

As a result, understanding how remittances are used and spending patterns at the household consumption and education levels can have substantial policy implications in the host countries.

Literature Review

Mahapatro et al. (2017) carried out a study in India and a few states (Karnataka, Kerala, and Uttar Pradesh) to look into the effects of remittances on household spending patterns. According to the study's findings, which were obtained using the propensity score matching approach, households receiving remittances spend more on health and education than they do on food. They demonstrate how remittances have a positive impact on household development, and they also indicate how they boost household development and well-being.

Using cross-section data from families that received remittances in 2003, Tabuga (2007) investigated the relationship between remittances and household spending in the Philippines. The tobit model and the quantile regression technique were used to perform the study, and the results show that while households spend remittances on consumer goods, they also spend a considerable amount of remittances on education, medical care, housing, and durable goods. He could find no conclusive link between remittances and alcohol or tobacco use.

Zaman et al. (2021) explains the relationship between economic growth, energy use, income poverty, and remittances received. For the study, nine nations were chosen, and data was gathered between 1990 and 2014. The panel co-integration technique was used to demonstrate the long-term association. Additionally, the ARDL model (autoregressive distributed lag) is utilized to identify both short-term and long-term associations. Remittances have a long-term, significant, and positive impact on economic growth, according to the study's findings. The same outcomes were also discovered for educational expenses. On the other hand, there is a strong and negative long-term link between final household consumer spending and economic growth.

Zhunio et al. (2012) investigated the effects of remittances on health and

educational outcomes in 69 low- and middle-income nations. The study's findings indicate that remittances are crucial to raising primary and secondary school completion rates, extending life expectancy, and lowering newborn mortality.

A meta-analysis technique was used by Askarov and Doucouliagos (2020) to look into the impacts of remittances on household education spending across 30 countries. The study's findings show that, while remittances have little impact in Eastern Europe and East Asia, they increase educational spending by roughly 35 percent in most nations and by about 53 percent in Latin America. Domestic migration remittances have less of an impact on education spending than remittances from abroad.

Mallick et al. (2016) looked at 14 major Asian countries' economic growth in relation to educational spending. From 1973 through 2012, a balanced panel data collection was employed. The study's methodology included the Pedroni co-integration test, fully modified ordinary least squares (FMOLS), and panel vector error correction (PVECM). The study's econometric findings demonstrate that for the 14 Asian countries, there is a long-run equilibrium association with positive and significant impacts on educational spending and economic growth. Additionally, there is a unidirectional granger causality linking educational spending to economic growth in the short-and long-term. However, long-term economic growth is only generally brought on by spending on education across all nations.

Lau and Tang (2018) researched a study about how Chinese imports affect prices and spending among American consumers. The study employed the regression analysis method. They asserted that since 1994, Chinese imports into the US had contributed to lower consumer goods prices in the US. It is also reported that between 1994 and 2016, decreased costs for non-oil consumer items are thought to have saved US consumers an estimated \$623 billion annually, or about 12 percent of the average annual non-oil consumer expenditure in the US during that time.

In Nigeria from 1981 to 2016, Okwu et al. (2020) studied the asymmetric impact of oil export revenue and the exchange rate on consumer consumption spending. The study employed the non-linear ARDL methodology and the Wald test method. According to the study's findings, consumption was significantly and positively affected by both long-term positive and negative shocks to exchange rates and oil export revenues.

Moniruzzaman (2020) investigated the impact of remittances on household food security in Bangladesh. The investigation made use of both generalized moments methods (GMM) and the two-stage least square instrumental variable

method (2SLS-IV). Remittances have a significant impact on food security circumstances, according to the study's econometric findings, and they are positively connected with household spending on food consumption. In addition, remittances lessen food-related uncertainties and raise the standard of diet in Bangladesh.

Using sample data from households that received remittances and had school-age children, Kifle (2007) investigated the effect of remittances on children's education in Eritrea. A regression analysis was performed for the study. The study's findings revealed a strong association between remittances and spending on children's education. The report contends that households in Eritrea that receive remittances devote a larger percentage of those funds to supporting their children's education

Tchantchane et al. (2013) examined how investment, education spending, and remittances affected growth in the Philippines. To illustrate the link between the long-run and short-run, the ARDL model was used in the study. His findings indicate a positive association between remittances and education spending as well as the pace of economic growth.

