to pose some macroeconomic challenges for recipient economies (Barajas et al., 2010). There are increasing concerns as to whether remittances, because of the increase in the demand for the local currency and increased spending, result in an appreciation of the real effective exchange rate (REER). This can have devastating impact on the country's economy especially as it relates to its competitiveness.

Remittances funds received from migrants working abroad to Nepal have grown dramatically in recent years from 204.3 million rupees in 1975 to about 6390 million rupees (MOF, 2016). Remittance inflows have increased tremendously and it is now the largest contributor to foreign exchange reserves. As the share of GDP, remittance inflows have far outpaced official development assistance as well as foreign direct investment in Nepal. Between FY 1974/75 and FY 1999/2000, remittances ranged between 1.23 percent and 3.34 percent of GDP. In FY 2000/01, it increased drastically to 10.69 percent of GDP, reflecting the large increase in the number of migrant workers. Remittances reached as high as 21.22 percent of GDP in 2008/09, which declined to 18.52 percent of GDP in FY 2010/11 because of the impact of global financial and economic crises on major employment destinations for Nepali workers. According to the NLSS-III, 2010/11, about 56 percent of households received remittances, both from internal as well as external sources, up from 32 percent in 2003/04 and 23 percent in 1995/96. These possible effects of remittance inflows on the domestic economy raise an important area for research and have in fact induced the exploration of the relationship between remittances and the real exchange rate more closely, especially in a Nepalese context. Remittances are a necessary source of financing to many Nepalese and are used to supplement household income for necessities such as food, utilities and education (NRB, 2012). In 2016, remittances contributed as much as 29.1 percent of Nepal's Gross Domestic Product (GDP) (MOF, 2016), exceeding the contributions of foreign direct investments and earnings from tourism

The magnitude of the flow of remittances to Nepal and their rate of growth has become a significant factor in the country's economy. The sharp increase in remittances and huge sum involved has led policy makers make them study macroeconomic impacts of such inflow funds. The Government of Nepal advocates for favorable environment to ensure. The huge flow of foreign inflow can affect the production sector and employment structure, as well as the scale of external trade competitiveness of the economy as measured by the REER. The study focus on long term effect of foreign inflow. The study focus on following research questions:

i. What are the effect of inflows remittances, remittances and foreign direct investment on tradable and non-tradable sectors?
ii. Do the effect of inflows remittances, remittances and foreign direct investment on tradable and non-tradable sectors are Dutch Disease symptoms?

2. Review of Literature

Dutch Disease: There is large body of work on Dutch Disease effect on natural resources revenue and international transfer focusing on both individual and cross countries. Acosta (2009) shows that Dutch Diseases impact comes about through decrease in labor supply and appreciation of real exchange rate. Remittances raise the income level of household sectors and increase in demand for non-tradable items which causes increase in prices of non-tradable items. Moreover the wage rate of non-tradable sector goes up and labor transfer from tradable sector to non-tradable sector. As consequently, the fall in output of tradable sector, rise in price of tradable sector and fall trade competitiveness of tradable sector is called Dutch diseases.

Salter-Swan Framework: Salter in 1959 and Swan in 1960 discussed that rise in a domestic spending due to trade surplus displaces resources allocation and appreciate real exchange rate in a small dependent economy. Because of spending effect demand for non-tradable increase and thereby their price increase. Consequently, real exchange rate appreciates and productive resources move to non-trade sector from tradable sector.

Corden-Neary Model: In 1982 Corden-Neary discussed about the Dutch Disease which is an impact of natural resources revenue gains. International transfer like remittances and foreign aid also act as like inflow of natural resources revenue. Natural resources revenue has two effects through which the manufacturing sector can shrink.

Spending Effect: Higher disposable income gained from natural resources revenue push the aggregate demand up. Since the price of the tradable goods exogenously determine the price of tradable goods which does not rise. Consequently, increased aggregate demand increase the relative price of non-tradable that correspond to appreciation of exchange rate.

