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Defining the Regions Based on Remittance on Household Welfare in Bangladesh

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Abstract

Despite millions of Bangladeshis living and working abroad, notably in the Middle East and Southeast Asia, Bangladesh is one of the top recipients of remittances in the globe. Remittance inflows, especially in rural regions, have dramatically lowered poverty and raised living conditions for many households in Bangladesh. However there is no individual study regarding identifying the regions. This study aims to identify identical regions through a formal regionalization process and to assess the impact of the factors chosen on the regionalization process of remittance on household welfare in Bangladesh. Bangladesh's household welfare has benefited significantly from remittances. For many households, especially those in rural areas, remittances have helped to reduce poverty and raise living standards. For this factor such as remittance amount, Percentage of migrant worker, Poverty rate, literacy rate, Total population, and the Unemployment rate has been used to interpret co-relation for understanding the positive impact on household welfare. Hence formal regional delineation has been performed by using the weighted index method and appropriate class interval to assess the study, which might enormously help further future study.

Keywords: Weighted index method; mean standard deviation method; formal regionalization.

1. Introduction

Money that migrants send back to their home countries is referred to as remittances. Remittances are frequently cited as a key source of income for households, allowing them to boost investments and weather social shocks. (Cuong, 2008) Remittance inflows boost recipient nations' revenue, alleviate credit restrictions, speed up investment, and improve human development by funding better healthcare, boosting economic growth, and lowering poverty (Calaro,2008) The welfare of Bangladeshi households is significantly impacted by remittances. The World Bank estimates that in 2020, remittances to Bangladesh will total $21.7 billion, or around 6.2% of the nation's GDP. (Quartey and Blankson, 2003).

Remittances are one of Bangladesh's most important economic variables today since they help with the balance of payments, raise national savings, boost foreign exchange reserves, and affect economic growth. Bangladesh, the People's Republic of China, India, Pakistan, and the Philippines make up half of the top 10 remittance receivers in the world. These remittance flows have a significant positive impact on the economy, as well as household income and spending (Selim Raihan, 2009) Our study is mainly based on two objectives. One is to identify identical regions through a formal regionalization process, and another is to assess the impact of the factors chosen in the regionalization process of remittances on household welfare in Bangladesh.

2. Literature Review

Remittances are financial payments sent to families without any associated exchange of commodities or services (Addison, 2005). Remittance flows, which are frequently countercyclical, are essential for securing stable income and consumption for people in need. If properly handled, these private financial aid programs benefit individuals, households, local communities, and the entire country. According to Giuliano's research from 2008, remittances

help countries with less established financial systems expand because they offer an alternate method of financing investments and ease liquidity restrictions. Understanding the relationship between remittances and growth is crucial for effective economic policy, as worker remittances significantly contribute to human capital investment in the recipient nation Calero (2008) International remittances significantly reduce inequality and poverty in households experiencing aggregate shocks, boosting school enrollment and reducing child labor, according to Acosta et al.'s household survey data. Research on the impact of remittances on economic growth and poverty reduction is extensive, but more research is needed to determine their desirable effects. Remittances boost growth and reduce poverty in remittance-receiving economies.

3. Methodology

This section outlines the research methodology, including methods for data collection and interpretation stages. It highlights the validity and reliability of the operation. The study uses a formal division between areas to estimate the effect of remittance on household welfare. Six factors were considered when selecting official areas, and composite weights were created for each of the 64 districts. This is the first step in the analytic process.
The information relevant to each component must be combined into a single unit to do this. The factor data has been created as the independent variable for a logarithmic function. This is because different components have different unit measures. The factor weights for each component were determined by dividing the factor's mean value by its standard deviation. The formula utilized was as follows:

$$\boldsymbol{Wn} = \frac{\boldsymbol{Mean\ of\ Log10(Xn)}}{\boldsymbol{Standard\ Deviation\ of\ Log10(Xn)}}$$

Here, n= 1, 2, 3, 4, 5, 6
Xn= Individual Factor Data; Wn=Weight of Individual Factors

Table 1: Composite Weight Calculation Table (Source: Author's Preparation, 2023)