Despite the fact that there have been numerous studies on the effects of remittances on households' consumption and educational spending, this is the only study that has looked at the effects of workers' remittances on households' consumption and educational spending for five South Asian countries (Bangladesh, India, Pakistan, Sri Lanka, and Nepal). Moreover, no studies included household consumption expenditure and educational spending into a single model for the five mentioned South Asian countries. And my study work stands apart from that of other researchers due to the application of the scatter plots, the pairwise Dumitrescu Hurlin panel causality test, and the fixed-effects model.

Data and Methodology

For the study, two dependent variables (households' consumption expenditure and educational expenditure) and four independent variables (workers' remittances, imports of goods and services, gross domestic product, and exports of goods and services) are selected, where workers' remittance is the target variable and the rest of the variables are control variables. The estimated two log-log models for the five South Asian nations, namely Bangladesh, Sri Lanka, Pakistan, India, and Nepal, are as follows:

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LNHCEX_{i,t} = a_0 + a_3LNREMT_{i,t} + a_3LNGDP_{i,t} + a_3LNIMGS_{i,t} + a_4LNEXGS_{i,t} + \mu_{i,t} \dots (1)

LNEDEX_{i,t} = \beta_0 + \beta_3LNREMT_{i,t} + \beta_2LNGDP_{i,t} + \beta_2LNIMGS_{i,t} + \beta_4LNEXGS_{i,t} + \epsilon_{i,t} \dots (2)
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The alphabetic character 'i' represents the five South Asian countries, and the letter 't' denotes the time dimension. The terms α_0 and β_0 are intercepts, and the terms μ i,t& i,t are the error terms of the two models. LNHCEX = Logarithmic form of households' final consumption expenditure, LNEDEX = Logarithmic form of educational expenditure, LNREMT = Logarithmic form of workers' remittances, LNGDP = Logarithmic form of gross domestic product, LNIMGS = Logarithmic form of imports of goods and services, and LNEXGS = Logarithmic form of exports of goods and services.

Secondary data for all variables was assembled in this study from the World Bank data set "World Development Indicators" publications, and International Monetary Fund, Balance of Payment Statistics Yearbook, and data files. From 1993 to 2019, a balanced panel data set of five South Asian countries was compiled annually. As a result, the panel data set contains 27x5 = 135 observations. All of the variables are expressed in current US dollars. The quadratic relationship between worker remittances and household consumption and educational spending is represented using scatter plots. The homogenous causal relationship among worker remittances, household consumption expenditures, and educational expenditures is explored using the pairwise Dumitrescu Hurlin panel causality test.

Based on the outcomes of the Hausman test, the fixed-effects model fits this analysis the best (Hausman, 1978). The model will generate misleading results if the imperceptible country-specific variables are correlated with the independent variables. To deal with this drawback, we will almost certainly employ either fixed-effect or random-effect models (Pradhan et al. 2008). In this study, the fixed-effects method is most well-liked as the random-effects estimation needs the omitted variables to be unrelated to the enclosed independent variables for identical countries, which looks impractical within the context of the thought of models (Pradhan et al. 2008). Explanatory variables are considered non-random in a fixed-effects model for panel data analysis. The types of impact variables that change with time are identified using a fixed-effects model. This method investigates the relationship between independent variables and 'output' in groups of identical units (partner country). Each country has unique characteristics that are likely to influence the independent variables. While using fixed-effects, we make the assumption that individual characteristics impact the variables and must test for this. In econometric analysis, the correlation between the error term and the independent variable is a concerning issue. Fixed-effects techniques eliminate the effect of these independent variable characteristics, allowing us to estimate the net influence of independent variables. The fixed-effects model's second main premise is that these traits are particular to each country and should not be associated with those of other nations (Meyer and Shera, 2017).

The diagram of the framework of the study is illustrated below:

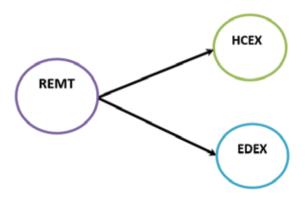


Figure 6: Research Framework

The research hypotheses of the study are as follows:

 H_1 :Workers' remittances have a significant and positive impact on consumption expenditure.

H₂:Workers' remittances have a significant and positive impact on educational expenditure.

Empirical Results

Descriptive Statistics:

The descriptive statistics for all variables following log transformation are presented in Table 1. It also displays the mean, median, maximum, minimum, and standard deviation of the variables for five South Asian countries.

