Effect of Remittances on Economic Growth in Nepal

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Abstract

This study aims to explore the effect of Remittances on Economic growth of Nepal using Augmented Dickey Fuller Unit Test (ADF) to check the stationary of variables where Gross Domestic Product is dependent variable and Remittance, Investment, Consumption and Government Expenditure are independent variables. All the variables are in current price and data have been collected from Nepal Rastra Bank, Economic Survey and Ministry of finance, Government of Nepal spanning from 1989/90 to 2017/18. Simple regression equation estimated by ordinary least square (OLS) method. The other analytical tools like unit root test, heteroscedasticity test, normality test, serial correlation test, R-squared test, t- test, F-test D-W test, has been used. Empirical result finds that Investment and consumption are statistically significant and positive effect on economic Growth of Nepal. Remittances and Government expenditure are statistically insignificant and positive effect on GDP. Residuals are homoscedastic, free from serial correlation and normally distributed.

Key words: Remittances, Economic Growth, unit root, Augmented Dickey Fuller

I. Introduction

Remittances play an important role to start new business, small capital for investment and learn skill for an individual but at national level that would be helpful to formulate capital which would help to promote growth (Giuliano & Arranz, 2009). For the last two decades the worker remittances have grown rapidly in Nepal, and remittance remained as the major source of foreign currency earning for country (WB, 2018).

Despite the fact that remittances may be critical for economic growth, they still remain one of the least studied areas of research in migration literature in the context of Nepal. To the best of this author's knowledge, there is no any study examining the impact of remittances on economic growth through the link of consumption and investment. Therefore, this study explores on how Nepali workers' remittances leave an impact in Nepal.

Nepalese economy is estimated to expand by 5.9 percent in the current FY 2017/18. It was 7.4 percent in FY 2016/17. In the current FY, the growth of overall agriculture production is estimated to limit within 2.8 percent mainly because of the paddy production, the major contributor having the share of 20.8 percent of total agriculture production, decreased by 1.5 percent due to unfavorable monsoon and floods in Terai. Due to the improvement in trade and service sector, non-agricultural sector is estimated to expand by 7.1 percent in FY 2017/18.

The history of remittance began after the British-India and Nepal war during 1814-16. Since then, Nepal youths used to be recruited in the British national army (Giuliano&Arranz, 2009). Initially the contribution of the remittance on GDP ratio 10% in FY 2002/03 and the ratio increase in 27.7% in FY 2013/14, 29% in FY 2014/15 and 29.6% in FY 2015/16. In the present

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context remittance contributes 26.3% of the GDP (MoF, 2018).

Nepal is the developing country in South Asia sending large number of economically active population in foreign employment and receives high volume of remittances. Nepal lies at top five remittance receiving country in terms of percentage of GDP (WB, 2018) and the volume of remittance is substantial in the world figure. Foreign employment is old phenomenon in Nepal but the number of outgoing worker is increasing after the introduction of liberal policy. This has been further aggravated in new century. While talking about trade, Nepal has very liberal policy in financial, trade and other economic areas. Nepal Government introduced varies liberal economic and financial policy from the mid-1980s (introduction industrial policy, regional development concept etc) which makes trade easier. The volume of trade was increasing continuously and the volume of import is higher than volume of export. The volume of trade is around fifty percent of GDP and the ratio of import is more than ninety percent in Nepal (MoF, 2018).

