Remittance Inflow and Nepal's Economic Growth: An Econometric Analysis

Subas Gautam[1], and Dr V.B. Singh[2]

[1]Research Scholar, Glocal School of Business & Commerce, Glocal University, Saharanpur, Uttar Pradesh, India
[2]Professor, Glocal School of Business & Commerce, Glocal University, Saharanpur, Uttar Pradesh, India

Correspondence should be addressed to Subas Gautam; subas94@gmail.com

ABSTRACT- The meaning of Settlements has been extensive in financial development through different in utilization and venture design. The purpose of this study is to determine the long-term relationship as well as the cause-and-effect relationship between remittances and GDP in Nepal in light of the expanding role of remittances in the Nepalese economy. Annual time series data from 1974/75 to 2019/22 have been analyzed using the Johansen Cointegration test and the Granger Causality test. According to the Johansen Cointegration, there is no equilibrium relationship between GDP and remittances in the long run. Engle Granger causality test observes that there is uni-directional causality running from Settlement to Gross domestic product.

KEYWORDS- Nepal, GDP, Economy, Econometric.

I. INTRODUCTION

In receiving economies, remittances have a significant impact on poverty reduction and finance economic expansion. Over the past two decades, remittances have made a significant contribution to the Nepalese economy. Since fiscal year 2003/04, the average remittance expenditure has increased to more than 10% of the national GDP and 8% of the average annual growth rate. After fiscal year 2011/12, the numbers have increased, and a recent World Bank outlook indicates that the total volume of remittances received reached 29.70% of GDP, ranking second in the world behind Kyrgyzstan. [1,2] (World Bank, 2017)

The term "remittance" refers to household income from foreign economies, which typically results from individuals migrating to those economies on a temporary or permanent basis. IMF Equilibrium of installment manual characterizes that absolute Settlement is amount of remuneration of representatives and individual exchanges (IMF, 2009). Not only have remittances helped keep the BOP balanced and foreign reserves in check, but they have also helped reduce unemployment and poverty in LDCs like Nepal (Karna, 2017). In developing nations, remittances from international migrants have emerged as a significant source of external funding.

The economic phenomenon of foreign employment earnings in developing and underdeveloped nations has been deemed noteworthy; However, there is a major question regarding the economy's ability to survive (Dhungana, 2014): "poor utilization of remittances, excessive investment in unproductive sectors, low economic growth, limited job opportunities, and the trend of brain drain" [3,4,5]. These are some of the most important issues regarding remittances and economic growth in the Nepalese scenario.

Economic expansion can be measured in a number of ways. The best way to learn about the size and growth of the economy is through changes in GDP. GDP is defined by the IMF as the monetary value of final goods and services produced in a country over a given time period—those brought by the final user. IMF, 2018).

There are two perspectives among scholars regarding the impact of remittances on the national economy. According to Srivastava & Chaudhary (2007), remittances have a significant impact on GDP and GNP, both nominally and in real terms. Dahal, 2014) provides a more in-depth explanation for the fact that increasing remittance inflows into Nepal have a positive correlation with financial development and the accumulation of human capital, but a negative correlation with international trade. On another side (Sharma, 2006) contended that the greater part of the Settlements have been utilized for utilization reason in Nepal, it adversely affects development of Gross domestic product in Nepal[6,7,8].

The casual relationship between Nepal's economic growth and incoming remittances is the subject of this study. Because remittances are used for either consumption or investment, they have an indirect impact on GDP. Gross Domestic Product (GDP) is known as a proxy variable for economic growth based on previous research. The following is how this study is set up: The introduction is covered in the first section, and the second section looks at the relevant theoretical and empirical research on remittances and GDP. The econometric model is then created and examined. Finally, the recommendations and conclusion are presented[8,9,10].

II. REVIEW OF LITERATURE AND STATEMENT OF PROBLEM

Numerous researchers have examined the connection between remittances and national economic expansion and come to the conclusion that remittances have both positive and negative effects.

Marwan and others, 2013) used the Cointegration test in

their empirical study to show that growth and remittances in Sudan have a positive long-term relationship. For the panel of three SAARC nations—Bangladesh, India, and Pakistan—Hossain (2012) looked at the dynamic causal relationship between economic growth, electricity consumption, export values, and remittances. He found that higher remittances led to economic growth. Using the ARDL method, Tahir, Khan, and Shah (2015) measured the relationship between external determinants like foreign remittances, foreign direct investment, and foreign imports and discovered that foreign remittances significantly contribute to Pakistan's economic growth. According to Carlos, Shikha, and Guntur (2009), a 10% increase in remittances relative to total national GDP may result in a 0.9-1.2 percent increase in GDP growth across 20 Asian nations. Paul and Das (2011) came to the conclusion that remittances have a positive relationship with GDP over the long term, but there is no evidence that remittance-led growth occurs in the short term[11,12].