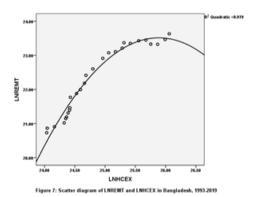
Table 1: Descriptive S	atistics after Log T	Transformation
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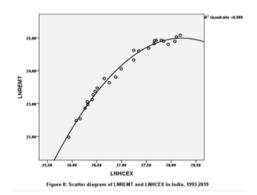
	LNHCEX	LNEDEX	LNREMT	LNGDP	LNIMGS	LNEXGS
Mean	24.79	21.30	22.15	25.12	23.75	23.33
Median	24.66	21.06	22.41	24.99	23.47	23.22
Max	28.18	25.19	25.08	28.68	27.19	27.02
Min	21.79	18.45	17.60	22.02	20.83	20.41
Std. Dev.	1.59	1.72	1.65	1.66	1.51	1.65
Observations	135	135	135	135	135	135

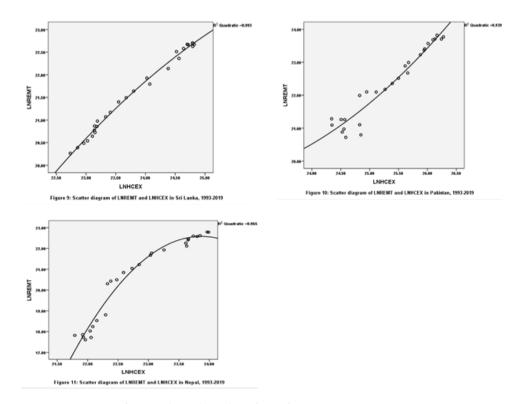
Source: Eviews-10 software, based on panel data from five countries, The World Bank, 2020; International Monetary Fund, 2019.

Scatter Plots of Workers' Remittances and Households' Consumption Expenditure in Five South Asian Countries:

In the following diagrams, five scatter plots of workers' remittances (LNRE-MT) and household consumption expenditure (LNHCEX) are presented for five South Asian countries. The inverted "U" shape pattern is reflected in the scatter plots (Figures 7, 8, and 11) of quadratic fitted lines for Bangladesh, India, and Nepal, respectively. It shows that as the share of workers' remittances rises, the amount of household consumption expenditure rises as well, but after a certain point, the amount of household consumption expenditure does not rise and declines. It means that households use their remittances for things like small business investment. healthcare, education, land purchase, house construction, saving, repaying loans, daughters' marriages, etc. Figures 9 and 10 reveal a nearly upward-sloping linear relationship between workers' remittances (LNREMT) and household consumption expenditure (LNHCEX) in Sri Lanka and Pakistan. It follows that as the proportion of workers' remittances increases, so does the amount that households spend on consumption, and citizens of these nations spend a sizable portion of workers' remittances on consumption. From 1993 to 2019, remittances can be used for a variety of purposes in these countries, including housing (rent), food, durable goods (particularly cars), transportation, clothing, energy, leisure, and so on.



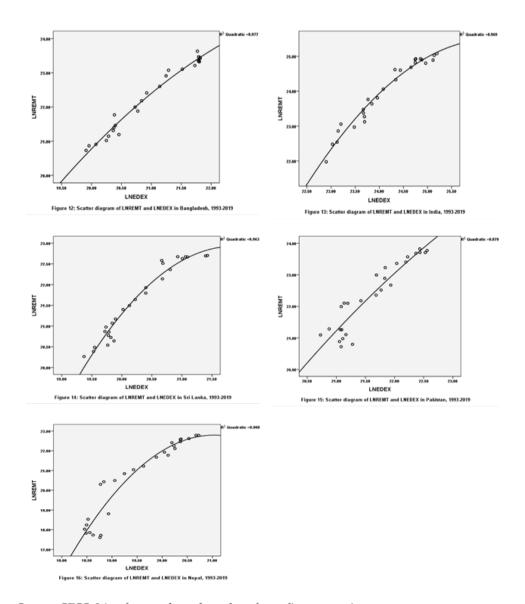




Source:SPSS-26 software, based on data from five countries.

Scatter Plots of Workers' Remittances and Educational Expenditure in Five South Asian Countries:

The quadratic fitted line of workers' remittances (LNREMT) and educational expenditure (LNEDEX) for five South Asian countries is shown in five scatter plots. Figures 14 and 16 show that, while educational spending rises with the increase in workers' remittances at first, it reaches a peak in 2017-2019. It means that these remittances are used for other purposes. Figures 12, 13, and 15, on the other hand, show a nearly upward-sloping linear relationship between workers' remittances (LNREMT) and educational expenditures (LNEDEX). It indicates that the higher the share of workers' remittances, the higher the educational expenditure in these countries. Remittances can be used for a variety of educational purposes in these countries, such as primary, secondary, technical-vocational, tertiary, and non-formal education. From 1993 to 2019, remittances were also used to pay for teaching and non-teaching staff compensation, private tutor remunerations, exam and tuition fees, textbooks, and other educational materials, as well as other goods and services in these countries.