The following equation is the composite weighted index approach that will be used to assign a relative value to each municipality,

$$\boldsymbol{W} = \frac{\{\boldsymbol{Log10(X1)} * \boldsymbol{W1}\} + \{\boldsymbol{Log10(X2)} * \boldsymbol{W2}\} + \cdots + \{\boldsymbol{Log10(Xn)} * \boldsymbol{Wn}\}}{\boldsymbol{W1} + \boldsymbol{W2} + \cdots + \boldsymbol{W_n}}$$

District	(Remittance amount) $Log_{10}X1$	(Percentage of migrant worker) $Log_{10}X2$	(Poverty rate) $Log_{10}X3$	(Illiteracy rate) $Log_{10}X4$	(Total population) $Log_{10}X$	(Unemployment rate) $Log_{10}X6$	Weight (W)
	W1	W2	W3	W4	W5	W6	

The W score for a site reveals the relevance of that location concerning the elements that influence it. The class spacing and frequency can then be calculated using the data on student weight that was gathered for the entire district. We use the class interval as a statistic to provide a baseline and assess the significance of each district. We can also determine the frequency—or roughly how many districts fall into each class—from the class interval. There are now three methods available for calculating the class interval. We will choose the solution from the three that offers the most precise and reliable class interval tactics. The arithmetic methodology, the mean standard deviation method, and the equal class interval method are the three options. The only method that, as a result of its application, even comes close to achieving perfect skewness is the mean-standard deviation strategy. The class interval from the mean standard deviation methodology creates subgroups that are more cohesive with one another than the preceding methods. To determine the optimum strategy, the significance of kurtosis will be examined.

4. Data Analysis

4.1 Selection of Factors and Justification

We have classified it into 6 factors. We have selected these factors because these points are highly connected with remittance on household welfare in Bangladesh. The factors are-

Remittance Amount: Remittances are a vital source of income for Bangladeshi households, helping them to satisfy necessities like food, housing, and healthcare. They are frequently sent by migrants who work overseas

Percentage of migrant workers: Remittance flows are directly related to the proportion of migrant workers in a country's workforce, which is impacted by elements including economic conditions and demographic changes. Countries with large migrant worker percentages get significant remittances.

Poverty rate: According to research by the International Fund for Agricultural Development (IFAD), remittances dramatically lower poverty in rural Bangladesh, improve access to essential services, and lower poverty rates.

Illiteracy Rate: In Bangladesh, remittances have a favorable effect on household welfare through enhancing access to healthcare, education, and housing. Additionally, they aid in home country schooling, which raises literacy rates in the beneficiary nation.

Total Population: Remittances are an important source of foreign currency earnings and have a big impact on the economy of the nation, the population of Bangladesh has a considerable impact on the amount received.

Unemployment Rate: Because a higher unemployment rate may lead to more people looking for work abroad, it has an impact on the total quantity of remittances received, an important source of foreign currency earnings and the country's economy.

4.2 Selection of Class Interval

Class interval measures district weights and frequency, using three methods. The most reliable class interval is selected for comparison.

4.2.1 Equal Class Interval Method

In the equal class interval method, the class interval has been determined by following

$$Class\ interval = \frac{Highest\ Value - Lowest\ value}{Class\ Number}$$

From equation; Highest value= 3.69 , Lowest value= 3.08 , Preferred class number= 6 , and Class interval= 0.10167

4.2.2 Mean Standard Deviation Method

The mean and standard deviation of the composite score is determined utilizing the mean standard deviation method. The principle of this method is to calculate,

Mean $\pm$1 Standard Deviation
Mean $\pm$2 Standard Deviation
Mean $\pm$3 Standard Deviation

4.2.3 Arithmetic Method

This method is performed using the following equation

A+X+2X+….+nX=B

Here,

A= Lowest Value

B= Highest Value

N= Number of Class= 6

And X= (B-A)/21

The principle is to calculate the lowest cut points of each class. The cut points are then included in SPSS software to generate frequency, mean, median, mode, skewness, and kurtosis.

