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Remittance Inflows and Economic Growth of Nepal: An Error Correctiion Approach

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Abstract

The basic purpose of this paper is to examine the contribution of remittance on economic growth of Nepal including gross domestic product, foreign direct investment, export and import in current price. This study applies Ordinary least square method (OLS) on time series data from 1990/91 to 2013/14. The results have shown the fact that a positively significant impact of remittance on gross domestic product of a country (Model I). The coefficients of remittance, foreign direct investment and export positive signs. However, observed negative signs of import. Engle- Granger co integration test revealed long run relationship among the variable. Engle- Granger error correction test has been applied correcting the previous year disequilibrium by 1.8 percent annually. The null hypothesis are not serially correlated, residuals are homoscedasticity, residuals are normally distributed which is desirable for the Error Correction Model. So in conclusion this error correction model is accepted. Granger causality test finds there is no causality exist among the variables.

Keywords: OLS method; Co integration test; Error correction test; Non-stationary; Bi-directional relationship; Granger causality test.

Introduction

Remittances are generally defined as economic transfers that follow unidirectional paths from an immigrant worker to his or her sending country and households (Maimbo and Ratha, 2005). The amount of money returned by immigrant workers is large and often far more valuable to most countries than direct aid; yet remittances are about more than the formal unidirectional flow of money (Carling, 2008). International remittances, partly because of their rapid growth in measured flows, have begun to be an important focus of development strategists. Recent studies highlight the importance of remittances both at the aggregate and household levels and most studies anticipate that remittances will persist as important factors in the development of low and middle-income countries. During the last decade the inflow of remittances has increased rapidly and now constitutes one of the largest sources of external development finance for developing countries. Recorded remittance flows to developing countries are estimated to have reached $406 billion in 2012, a 6.5 percent increase from $381 billion in the preceding year (World Bank, 2013).

Nepal has received remittance Rs.231 billion through institutional channels for the Fiscal Year 2010/11 (CBS, 2011).In fiscal year 2014/15 Nepal received 589.5 billion US dollars

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(MoF, 2014). A total of 2.4 million people have been working abroad as migrant workers, which are a significant chunk for its total population size 26.6 million (CBS, 2011). Nepalese economic growth, due to higher remittance is essentially a "pseudo-growth" (Bhatta, 2012).

Nepal stands as the 4th largest economy in the world in terms of the nation's remittance-Gross Domestic Production (GDP) ratio as it is estimated to be about 28.8 percent ratio of GDP. (World Bank, 2013).

Remittances assist in augmenting national income by providing foreign exchange and raising national savings and investment as well as by providing hard currency to finance essential imports hence curtailing any BOP crisis. Since they bear no interest, do not have to be repaid, and their utilization is not tied to specific investment projects with high import content, they have a more positive effect on BOP than other monetary flows such as direct investments or loans.

Literature Review

Danson (2012) examines the impact of exchange rate on the economic growth of Kenyan and finds negative relation between exchange rate and economic growth. Ghulam & Chaudhary (2012) investigate effects of exchange rate on FDI in Asian countries. Chen (2012) studies the role of exchange rate on the economic growth in China. He takes data from 28 provinces for the period of 1992-2008. The author finds positive effect of exchange rate on economic growth.

Tarawalie (2010) sheds light on the importance of real exchange rate on economic growth of Sierra Leone. Granger Causality test is employed to check the relationship between exchange rate and economic growth. The author finds exchange rate is positively related with economic growth. He suggests that monetary policy is better than fiscal policy for economic growth in the long run. Farooq (2009) explores the relationship between exchange rate and economic growth in Pakistan. He finds long run positive relationship between exchange rate and economic growth in Pakistan. He suggests stable exchange rate policy for the economic growth of the country. Coss (2006) argued that remittance may raise per capita income and reduce poverty in some countries.

Shilpakar (2014) analyzed that migration and remittance has positive as well as negative impact to the receiving country. In Nepal, remittance could be considered important components of GDP and plays vital role in increasing economic growth of nation. Prajapati (2013) mentioned that annually 5, 54,400 youths emigrant from Nepal. The study remarks that remittance income is predominantly used for daily consumption and nominal portion is used for capital formation.