Source:SPSS-26 software, based on data from five countries.

Pairwise Dumitrescu Hurlin Panel Causality Test:

In Table 2, it is demonstrated that there is a unidirectional homogenous causal link between workers' remittances (LNREMT) and households' consumption expenditure (LNHCEX), with the direction being from workers' remittances to households' consumption expenditure. Besides, a unidirectional homogeneous

causal relationship between workers' remittances (LNREMT) and educational expenditure was also noticed (LNEDEX) with the direction from workers' remittances to educational expenditure. As a result, it is clear that worker remittances have a significant effect on household consumption expenditure (LNHCEX) and educational expenditure (LNEDEX). Furthermore, a unidirectional homogenous causal relationship between educational expenditure (LNEDEX) and household consumption expenditure (LNHCEX) has been found, with the direction being from household consumption expenditure (LNHCEX) to educational expenditure(LNEDEX) for the five South Asian countries.

Table 2: Pairwise Dumitrescu Hurlin Panel Causality test

Null Hypothesis (H ₀)	Alternative	Lags	Prob.	Remarks
	Hypothesis (H ₁)			
LNREMT does not	LNREMT	2	0.01	LNREMT→LNHCEX
homogenously cause	homogenously causes			
LNHCEX	LNHCEX			
LNHCEX does not	LNHCEX	2	0.06	Don't reject H ₀
homogenously cause	homogenously causes			
LNREMT	LNREMT			
LNREMT does not	LNREMT	2	0.00	LNREMT→LNEDEX
homogenously cause	homogenously causes			
LNEDEX	LNEDEX			
LNEDEX does not	LNEDEX	2	0.16	Don't reject H ₀
homogenously cause	homogenously causes			
LNREMT	LNREMT			
LNEDEX does not	LNEDEX	2	0.90	Don't reject H ₀
homogenously cause	homogenously causes			
LNHCEX	LNHCEX			
LNHCEX does not	LNHCEX	2	0.00	LNHCEX→LNEDEX
homogenously cause	homogenously causes			
LNEDEX	LNEDEX			

Source:Eviews-10 software, based on panel data from five countries, The World Bank, 2020; International Monetary Fund, 2019.

Fixed-Effects Estimation:

The findings of panel data fixed-effects estimation for models 1 and 2 are depicted in table 3. The probability value of the Hausman test for both models is 0.00, which is less than 1 percent or 5 percent level of significance, according to econometric results, indicating that the fixed-effects model is suitable for both models. The fixed-effects estimation of the two models demonstrates that the models are well-fitting. The probability value of F-statistics for the two models is 0.00, which is less than the 1 percent level of significance. The target independent

variable for the two models is workers' remittances (LNREMT), which has a positive and highly significant effect on households' consumption expenditure (LNHCEX) (Tabuga, 2007; Moniruzzaman, 2020) and educational expenditure (LNEDEX) (Tchantchane et al. 2013; Zhunio et al. 2012). When all other variables remain constant, the fixed-effects results of model one show that every 1 percent increase in workers' remittances (LNREMT) necessitates a 0.02 percent increase in households' consumption expenditure (LNHCX). It means that workers' remittances inflow enhances households' consumption. The effects of gross domestic product (LNGDP) and imports of goods and services (LNIMG) on household consumption expenditure (LNHCEX) are also positive for model one. Although the impact of GDP on household consumption expenditure (LNHCEX) is significant, the impact of imports of goods and services (LNIMGS) is not statistically significant at the 5 percent level of significance. Furthermore, exports of goods and services (LMEXGS) have a negative and significant impact on household consumption expenditure (LNHCEX).

On the other hand, when the rest of the variables remain constant, a 1 percent increase in workers' remittances (LNREMT) leads to a 0.11 percent increase in educational expenditure (LNEDEX) in model two. It means that the inflow of remittances from workers boosts educational expenditure. The effects of gross domestic product (LNGDP), imports of goods and services (LNIMGS), and exports of goods and services (LNEXGS) on educational expenditure (LNEDEX) are positive and negative, respectively, just as they were in model one. Although the effects of the gross domestic product (LNGDP) and imports of goods and services (LNIMGS) on educational expenditure (LNEDEX) are significant, the effect of exports of goods and services (LNEXGS) on educational expenditure (LNEDEX) is not.