Resource Movement Effect: Higher prices of non-tradable lead to expansion of the non-tradable sector. Therefore, resource moves from tradable sector to non-tradable sector shrinking the tradable sector. Real wage in non-tradable also increases, which creates demand in non-tradable owing to this excess demand real appreciation in exchange rate is obvious to clear the market. When the remittance received into the country, more

income is available to spent, demand for both tradable and non-tradable goods will increase, and hence "spending effects", one of the phenomenon of Dutch Disease will take place and drive up the REER (Lartey, Mandelman and Acosta, 2012). When demands are higher for tradable and non- tradable goods will increase. Due to the increase of prices, the tradable sector's international competitiveness of the country might be threatened because domestic consumers will more likely to foreign imported goods which relatively cheaper than the domestic goods.

Krugman (1987) discussed about the Inflow of remittances of natural resources revenue appreciates real exchange rate and some of the tradable sector lose competitiveness and move abroad. He consider natural resources revenue as transfer payment from abroad. If the transfer does not last long, external competitiveness is regained and forgone sector to home country. But long run transfer erodes trade competitiveness for some tradable sector permanently, which do not come back even the transfer ends as result international competitiveness decline. However, remittances inflow has raised up the concern of losing competitiveness in international market will stunt the economic growth in long term. Economist pointed out the possibility of the countries to behave like "youngster" nowadays which is "enjoyed first, suffer later".

Amuedo-Dorantes and Pozo (2004) and Javaid (2011) argued that remittance will incur large inflow of capital, thereby causing the country to be infected by Dutch Disease. Amuedo-Dorantes et al. (2004) found that real exchange rate appreciated by 22 percent in their panel of 13 Latin American and Caribbean nations when remittance's transfer was doubled. One of the interesting parts from this study is that the authors regard remittances as "private aids" while foreign aid is quoted as "public aids". Remittances can be referred to different terms as in "capital inflow' private aids and so on. Different researches give rise to different term. As for our study, we regard remittances as "resources (labor) income". As for the supply side, real exchange rate can be determined by supply side factors, also known as Balassa-Samuelson effect through the productivity differential. Productivity gain appreciates the real exchange rate are normally explained by the efficient usage of resources and technology available. The reason for substituting productivity differential with labor productivity is negatively related to real exchange rate, which means real appreciation (Balassa, B. 1964).

3. Research Methodology

The study used annual data on different variables from FY 1990/91 to 2016/2017.The study based on the secondary sources of data. Data is taken from Quarterly Economic Bulletin, Nepal Rastra Bank, Economic Survey Reports, Ministry of Finance,

Government of Nepal, Statistical Year Book and Statistical Pocket Book, Central Bureau of Statistics and Trade Promotion Center and US data bases.

Model Specification

To show the effect of independent variable on dependent variable, ordinary least square (OLS) regression model are used. For this, primary sector output, secondary and service sectors output are dependent variables whereas remittances, foreign direct investment and foreign aid are independent variable. The regression results are calculated by conversing remittances to GDP ratio, foreign aid to GDP ratio, foreign direct investment to GDP, primary sector output to GDP, service sector output to GDP and secondary sector output to GDP. The model assumes that primary and secondary sectors output are tradable and service sector is non-tradable sectors. The model are based on methodology is used by study Chong Foong, Wong Meng Tien and Yan Shao Binn on relationship between remittances and Dutch Disease in Philippines (2013). This study also follows Lartey; Mandelman and Acosta (2008).

The models are;

$LNRPRI_t = \beta_0 + \beta_1 LNREMIT_t + \beta_2 LNFA_t + \beta_3 LNFDI_t + u$ .....(1)

$LNRSEC_t = \beta_0 + \beta_{1LN} REMIT_t + \beta_2 LNFA_t + \beta_3 LNFDI_t + u$.....(2)

$LNRSER_t = \beta_0 + \beta_1 LNREMIT_t + \beta_2 LNFA_t + \beta_3 LNFDI_t + u$ .....(3)

Where, RPRIMt = Real Primary Sector Output, $RSEC_t$ = Real Secondary Sector Output

$RSER_t$ = Real Service Sector Output, $REMIT_t$ = Inflow of Remittances

FA_t = Foreign Aid, FID_t = Foreign Direct Investment, u = error terms

Data Analysis Techniques

Time series econometric modeling techniques will be applied to estimate the equations. Unit root test, heterocedasticity, autocorrelation, normality along with t and F tests are a few tests prescribed to analyze the data of this study.