In contrast, Gapen et al. () 2009) looked at the role of remittances and looked at whether they help the economy grow in the long run. They said that workers' remittances don't help the economy grow. Datta & Sarkar (2014) used the ARDL and ECM models to look at how export, import, and remittances relate to GDP. They said that remittances have a weak long-term relationship with economic growth and that there is no predictable short- or long-term causal relationship between the variables. Based on the ARDL approach to cointegration, Jouini (2015) investigated the casual links between economic growth and remittances for Tunisia between 1970 and 2010. Their findings revealed that remittances had no effect on economic growth in the long run and that there was bidirectional correlation between growth and remittances in the short term.

Based on panel data from 1970 to 2008, a study by Cooray (2012) looked into the effect of migrant remittances on economic growth. It found that education and the growth of the financial sector had a significant positive interactive effect. Matuzeviciute and Butkus, (2016) in their exact examination utilizing an unequal board information covering an example of 116 nations concentrated on the communication among Settlements and level of financial improvement as well as its effect on lengthy run monetary development and result shows that overall Settlements decidedly affect long-run financial development, however the effect varies in view of the country's monetary advancement level and the overflows of Settlements in the economy[12,13,14].

There are not many exploration led in Nepal with respect to the Settlement and financial effect. By examining the effects of remittances on financial development, productivity, international trade, and the accumulation of human capital, Dahal's (2014) empirical study of the impact of remittances on Nepal's economic growth found that increasing remittance inflows in Nepal had a positive association with financial development but a negative association with international trade. Sharma (2006) argued that remittances don't help Nepal's economy grow because most of the money sent back is used for things like shopping. According to Dhungana's (2012) study, merely increasing remittances does not support the nation's economic growth or development unless they are

extensively utilized in productive sectors. There are many ways to look at how remittances affect a country's economic growth: households (micro) and the nation (macroeconomic). The macro-level impact on economic expansion is the focus of this paper's analysis. [14,16,17].

III.   DATA AND ECONOMETRIC METHODOLOGY

Annual data on Remittance inflow and GDP from fiscal year 1974/75 to 2015/16 are used for this paper. Data on GDP at current prices are collected from Nepal Rastra Bank website and data on Remittance inflow are collected from Ministry of Finance Nepal website.

A. Test of unit root problem

The assumption that the underlying time series is stationary is made in empirical work based on time series data. According to Gujrati, Porter, and Gunasekar (2009), series inconsistencies in coefficient estimation must be stationary. Unit root tests are useful for determining the order in which the variables are integrating because the majority of the variables or series are non-stationary. Because it is impossible to generalize a nonstationary time series' behavior to other time periods, we can only investigate its behavior within the current time frame. As a result, checking the properties of the stationery is crucial. For potential non-stationary concerns, the Augmented Dickey-Fuller (ADF) unit-root test is used in this study[18,19,20].

However, during the study periods, the Nepali government implemented a number of macroeconomic reforms. In addition, Nepal's economy has been liberalized since the middle of the 1980s. The World Bank and IMF's structural adjustment program for Nepal's financial sector is likely to have an effect on Nepal's macroeconomic overall. Given the structural break caused by these reforms, relying solely on the ADF test to verify the data set's stationary properties could result in misleading results. The structural change in a stationary variable's mean tends to bias the standard ADF test against rejecting the hypothesis of a unit root, as demonstrated by Perron (1989, 1990). Therefore, the stationary of the variables is confirmed using the Phillips Perron unit root test in this study. [23,24,25].

B. Tests of Cointegration

Cointegration investigation can be utilized to assess the co-development of a period series factors for long time inside a balance model. First, long-run equilibrium asset prices are used in Cointegration analysis to establish a relationship over time. The next step is to estimate the correlations within an error correction model. Consequently, prior to the cointegration analysis, the respective time series' stochastic trends are identified.

A linear combination of two or more non-stationary series may be stationary, according to Granger (1986). Non-stationary time series are said to be cointegrated if there is such a stationary linear combination. The cointegrating equation, which describes a stationary linear combination, can be interpreted as a long-term equilibrium relationship between the variables. According to Granger's argument, a Cointegration test can be thought of as a pre-test to prevent situations involving spurious regressions[21,22].

The following is the test's null hypothesis: Ho: When trace statistics is greater than the critical values at 1 percent or 5 percent, the null hypothesis is rejected, indicating that at least one coefficient is statistically significant (not equal to zero). After estimating a co-integrating vector, the variables have a long-term relationship. Johansen employs the maximal eigenvalue method to determine the number of co-integrating vectors..