Economic growth is the major indicator of development throughout the world. Labor migration is growing business in the world and that become a major contributor for economic growth and development especially in developing countries. so many scholars put their views regarding the relationship between remittance and economic growth theoretically and empirically. Remittances have significant and positive impacts on economic growth (Asmatullah and Muhammand, 2011), (Salahuddin, 2014), positive effects of remittances on poverty and inequality reduction (Sapkota, 2017), (Srivastava&Chaudhary 2007) positive association of remittances with entrepreneurship, (Dahal, 2018), remittance inflows are one of the major macroeconomic stimuli to significantly promote economic growth, (Rahman, 2014). There is a long-run one-way positive causality from remittance to import and a negative impact of remittance to trade deficit (Bhatta, 2018). Negative impact of remittances on major subsistence crops and family labor, positive effects on hired labor, and no impact on material inputs (Maharjan,2016), major portion of remittance is being used on consumption and other non-productive sector including real estate and investment in gold (Aryal ,2016), Negative impact of remittances on major subsistence crops and family labor, positive effects on hired labor, and no impact on material inputs (Maharjan, 2016). Negative association of remittance with manufacturing (Dahal, 2018) .

On the basis of statement of problems, this study is keen interested to investigate the effect of Remittance on economic growth in Nepal.

- Does Remittance inflows, Investment, Consumption, and Government Expenditureeffect economic growth in Nepal?

The general objective of this study is to find out the effect of remittance on economic growth of Nepal. The specific objectives are as follows:

- To analyze the effect of Remittance inflows, Investment, Consumption, and Government Expenditure on economic growth in Nepal.

II. Theoretical Framework

Srivastava and Chaudhary (2007) explore the role of remittance in GDP and GNP. In nominal GDP and GNP, the remittance shows 61 percent and 72 percent impact respectively while in real term it shows 48 percent and 55 percent respectively. With respect to PCI, they notice a marginal positive relationship (4 percent in nominal and 1 percent in real term) and conclude that remittance has not been used effectively so as to increase the real economic growth rate. Loksin et al. (2005) conclude that the increase in remittances accounts for 6.2 percent decline in poverty in Nepal.

Shrestha (2008) concludes that remittances sent by the migrant workers are an effective tool

for poverty reduction that remittance helps particularly in escaping poverty and increasing overall economic status of the migrants and their households. The social contribution of migration is even more encouraging in terms of improving children's education and enhancing the overall social status of the households

Chowdhury et. al (2010) analyze the impact of remittance on balance of payment, foreign exchange reserves, national savings and velocity of money in Bangladesh and conclude that remittances affect these variables positively examines impact of remittance on domestic investment on a sample of 79 developing countries for the period 1995–2005 and suggests that remittance inflow along with sound institutions and well-developed financial sector increase domestic investment.

Asmatullah and Muhammand (2011) examine the impact of worker's remittances on economic growth in Azerbaijan and Armenia using log linear regressionmodel and conclude that workers' remittances are significant and have positive impacts on economic growth.

Rahman (2014) examines the relationship using co-integration technique and find a long-run relationship between the worker's remittances and economic development., using the three-stage least square estimation presents a unit increase in the share of remittances on GDP reduces poverty by 52 percent, and increases human capital accumulation by 11.5 percent with no reverse causality. Likewise, Iheke (2012) study on the effect of remittances on the Nigerian economy for the period of 1980-2008 provides empirical evidence that the remittance inflows are one of the major macroeconomic stimuli to significantly promote economic growth.

Salahuddin (2014) investigates the relationship between remittances and economic growth. Findings indicate long-run positive relationship. In Chinese and Korean context, a research on worker's remittances and economic growth employing co-integration technique and error correction model for an annual time series data for the period 1980 to 2009 and confirm that there exists significant positive longrun relationship between remittances and economic growth in Korea while significant negative relationship exists between remittances and economic growth in China. Error correction model confirms the significant positive short-run relationship of remittances with economic growth in Korea, while the results of the China were insignificant in the short-run. Causality analysis confirms unidirectional causality runs from remittance to economic growth in both China and Korea.