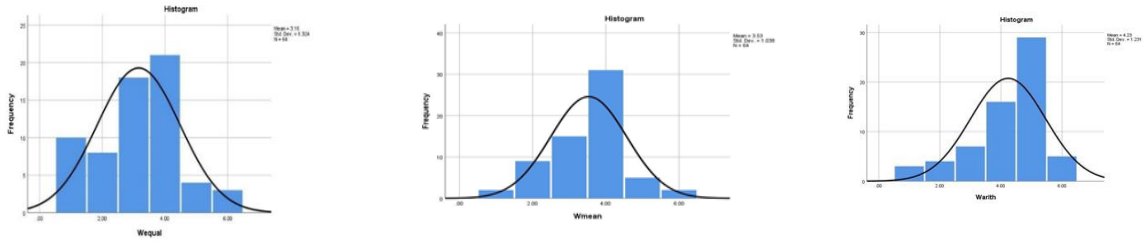

Figure 1; Histogram of Equal Class Interval, Standard Deviation Method, Arithmetic Method

(Source: Author's Preparation, 2023)

Table 2: Comparison of Methods

Method	Equal Class Interval	Mean Standard Deviation	Arithmetic
Skewness	-0.042	-0.261	-1.045
Kurtosis	-0.401	0.332	0.674

(Source: Author's Preparation, 2023)

Among the three-method, the equal class interval method gives skewness closer to zero. So, the class interval from the equal class interval method shall be selected for the delineation of formal regions.

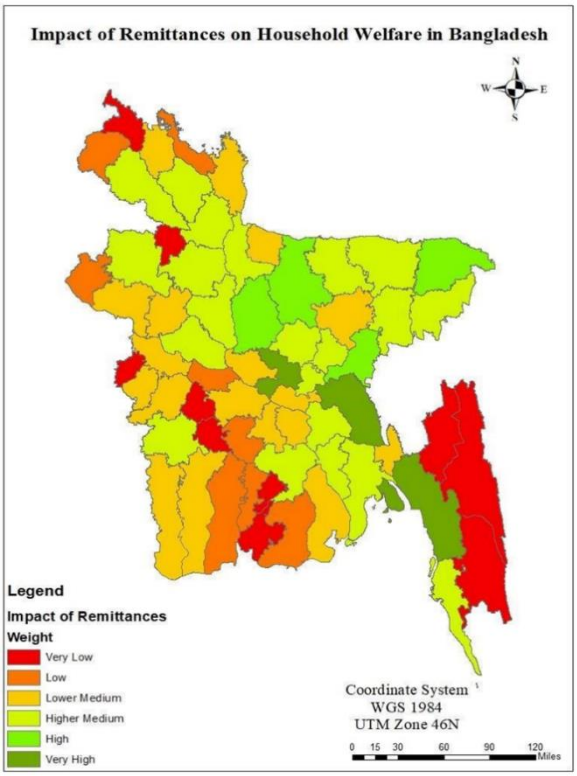

Figure 2: Defining the districts based on remittance on household welfare (Author's Preparation,2023)

4.4 Formal Regionalization with Best-Class Interval

Table 3: Formal Regionalization with Best-Class Interval

Class	Description	Frequency	Zilla
3.08- 3.1816	Very low Impact Region	10	Bandarban, Barguna, Jhalokati, Joypurhat, Khagrachari, Magura, Meherpur, Narail, Panchagarh, Rangamati
3.1817 – 3.2833	Low Impact Regions	8	Bagerhat, Chapai Nawabganj, Gopalganj, Lalmonirhat, Patuakhali, Pirojpur, Rajbari, Thakurgaon
3.2834 – 3.385	Lower Medium Impact Regions	18	Bhola, Chuadanga, Faridpur, Feni, Jhenaidah, Khulna, Kishoreganj, Kurigram, Kushtia, Madaripur, Manikganj, Munshiganj, Natore, Nilphamari, Rajshahi, Satkhira, Shariatpur, Sherpur
3.386 – 3.4867	Higher medium Impact Regions	21	Barishal, Bogura, Chandpur, Cox's Bazar, Dinajpur, Gaibandah, Gazipur, Habiganj, Jamalpur, Jashore, Lakshmipur, Moulvi Bazar, Naogaon, Narayanganj, Narsingdi, Netrokona, Noakhali, Pabna, Rangpur, Sirajganj, Sunamganj
3.4868 – 3.5883	High Impact Regions	4	Brahmanbaria, Mymensingh, Sylhet, Tangail
3.5884– 3.69	Very high Impact Regions	3	Chattogram, Cumilla, Dhaka