IV. RESULTS AND DISCUSSION

A. Testing for Unit Root

The first step is to use ADF to test for the presence of a unit root and establish the order of integration. The ADF test results for the two variables GDP and remittance are presented in Table 1. The Philips Perron Test statistics are also presented in Table.

Table 1: Unit Root Test ADF Test [29]

Variables	ADF (Constant)		ADF (Constant & Trend)	
	Level	1st Diff .	Level	1st Diff .
LGDP	-0.07922	-6.4524 ***	-1.7969	-6.3766***
LRMT	0.3143	-7.4622***	-2.5465	-7.4613***
Superscripts ***, **, and * indicates rejection of null hypothesis at 1%, 5% and 10% level of significance.				

Granger's representation theorem states that there are k x r matrices and each with rank r such that = and yt is I(0) if the coefficient matrix has a reduced rank (such that r k). Each column of is the cointegrating vector, and r is the rank of the number of cointegrating relations.

Hjalmarsson and Österholm (2007) makes sense of

Johansen proposes two distinct probability proportion trial of the meaning of these standard relationships and subsequently the decreased position of the Π framework: the maximum Eigen value test and the trace test, which are respectively represented in the equations below.

Table 2: Unit Root Test Phillips Perron (PP) Test[29]

Variables	ADF (Constant)		ADF (Constant & Trend)	
	Level	1st Diff .	Level	1st Diff .
LGDP	-0.07467	-6.4511***	-2.0508	-6.3764***
LRMT	0.5544	-7.4749***	-2.5019	-7.5290***
Superscripts ***, **, and * indicates rejection of null hypothesis at 1%, 5% and 10% level of significance.				

In both the ADF and PP tests, the findings indicate that the variables GDP and remittance are not stationary at their current levels. On the other hand, at first difference, all series are stationary (both trend and constant), indicating that all variables are I(1).

Cointegration Test

GDP and remittances may have a long-term relationship if all variables are stationary at their first difference I(1). This paper examines the Johansen Cointegration test for this reason. Akaike's Information Criteria (AIC) is used to determine the level VAR system's best lag length. The number of cointegrating relationships between the variables under consideration is shown in Table 3 below..

Table 3: Johansen Cointegration Test[29]

HHypothesized No of CEs	Eigen Value	Trace Statistics	0.05 Critical Value		p- value	Max- Eigen Value Statistics	0.05 Critical Value	P- Value
None	0.11577	5.14340	15.4947		0.7934	5.04465	14.2646	0.73618
At most 1	0.0024	0.09875	3.8414		0.7533	0.09875	3.8414	0.7533

At the 5% level of significance, the Trace and Maximum Eigenvalue tests indicate that there is no cointegrating relationship between the series' variables. As a result, we can conclude that GDP and remittances do not cointegrate. Therefore, there is no long-term correlation between Nepal's GDP and remittances.

B. Results of Granger Causality Test

We can test for standard Granger causality without

adding an error correction term by transforming the variables by taking their difference to induce stationary in this study, which had no cointegrated variables. Table 4 shows that there is measurable uni-directional Granger causality runs from Gross domestic product to settlement yet there is no criticism on causality from settlement to Gross domestic product.

Table 4: Granger Causality Test[29]

Dependent Variables	Independent Variables	Order of Lag	F-Statistics	P-values
☐GDP	☐RMT	1	0.86412	0.3585
☐RMT	☐GDP	1	10.8234*	0.0022

Notes: ☐ denotes a first difference. * denotes statistically significant at the 5% level.

V. CONCLUSION

The relationship between Nepal's GDP and remittances was the subject of this study. To investigate the relationship between GDP and REMITTANCE, annual data are used in conjunction with a standard Granger Casulity test and an econometric model for cointegration employing the Johansen approach. Our findings employ the Johansen method and demonstrate that there is no correlation between GDP and remittances over time. This indicates, in accordance with previous research by Gapen et al., that GDP and remittances do not move in tandem over time. Dhungana (2006), Sharma (2009), and However, the standard Granger causality test reveals evidence of a one-way connection between GDP and remittances.

This report offers policymakers in the Nepalese economy evidence to consider dependability over remittances. The majority of economists contend that the money that came from other Nepalese countries was not properly utilized and could not support the economy's expansion. Inflowed cash worryingly consumed on transient reason with the goal that it could influence the economy once it start to tumbling down. Nepal must therefore reduce its reliance on remittances as its primary source of foreign income in order to achieve sustainable economic growth.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

REFERENCES

[1] Carlos, V. S., Shikha, J., & Guntur, S. (2009, December). Remittances in Asia: Implications for the Fight against Poverty and the Pursuit of Economic Growth. ADB Economics Working Paper Series. Asian Development Bank.