Regression Results and Analysis

$LNPRIM_t = 9.01 - 0.15 LNREMIT_t - 0.034 LNFA_t + 0.097 LNFDI_t + u$

P value (0.000) (0.000) (0.554) (0.037)

DWtest- 1.80, Adj-R^2 0.91, F test- 96.52 (P- 0.000), JB- 1.47 (P -0.41), N -27

The coefficient of LNFDI is significant at five percent, LNRMT and constant are statistically at 1 percentage. However, LNAID is not statistically significant. The value adjusted R^2 is 0.91 which indicates that dependent variable LNRPRI is explained by independents variable by 99 percentage which is very high indicates that model is best fit. The value of F statistics is very high 96.52 and it p value is significant at 1 percentage indicates that model is overall good fit. The coefficient of LNRMT is -0.15 which indicates that increase in remittances one percentage causes decrease in primary sector output by -0.15 percentage. The coefficient of LNFA is -0.034 which indicates that increase in foreign aid by one percentage causes decrease primary sector output by 0.034. The coefficient of LNFDI is 0.097 indicate that increase in foreign direct investment by 1 percentage causes increase real primary sector output by 0.097 parentage. Hence, there inverse relationship between inflow of remittances and foreign aid to output of primary sectors. The result shows the symptoms of Dutch Diseases in Nepalese in economy. The value of DW test is 1.80 which is near to 2 indicates that there is no correlation. The value observed R*squared Bruesch Godfery LM test is at chi-square 2 df is 10.8 and its p vale is 0.10 which is more than five percentage indicate that there is no autocorrelation correlation among the error terms. The value of observed R* squared Breusch-Pagan-Godfery test is 6.88 and its p value is 0.075 which is more than five percentage indicates that variance of error terms are constant. The value of JB test 1.47 and its p value is 0.41 which is more than five percentage indicates that error terms are normally distributed.

$LNRSEC_t = 8.22 - 0.08LNREMIT_t - 0.14LNFA_t + 0.05\ LNFDI_t + u$
P value (0.0000) (0.0001) (0.0029) (0.110)
DW- 1.59, Adj-R^2 0.93, F test- 119.07(P- 0.000), JB- 1.12(P- 0.000), N -27

The coefficients of LNAID and LNRMT and constant are significant at one percent level. However, LNFDI is not statistically significant. The value adjusted R^2 is 0.93 which indicates that dependent variable LNRSEC is explained by independents variable by 93 percentage which is very high indicates that model is best fit. The value of F statistics is very high 199.07 and it p value is significant at 1 percentage indicates that model is overall good fit. The coefficient of LNRMT is -0.08 which indicates that increase in remittances one percentage causes decrease in secondary sector output by 0.08 percentage. The coefficient of LNFAID is -0.14 which indicates that increase in foreign aid by one percentage causes decrease in secondary sector output by 0.14. The coefficient of LNFDI is 0.05 indicate that increase in foreign direct investment by 1 percentage causes increase real secondary sector output by 0.05 parentage. There is inverse relationship between

output of secondary sector and inflow of remittances, foreign aid in Nepal indicates symptoms of Dutch Disease in Nepalese economy.

The value of DW test is 1.59 which is near to 2 indicates that there is no correlation. The value observed R*squared Bruesch Godfery LM test is at chi-square 2 df is 6.8 and its p vale is 0.13 which is more than five percentage indicate that there is no autocorrelation correlation among the error terms. The value of observed R* squared Breusch-Pagan-Godfery test is 6.8 and its p value is 0.085 which is more than five percentage indicates that variance of error terms are constant. The value of JB test 1.12 and its p value is 0.57 which is more than five percentage indicates that error terms are normally distributed.

$LNRSER_t = 9.6 + 0.31LNREMIT_t + 0.011LNFA_t + 0.03LNFDI_t + u$

P value (0.0000) (0.0000) (0.0009) (0.0054)