Objectives of the Study

The objective of this paper is to examine the impact of remittance in economic growth of Nepal. To validate the study, the following hypothesis are formulated and tested.

Hypothesis of the Study

Null Hypothesis (H_0): REM has no significant contribution to economic growth of Nepalese economy (GDP).

Alternative Hypothesis (H_1): REM has significant contribution to economic growth of Nepalese economy (GDP).

Methodology

After the restoration of democracy in 1990s, Nepal adopted the policies of privatization and economic liberalization opened the door of foreign direct investment. Prior this date, foreign direct investment and remittance inflows are at the minimal and insignificant level so this study was taken the time series data from 1990/91 to 2013/14. The required data were collected from various publication of ministry of finance, CBS, NRB, Department of industry and industry and Department of foreign employment. The variables are expressed in the following equations are measured in current prices. Hence, the model of this study has been developed based on the variables selected as GDP, REM, FDI, EXP and IMP Guided by the perceived functional relationship between the matrix of economic growth (GDP) and REM, the link is forged between these seven variables. This study also test some reliable model as like Augmented- Dickey Fuller unit root test, Engle- Granger co-integration test, Engle- Granger error correction test and Granger causality test which give reliability and validity of the model. Furthermore, different regression diagnostic tests have been applied to test the multi co-linearity, autocorrelation, homoscedasticity, non-normality and model specification. On account of the possibilities of spurious results further analysis has been felt necessary.

Measures of Remittance Impact on GDP (Model 1)

GDP = f (REM)…… (1)

From the above functional relationships, the following stochastic model is specified below:

$GDP = \beta_0 + \beta_1 (REM)$…… (2)

Generally, the working model can be restated in its natural logarithm form as follows:

$LnGDP = \beta_0 + \beta_1 Ln (REM) + \mu$ …… (3)

Where,

GDP = Gross domestic product.

REM=Remittance.

β_0 and β_1 are model parameters and μ is the stochastic error term.

Measures of Remittance with other Variables Impact on GDP (Model 11)

GDP = f (REM, FDI, EXP, IMP)…… (1)

From the above functional relationships, the following stochastic model is specified below:

$GDP = \beta_0 + \beta_1 (REM) + \beta_2 (FDI) + \beta_3 (EXP) + \beta_4 (IMP) + \mu$ ……. (2)

Generally, the working model can be restated in its natural logarithm form as follows:

$LnGDP = \beta_0 + \beta_1 Ln (REM) + \beta_2 Ln (FDI) + \beta_3 Ln (EXP) + \beta_4 Ln (IMP) + \mu$ ..... (3)

Where,

GDP = Gross domestic product at current price

REM = Remittance at current price

FDI = Foreign direct investment at current price

EXP = Export at convertible foreign exchange

IMP = Import at convertible foreign exchange

β_0, β_1, β_2, β_3 and β_4 are model parameters/ elasticity coefficients and μ is the stochastic error term. The 'priori' expectation is that the model parameter is expected to be positively signed. The implication is the real context as growth has been expected even when REM, FDI, EXP and IMP have been collected.

Natural logarithm has been used to make the data under study to be normal and linear. This is because natural log is one of the transformations methods that make the data normal if they are not normal with their actual numbers. It also gives elasticity.

Unit Root Test

In time series analysis, a great deal of attention is given to stationary of the variables in order to get rid of the problem of spurious regression. When we apply standard estimations and test procedures in the dynamic time series model, as the first step, it is necessary to examine the stationary property of a series (Gujarati et al., 2012). Accordingly, Augmented Dickey- Fuller test as suggested by Dickey and Fuller (1979) has been applied to test the presence of unit root in the series. This test was developed by Dickey and Fuller for detecting the presence of a unit root in a time series data. There are three versions of ADF test.

$\Delta Y_{t=} \beta_1 + ZY_{t-1} + a_i + e_t$ Equation 1 (intercept only)

$\Delta Y_{t=} \beta_1 + \beta_{2t} + ZY_{t-1} + a_i + e_t$ Equation 2 (Trend and intercept only)

$\Delta Y_{t=} ZY_{t-1} + a_i + e_t$ Equation 3 (No trend and no intercept)

The basic objective of this taste is to examine null hypothesis and alternative hypothesis.