[2] Cooray, A. V. (2012). The Impact of migrant Remittances on economic growth : evidence from south asia. Review of International Economics, 985-998.

[3] Dahal, P. (2014). The Impact of Remittance on Economic Growth in Nepal : An Analysis of a Significant Basis of Development. Asia Pacific Journal of Public Administration, 36(4), 261-282. doi:10.1080/23276665.2014.975908

[4] Dahal, P. (2014). The impact of Remittances on economic growth in Nepal: an analysis of a significant basis of development. Asia Pacific Journal of Public Administration, 36(4), 261-282. doi:10.1080/23276665.2014.975908

[5] Datta, K., & Sarkar, B. (2014). Remittances and Economic Growth in Bangladesh : An ARDL Cointegration Approach. International Journal of Economic Issues, 51-64.

[6] Dhungana, B. R. (2012). Remittance and Nepalese Economy. Retrieved from Research Gate: https://www.researchgate.net/publication/244810914

[7] Dhungana, B. R. (2014). Remittance and Nepalese Economy.

[8] Gaire, H. N. (2017). Stock Index, Interest Rate and Gold Price of Nepal : Cointegration Casulity Analysis. Economic Review, 29(2).

[9] Gapen, M. T., Chami, R., Montiel, P., Barajas, A., & Fullenkamp, C. (2009, July 1). Do Workers Remittance Promote Economic Growth. IMF Working papaer. IMF.

[10] Granger, C. W. (1986). Developments in the study of Co-integrated Economic Variables. Oxford Bulletion of Economics and Statistics, 226.

[11] Gujrati, N. D., Porter, C. D., & Gunasekar, S. (2009). Basic Econometrics. McGraw Hill Education.

[12] Hjalmarsson, E., & Österholm∗, P. (2007, June). Testing for Cointegration Using the Johansen Methodology when Variables are NearIntegrated. IMF Working Paper. International Monetary Fund.

[13] Hossain, S. (2012). Multivariate Granger Causality Between Economic Growth, Electricity Consumption and Remittance for the panel of Three SAARC Countries. European Scientific Journal, 8(1).

[14] Marwan, F. N., Kadir, N. A., Hussin, A., Zaini, A. A., Rashid,

[15] M. E., & Helmi, Z. A. (2013). Export, Aid, Remittance and Growth: Evidence from Sudan. ICEBR. International Conference on Economics and Business Research.

[16] Matuzeviciute, K., & Butkus, M. (2016). Remittances, Development Level, and Long-Run Economic Growth. Economies.

[17] Paul, B. P., & Das, A. (2011). The Remittance-GDP Relationship in the Liberalized Regime of Bangladesh

[18] :Cointegration and Innovation Accounting. Theoretical and Applied Economics , 41-60.

[19] Perron, P. (1989). The Great Varsh, the Oil Price Shock and the Unit Root Hypothesis. Econometrica, 57, 1361-1401.

[20] Perron, P. (1990). Testing for a Unit Root in a Time Series with a Changing Mean. Journal of Business and Economic Statistics, 8, 153-162.

[21] Polleit, T., & Belke, A. (2009). Monetary Economics in Globalised Financial Markets. Springer.

[22] Sharma, H. (2006). Explaining the Remittance Behavior and IMF. (2009). Balance of payments and international investment position manual 6. Internatioanl Monetary Fund.

[23] IMF. (2018, April 18). Gross Domestic Product: An Economy's All.Retrieved from International MonetaryFund: http://www.imf.org/external/pubs/ft/fandd/basics/gdp. htm

[24] Jouini, J. (2015). Economic growth and Remittances in Tunisia: Bi-directional causal links. Journal of Policy Modeling, 37(2), 355-373.

[25] Karna, S. K. (2017). Political Economy of Labour Migration and Remittances in Nepal. In R. P. Gyanwaly, Political Economy of Nepal (pp. 223-251). Central Department of Economics Tribuvan University. the Role of Remittances in the GDP. Centre for Planning and Economic Research. Retrieved from www.kepe.gr

[26] Srivastava, N. L., & Chaudhary, S. K. (2007). Role of Remittance in Economic Development of Nepal. Journal of Nepalese Business Studies, 4(1), 28-37.

[27] Tahir, M., Khan, I., & Shah, A. M. (2015). Foreign Remittances, Foreign Direct Investment, Foreign Imports

and Economic Growth in Pakistan : A time series Analysis. Arab Economics and Business Journal, 10, 82-89.

[28] World Bank. (2017). Migration and Remittances recent developments and outlook. World Bank Group.

[29] https://www.researchgate.net/publication/337485726_Econometric_Analysis_of_Remittance_Inflow_and_Economic_Growth_of_Nepal