Aryal (2016), analyzed contribution of remittance to foreign exchange earning exceeds export, foreign direct investment (FDI) and foreign aid but economic growth is not improving simultaneously. This study has been carried out to analyze the role of remittance in economic development of Nepal. This study shows that the role of remittance in economic development is not statistically significant. As a major portion of remittance is being used on consumption and other non-productive sector including real estate and investment in gold; resulting from the poor investment environment caused by political instability and inadequate infrastructure. Similarly, in the model the gross capital formation was not found to be important, suggesting that the remittances inflow have not assisted in the capital expenditure and tends to use it inconsumption expenditure. Secondary data have been analyzed for last forty year using IBM-SPSS software. This study supports the finding of previous studies related with remittance.

Hackman and Oldham (2016) conducted that by focusing on the key processes that drive valuefor all constituents, we'll be in a position to meet our goal ofmoving well beyond satisfied remittanceto loyal remittance.When developing measures for the remittance perspective, it'simportant to include not only the core outcome measures suchas customer loyalty rating, but also measures which demonstratethe company's customer value proposition. The measures we'veselected for this perspective represent a solid combination ofthese key elements. Among other things, our customers value reliability and price. These leading

indicators appear on ourscorecard as drivers of remittance.

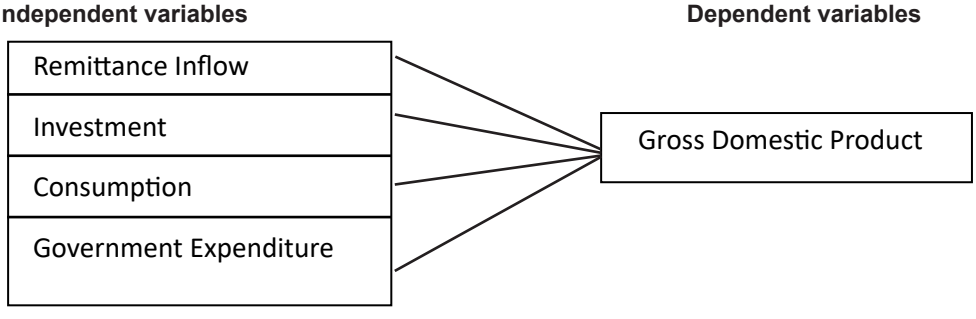
Maharjan (2016) study the impact of remittances on subsistence agricultural production in the Western Mid Hills of Nepal, based on a survey conducted among small farm holders with migrating family members. They find negative impact of remittances on major subsistence crops and family labor, positive effects on hired labor, and no impact on material inputs.

Sapkota (2017) examines the impact of remittances both at macroeconomic as well as household levels in Nepal and finds that remittances harm Nepal's tradable sectors via real exchange rate appreciation consistent with Dutch disease; however, there are positive effects of remittances on poverty and inequality reduction.

Bhatta (2018) examines the impact of remittances on merchandise import and trade deficit by using the co integration techniques and a Vector Error Correction Model (VECM) based on the monthly data of merchandise imports, workers' remittance and trade deficit. This study finds there is a long-run one-way positive causality from remittance to import and a negative impact of remittance to trade deficit.

Dahal (2018) analyses the impact of remittances on economic growth in Nepal by examining their effects on financial development, productivity, international trade, and human capital accumulation. This study looks growth effects of remittances through the entrepreneurship and manufacturing channels. The findings reveal a positive association of remittances with entrepreneurship, but a negative association with manufacturing. These mixed effects of remittances on different factors of productivity leads to an inconclusive result.

In this study, based on a thorough review of literature, the conceptual model has been presented remittance flows in recent years; there has been a vast growth in literature on remittances compared to the previous decades in Figure 1.1.



*(Sources: -*Uprety*, 2017)*

Figure 1.1 Theoretical Frameworks

Research Hypothesis
Null Hypothesis (Ho): Remittances do not affect Economic Growth in Nepal
Alternative Hypothesis (H1): Remittances affect Economic Growth in Nepal

III. Research Methodology

Research Design, nature and source of data

Gross domestic product is dependent variable whereas remittance, investment, consumption

and government expenditure are independent variables. The study has used secondary data to investigate the relationship between dependent variable and independent variable. Data have been taken from the various issues of the Quarterly Economic Bulletinof published by Nepal Rastra Bank and Economic Survey published by Ministry of Finance, Government of Nepal spanning from 1989/90 to 2017/18. In order to investigate the relationship between variables, the study has used a multiple regression equation which is estimated by Ordinary Least Square (OLS) method.