Null hypothesis (H_0): Variable is not stationary or got unit root

Alternative hypothesis (H_1): Variable is stationary

Engle- Granger Cointegration Test

This test is used when the variables are non- stationary at level but it can convert all the variables into the first differenced, and then they will become the stationary or integrated of same order. Engle- Granger (1969) calculated critical values that are appropriate to estimate stationary of the error terms. This approach checks for the mixed effect by checking the stationary of the error terms. If the error terms are found to be stationary I(0) at their levels, using the Engle and Granger critical values, then the regression of the equation will not be spurious.

If the regression model with non-stationary variables is run, the regression model may be spurious or nonsense like mode 1.1

$LnGDP = \beta_0 + \beta_1 LnREM + \beta_2 LnFDI + \beta_3 LnEXP + \beta_4 LnIMP + \mu$ …….. (Model 1.1)

Where,

LnGDP = Natural log of Gross Domestic Production.

LnREM = Natural log of Remittance

LnFDI = natural log of Foreign Direct Investment

LnEXP = Natural log of Export

LnIMP = Natural log of Import

Here, LnGDP, LnREM, LnFDI, LnEXP, LnIMP are the non-stationary variables and μ is the residual. The symptom of a spurious regression if R-squared value would be greater than Durbin Watson statistics. After the test of ADF test at level series model variables got unit root or non-stationary. So from the Johansen co integration test and some variables are co integrating and they have long run relationship. So, the Engle-Granger Model (ECM) is to be used as given below.

$$D(LnGDP) = \beta_0 + \beta_1 D(LnREM) + \beta_2 D(LnFDI) + \beta_3 D(LnEXP) + \beta_4 D(LnIMP) + \beta_5^* ECT_{t-1} + V \ldots\ldots\ldots \text{(Model 1.2)}$$

Here, LnGDP, LnREM, LnEXP, and LnIMP are the first differenced variables.

β_0 is the constant

β_1, β_2,β_3 , β_4, and $\beta_5^*$are the short run coefficients

V is white nose error term

is one period lag residual of model 1.1. ECT_{t-1} is also known as equilibrium error term of one period lag. This ECT_{t-1} is an error correction term that guides the variables of the system to restore back to equilibrium. In other words, it corrects the disequilibrium.

Granger Causality Test

Causality is a kind of statistical feedback concept which is widely used in the building of forecasting models. Historically, Granger (1969) was the ones who formalized the application of causality in economics. Granger causality test is a technique for determining whether one time series is significant in forecasting another (Granger, 1969). The standard Granger causality test (Granger, 1969) seeks to determine whether past values of variable helps to predict changes in another variable. The definition states that in the conditional distribution, lagged values of Y_t add no information to explanation of movement of X_t beyond that provided by lagged values of X_t itself (Green, 2003). A common method for testing Granger causality is to regress Y_t on its own lagged values and on lagged values of X_t and tests the null hypothesis that the estimated coefficients on the lagged values of X_t are jointly zero. Failure to reject the null hypothesis is equivalent to falling to reject the null hypothesis that X_t does not Granger causes Y_t.

Empirical Analysis

Remittances can generate a positive effect on the economy through various channels such as savings, investment, growth, consumption, and income redistribution. At the national level, remittances contribute significantly to GDP. Remittance can also contribute to stability by lowering the probability of current account reversals. Accordingly, along with the remittance, tax revenue, non-tax revenue, foreign direct investment, foreign aid and total investment are considered in the model as independents. To examine the impact, GDP is assumed as a function of remittance. Many other variables also responsible for determining

the gross domestic production of the economy, therefore, other variables are also included as a explanatory variables in the model. In this concern estimated multiple regression equation is given as,

LnGDP = 9.953521+ 0.320713REM + μ …..... (Model I)

t-value = (54.58325) (17.75917)

P- value = 0.0000

R^2 = 0.934793, Adju. R^2 = 0.931829, Prob. (F-statistics) = 0.000000, S.E.= 0.209190, D.W.= 1.038055

LnGDP = 5.991857+0.213025REM+0.114411 FDI+0.540069 EXP--0.118742IMP+ μ ..... (Model II)

P- Value = 0.0000 0.0149 0.0007 0.4489

R^2= 0.988462, Adju. R^2 = 0.986033, Prob. (F-statistics) = 0.000000, S.E.= 0.094687, D.W.= 1.956941

Note: Significant at 5 percent level and confer the same level in the article.