(Source: Author's Preparation, 2023)

Some possible reasons why the districts mentioned above may receive lower remittance than other districts in Bangladesh could include:

1. A low number of people working abroad: These districts may have a lower number of people working abroad compared to other districts in Bangladesh, which could result in lower remittance inflows.
2. Limited access to job opportunities: People living in these districts may have limited access to job opportunities in other countries, which could limit their ability to earn and send remittances back home.
3. Lack of education and skills: The level of education and skills of the people living in these districts may be lower than in other parts of the country, which could limit their ability to find high-paying jobs abroad.
4. Lack of awareness about the importance of remittance: People living in these districts may not be fully aware of the benefits of sending remittances back home, which could result in lower remittance inflows.
5. Weak financial infrastructure: The financial infrastructure in these districts may not be well-developed, which could make it more difficult for people to send and receive remittances.

The districts of Chattogram, Cumilla, and Dhaka are among the top recipients of remittance in Bangladesh. The reasons behind their higher inflow of remittance could be:

A higher number of people working abroad: These districts have a higher number of people working abroad compared to other districts in Bangladesh, which could result in higher remittance inflows.

Access to better job opportunities: People living in these districts may have better access to job opportunities in other countries, particularly in the Gulf countries and Southeast Asia, which are major sources of remittance for Bangladesh.

Higher level of education and skills: These districts have a higher level of education and skills among their population, which could enable them to find higher-paying jobs abroad and send more remittances back home.

Greater awareness about the importance of remittance: People living in these districts may be more aware of the benefits of sending remittances back home, which could result in higher remittance inflows.

Stronger financial infrastructure: The financial infrastructure in these districts may be well developed, which could make it easier for people to send and receive remittances.

Overall, the reasons behind the higher inflow of remittance in Chattogram, Cumilla, and Dhaka are likely to be a combination of these factors.

5 Conclusion

Remittances, which are the funds sent by migrants to their families in their home country, have become a crucial source of income for many households in Bangladesh. Research studies have consistently shown that remittances positively impact household welfare in Bangladesh. it is important to note that the impact of remittances on household welfare in Bangladesh can vary depending on a range of factors, including the amount and frequency of remittances received, the purpose for which remittances are used, and the demographic characteristics of the recipient household. In summary, while there may be some variation in the impact of remittances on household welfare in Bangladesh, the overall conclusion is that remittances have a positive impact on welfare and contribute to poverty reduction and improved living standards for many households in the country.

References

Addison. E.K. Y. 2005. "The macroeconomic impact of remittances". In Takyiwaa Manuh, ed., At Home in the World, International Migration and Development, in Contemporary Ghana and West Africa, pp. 118-38. Accra, Ghana: Sub-Saharan Publishers, Legon

Calero, Carla (2008). Remittances, Liquidity Constraints and Human Capital Investments In Ecuador. World Development (www.elsevier/locate/worlddev)

Cuong, N. V. (2008). Impacts of International and Internal Remittances on. *Munich Personal RePEc Archive*.

Selim Raihan, B. H. (2009). Remittances and Household Welfare. *ADB Economics*.

Burki, Shahid. J. (1991). Migration from Pakistan to the Middle East. In D.G Papademetriou and P.L. Martin (ed). The Unsettled Relationship: Labor Migration and Economic Development. London. Greenwood press

Adams Richard H. and John Page (2005). Do International Migration and Remittances Reduce Poverty in Developing Countries? World Bank, Washington, DC, USA

Adams R.H. 1991. The Effects of International Remittances on Poverty, Inequality, and Development in Rural Egypt. Research Report No. 86. International Food Policy Research Institute, Washington, D.C