Specification of Model

The regression analysis model to be used in analyzing the data is as below; Regression analysis is used to draw the conclusions on the relationship of the chosen variables and three regression equations have been developed which are as follows Keynesian model i.e.

C= F(Y)……...(1)

Where,
C = Consumption

Y= Income

Where, to show the from GDP relationship between dependent and independent variables

GDP= f(RI, GE, C, I)……(2)

Where,

GDP = Gross Domestic Product

RI = Remittance Inflow

GE= Government Expenditure

C = Consumption

I = Investment

Equation Comparative

$GDP = \alpha + B_1RI + B_2C + B_3I + B_4GE + \mu$&&&&.(3)

LnGDP = α+ B1LnRI+ B2LnC+ B3LnI+ B4LnGE+μ……(4)

dLnGDP = α+ dB1LnRI+ dB2LnC+ dB3LnI+ dB4LnGE+μ&&&&.(5)

Where,

α = Constants

B_1, B_2, B_3, B_4 = Coefficients

μ= Error terms

d = first difference

Equation (5) is required equation which has been estimated by ordinary least square method.

IV. Results and Conclusion

Unit Root Test

The most frequently used unit root test method is Augmented Dickey Fuller test (ADF) – a parametric approach originally proposed by Dickey and Fuller (1981). However, there is a

criticism over the power of the ADF method. The ADF method is criticized for having a low power. An alternative method, known as Philips–Perron (PP test), appears to correct the pitfalls of the ADF method. If the data are not stationary at level, the next step is to difference the variables to make it stationary.

Table 1: Summary Augmented Dickey Fuller Unit Root Test at Level

Variables	Intercept	Trend/ intercept	None
LGDP	-0.817483 (0.7986)	-2.11064 (0.5177)	14.34783(1.000)
LREM	-0.858396 (0.7863)	-1.822979 (0.6664)	3.961331 (0.9999)
LINV	0.37190 (0.9776)	-1.845314 (0.6554)	4.239257 (0.9999)
LCON	-0.842373 (0.7911)	-2.055287 (0.5471)	14.90378 (1.000)
LGE	1.868960 (0.9996)	-0.104372 (0.9921)	10.59017 (1.000)
At 5% level of significance			

(Sources: Authors' Calculation)

P-value of t-statistics of LGDP is 0.7986, 0.5177 and 1.000 which is more the 5% means that alternative hypothesis is rejected i. e. null hypothesis accepted or LGDP is not sating. Likewise probability value of t-statistics of LREM is 0.7863, 0.6664 and 0.9999 which is more the 5% means that alternative hypothesis is rejected i. e. null hypothesis accepted or LREM is not sating. Likewise probability value of t-statistics of LINV, LCON and LGE is more the 5% means that alternative hypothesis is rejected i. e. null hypothesis accepted or LINV, LCON and LGE threes no significance. To make the data fit; the data should be use Augmented Dickey Fuller test (ADF) unit root test at first differences series.