DW- 1.71, Adj-R^2 0.97, F test- 323.36 (P- 0.000), JB-4.7(P-0.09), N -27

The coefficient of LNAID, LNRMT, LNFDI and constant are significant at one percent level. The value adjusted R^2 is 0.97 which indicates that dependent variable LNRSER is explained by independents variable by 97 percentage which is very high indicates that model is best fit. The value of F statistics is very high 323.07 and it p value is significant at 1 percentage indicates that model is overall good fit. The coefficient of LNFDI is 0.030 indicate that increase in foreign direct investment by 1 percentage causes increase real service sector output by 0.030 parentage. The coefficient of LNFAID is 0.011 which indicates that increase in foreign aid by one percentage causes increase service sector output by 0.011. The coefficient of LNRMT is 0.31 which indicates that increase in remittances one percentage causes increase in service sector output by 0.31 percentage. There is positive relationship between dependent and independent variables. It means that all independent variable boost the secondary sector output of Nepal. The value of DW test is 1.71 which is near to 2 indicates that there is no correlation. The value observed R*squared Bruesch Godfery LM test is at chi-square 2 df is 5.14 and its p vale is 0.07 which is more than five percentage indicate that there is no autocorrelation correlation among the error terms. The value of observed R* squared Breusch-Pagan- Godfery test is 0.96 and its p value is 0.81 which is more than five percentage indicates that variance of error terms are constant. The value of JB test 4.7 and its p value is 0.09 which is more than five percentage indicates that error terms are normally distributed.

4. Conclusion

The empirical results show that the inflow of remittances and foreign aid have adverse effect on output of primary and secondary sectors output of Nepal and inflow of foreign direct investment boosts up output both sectors. Similarly, the inflow of foreign aid, remittances, and foreign direct investment have significant positive impacts on service sector output of Nepal. Increase in output of service sector and decrease in output of primary and secondary sectors output indicates symptoms of Dutch Disease in Nepalese economy. Hence, the study recommends that government should be utilized remittances and foreign aid in primary such as agriculture, fishery, and mining and secondary sectors such as construction, electricity, gas, etc. and government should formulate new investment policies, industrial security, insurances policy in agriculture sectors.

References

Acosta, P. A., Calderon, C., Fajnzylber, P. & Lopez, H. (2008). What is the Impact of International Migrant Remittances on Poverty and Inequality in Latin America? *World Development*, 36(1), 89–114.

Amuedo-Dorantes, C. & Pozo, S. (2004). Workers' Remittances and the Real Exchange Rate: A Paradox of Gifts. *World Development*, 32(8), 1407–17.

Balassa, B. (1964). The Purchasing Power Doctrine: A Reappraisal. *Journal of Political Economy,* 72, 584–596.

Barajas, A., Chami, R., Hakura, D. S. & Monteil, P. (2010). *Workers' Remittances and the Equilibrium Real Exchange Rate: Theory and Evidence.* Working Paper 287, International Monetary Fund (IMF).

Chong Foong Nyan, Lee Chean Ming, Tan Ai Fan, Wong Meng Tien & Yan Shao Binn (2013). *Relationship of Remittance and Dutch Disease in Philippines.*

Corden, W. M., & Neary, J. P. (1982). Booming Sector and De-industrialization in a Small Open Economy. *The Economic Journal,* 92(368), 825-848.

Central Bureau of Statistics (CBS) (2011). *Nepal Living Standard Survey,* 2011.CBS, Kathmandu, Nepal.

Krugman, P. (1987). The Narrow Moving Band, the Dutch Disease, and the Comparative Consequences of Mrs. Thatcher. *Journal of Devilment Economics* 27, 41-55.

Lartey, E., F. Mandelman, & Acosta, P. (2012). Remittances, Exchange Rate Regimes, and the Dutch Disease: A Panel Data Analysis. *Federal Reserve Bank of Atlanta, Working Paper* 2008-12. Atlanta.

Lopez, H., Molina, L. & Bussolo, M. (2007). *Remittances and the Real Exchange Rate.* World Bank Policy Research Working Paper, No. 4213, Washington DC.

Ministry of Finance (MOF) (2016). *Economic Survey*, 2016. Ministry of Finance, Government of Nepal.

Nepal Rastra Bank (2012). *Impact Evaluation of Remittances: A Case Study of Dhanusha District.* Banking Development and Research Unit, Janakpur.

Salter, W. E. G. (1959) Internal and External Balance: The Role of Price and Expenditure Effects. *The Economic Record, No.* 35(71), 226-238.

Solimano, A. (2003). *Remittances by Emigrants: Issues and Evidence*. WIDER Discussion Papers, World Institute for Development Economics, No. 2003/89.

The World Bank (2013). Migration and Remittance. http://go.worldbank.org/ rr8sdpeho0. Accessed 30th December 2016.