Table 3: Fixed-effects estimates, dependent variables LNHCEX (Model 1) and LNEDEX (Model 2)

Regressors	Mod	el 1	Model 2		
	Coefficients	P-value	Coefficients	P-value	
Intercept	0.43	0.000	0.99	0.11	
LNREMT	0.02	0.02	0.11	0.00	
LNGDP	1.02	0.000	0.45	0.00	
LNIMGS	0.003	0.91	-0.34	0.00	
LNEXGS	-0.08	0.00	-0.07	0.37	
Hausman test		0.00		0.00	
R ²	0.99	0.99		0.99	
F-Statistics		0.000		0.000	

Source: Eviews-10 software, based on panel data from five countries, The World Bank, 2020; International Monetary Fund, 2019.

Discussion and Concluding Remarks

From the aforementioned justification, it is obvious that remittances have a positive and significant influence on household consumption expenditure. Residents of these countries, particularly Bangladesh, spend a significant portion of their remittances on home and land purchases. Additionally, they use their remittances to buy both durable (such as furniture, jewelry, cars, and electronics) and non-durable products. They also use remittances for things like clothing, entertainment, transportation, and house rent. Non-food items such as fuel, transportation, utilities, clothing, personal care, religious and social events, as well as food items such as rice, wheat, maize, potatoes, meat, and so on, are paid for with remittances. Remittances stimulate economic development and job creation through these activities

On the other hand, remittances and educational spending also showed a positive and significant association. That is, remittances are utilized for a variety of educational objectives at the primary, secondary, and tertiary levels. According to Zhunio et al. (2012) higher levels of real remittances per capita are associated with higher secondary enrollment rates and primary completion rates. The cost of schooling for both children and adults are covered by a sizeable amount of remittances. Remittances are used by parents to purchase educational supplies such as textbooks, uniforms, paper, pens, and tuition as well as monthly fees, admission fees, and remunerations for private tutors.

According to the study's findings, it is reasonable to assume that the variable of workers' remittances in five South Asian nations has had a significant role in influencing consumption expenditures and educational expenditures across the study periods. Policymakers should consider these findings when establishing consumption and educational policies because this study demonstrates that the variable of workers' remittances has been a key influence in predicting consumption and educational expenditure in five South Asian nations.

Money brought home by migrants provides a source of income for households in underdeveloped areas, and by increasing domestic consumption, these inflows have a positive effect on balanced growth. These payments also facilitate consumption and foster the development of human capital by enabling households to spend more on education, health, and nutrition. It could be argued that if remittances are only used for household consumption, the increased demand for goods in the sending country will have a positive multiplier effect on the economy in the receiving country (Vargas-Silva et al. 2009).

The economies of South Asian countries significantly depend on remittance inflows. These have been an important factor in pandemic situations throughout the world. Remittances from various South Asian migrants have declined dramatically recently, especially in Bangladesh. This is not a promising development for the nations of South Asia. If the current low level of remittances persists for the next few months, the domestic currency will depreciate, which would have a negative effect on people's ability to purchase goods and services in their own nations. As a result, it is imperative to boost remittance inflow to native countries. Reduced migrant remittance sending costs are essential for increasing remittance inflow. Governments might also improve exchange house facilities, offer various concessions to migrants, and encourage them to transmit remittances through legitimate banking channels.

Another critical issue is how remittances are used properly. From a Bangla-deshi perspective, we observe that migrants send money to their family members or to the account of their wife, then spend it on meaningless activities or unanticipated personal needs. To avoid this, the migrants can send the money to their own accounts and invest it in small businesses like poultry farms, fish farms, and cow farms, among others, which will promote economic growth and generate employment. Moreover, the government should create awareness among migrants to stop discount broker transactions, which are harmful to the domestic economy. If migrants transfer their remittances through a discount broker, it will not increase the reserves of the central bank. Last but not least, the government can award prizes to migrants who send the most remittances back to their home country.

Limitations and Future Scope

One possible limitation of this study is that it solely concentrates on five South Asian countries. Conducting research from the perspectives of 10 or 15 South Asian countries with more comprehensive data could result in novel dimensions and findings. Additionally, the independent variable selection could be another limitation. While this study only examines the effects of remittances on household consumption and educational expenditure for five South Asian countries, exploring the effects of remittances on economic growth, development, and poverty reduction for 10 or 15 South Asian countries could produce new perspectives and outcomes.

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