Table 2: Summary ADF Unit Root Test at First Differences series

Variables	Intercept	Trend/ intercept	None
DLGDP	-2.811819 (0.0077)	-3.731357 (0.0373)	-1.10942 (0.2357)
DLREM	-5.992165 (0.000)	-5.981057 (0.0002)	1.829386 (0.0648)
DLINV	-4.83921 (0.007)	-4.702337 (0.0046)	-0.791621 (0.3625)
DLCON	-4.848499 (0.006)	-4.821293 (0.0033)	-1.268114 (0.1832)
DLGE	-3.547391 (0.0143)	-3.902465 (0.0260)	-0.286278 (0.05729)
At 5% level of significance			

(Sources: Authors' Calculation)

P-value (Intercept and Trend/ intercept) of t-statistics is less the 5% means that alternative hypothesis is accepted i. e. null hypothesis rejected or LGDP there is LINV, LCON and LGE significance. Show that probability value (None) of t-statistics of LGDP is 0.2357 which is more the 5% means that alternative hypothesis is rejected i. e. null hypothesis accepted or LGDP is not sating. Likewise probability value (None) of t-statistics of LREM is 0.0648 which is more the 5%means that alternative hypothesis is rejected i. e. null hypothesis accepted or LREM is not sating. Likewise probability value (None) of t-statistics of LINV, LCON and LGE is more the 5% means that alternative hypothesis is rejected i.e. null hypothesis accepted or LnRem, LINV, LCON and LGE are stationary.

Table 3: Results of Estimated Regression Analysis

Dependent variable: DLNGDP
Methods Least squares
Includes observation 28 after adjustments

Variables	Coefficient	t-statistics	Prob.
dLREM	-0.005548	-0.361419	0.7211
dLINV	0.173242	6.651637	0.0000
dLCON	0.777991	7.452723	0.0000
dLGE	0.021435	0.436442	0.6666
C	-1.11E-05	-0.000980	0.9992
R- square= 0.859993 Prob (F-statistic) =0.0000 Durbin- Watson stat. = 2.0707576 At 5% level of significance			

(Sources: Appendixes III)

Since the p value (0.000) of F- statistic is less than 0.05, there is not enough ground to accept the null hypothesis. Therefore the alternative hypothesis is accepted i. e. statistically significant and positive relationshipbetween investment, consumption and Gross Domestic Product. P-value of remittance is 0.7211 or more than 5 percent level of significant. Therefore remittance is negatively related and statistically insignificant to influence the economic growth.

Value of R^2 is 0.859993which means that 85.9993% variation in Gross Domestic product meaning that Remittance Inflow, Investment, Consumption and Government Expenditure explain to gross domestic product by 86 percent. The value of D-W test is 2.0707576 which is greater than R- square value. This proves that econometric model is appropriate. The P- value of F- statistics is 0.000000 or less than 5 percent. It indicates that all independents variables jointly and significantly influence the dependent variable. In other words, remittance, investment, consumption and government expenditure are significantly influence the gross domestic product.

Table 4: *Results of Residual Regression Analysis*

Residual	Obs* R-square	Prob.
Normality Test (Jarque-Bera)	2.221362	0.3293
Breusch-Godfrey Serial Correlation LM Test	0.041622	0.8383
Heteroscedasticity Test: Breusch-Pagan-Godfrey	3.354836	0.5161

(Sources: Appendixes, II,IV& V)

Normality Test (Jarque-Bera), P- value of Obs* R- square is 0.3293 which is more than 0.05; there is enough ground to accept the null hypothesis. Therefore the alternative hypothesis is rejected means that residuals are normally distributed.

Serial correlation LM test Brushes-Godfrey test since the p- value of Obs* R- square is 0.8383

which is more than 0.05; there is enough ground to accept the null hypothesis. Therefore the alternative hypothesis is rejected means that residuals are not serially correlated.

Heteroscedasticity since the p- value of Obs* R- square is 0.5161 which is more than 0.05; means that alternative hypothesis is rejected i.e. null hypothesis is accepted. It shows that residuals are not heteroscedasticity.

Remittance and government expenditure are statistically insignificant to economic growth. But remittances have negatively related and government expenditure have positive relative with economic growth. There is significant and positive relationship between investment and consumption with Gross domestic product. Residuals are free from auto correlation, homoskedascity and normally distributed. This study recommended that remittance should be used in productive sector by making appropriate policy.

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