The results have shown the fact that a positively significant impact of remittance on gross domestic product of a country (Model I). The coefficients of remittance, foreign direct investment and export are positive signs and significant too. However, observed negative signs of import and insignificant. The model is free from the autocorrelation, augmented Dickey Fuller (ADF) test has revealed non stationary at level and stationary when the variables are converted into first difference from expressed as in the table 1.1 and table 1.2

Table1 1: Result of Augmented Dickey Fuller Unit Root Test on Level Series

variables	Constant	Trend and Constant	None
LnGDP	-0.381270(0.8970)	-1.688467(0.7234)	13.70643(1.0000)
LnREM	-0.708052(0.8256)	-3.523388(0.0604)	2.068833(0.9881)
LnFDI	0.617282(0.9870)	-0.683790 0.9624)	9.404837(1.0000)
LnEXP	-1.348204(0.5891)	-3.013356(0.1500)	2.399661(0.9942)
LnIMP	-1.243132(0.6373)	-2.621686(0.2748)	3.962283(0.999)

Source: Author's Calculation. (P- Values in parentheses)

Table 1.2: Result of Augmented Dickey Fuller Unit Root Test on First Differenced Series

variables	Constant	Trend and Constant	None
ΔLnGDP	-3.925916(0.0071)	-3.814882(0.0352)	-1.389294(0.1485)
ΔLnREM	-7.304573 (0.0000)	-7.194012(0.0000)	-5.268143(0.0000)
ΔLnFDI	-2.982122(0.0523)	-3.016387(0.1501)	-1.198265(0.2039)
ΔLnEXP	-5.897945(0.0001)	-5.716596(0.0007)	-4.961770(0.0000)
ΔLnIMP	-4.807965(0.0010)	-4.913744(0.0037)	-2.957606(0.0050)

Note: *At 5 percent level of significant*

Source: Author's Calculation. (P- Values in parentheses)

So, the Engle Granger approach is to be applied to test the long run association between the variables.

Table 1.3 Result of Engle Granger Test of Cointegration

ADF Test of Residual

	T-statistics	P- value
ECT	- 4.599450	0.0015

Source: Based on author's calculation

The table 1.3 shows that residual term is stationary because it rejects null hypothesis of unit root. The result shows that P-value is less than 5 percent. It is co integrated of order zero I (0). Thus, being residual term stationary at level form we can say there exist co integration among the variables. So, our model should be converted to the first differences for the error correction

ECT_{t-1} is one period lag residual of model 1.1. ECT_{t-1} is also known as equilibrium error term of one period lag which is called Error Correction Term (ECT). The sign of β_5^*must be negative after estimation. The coefficient tells us what rate it corrects the previous period disequilibrium of the system. When β_5^* contains negative sign, it validates that there exists a long run equilibrium relationship among the variables in model 1.1

Table 1.4 Regression Result of First Difference of Error Correction Model

Dependent Variable: D(LnGDP)
Method: Least Squares
Date: 04/20/16 Time: 13:26
Sample (adjusted): 2 24
Included observations: 23 after adjustments

Variables	Coefficients	Std. Error	t-Statistic	Prob.
C	0.105340	0.009015	11.68433	0.0000
D(LnFDI)	0.014721	0.010215	1.441024	0.1667
D(LnEXP)	0.166403	0.044744	3.718981	0.0016
D(LnIMP)	-0.036979	0.055859	-0.662017	0.5163
ECT(-1)	-0.186028	0.087785	-2.119127	0.0482

R-squared	0.533789	Mean dependent var	0.120900
Adjusted R-squared	0.430187	S.D. dependent var	0.040993
S.E. of regression	0.030944	Akaike info criterion	-3.923601
Sum squared resid	0.017236	Schwarz criterion	-3.676754
Log likelihood	50.12141	Hannan-Quinn criter.	-3.861519
F-statistic	5.152282	Durbin-Watson stat	1.446487
Prob(F-statistic)	0.006039		

Now, the overall result is improved the P- value of error correction term is less than 5 percent so the error correction term is significant to the dependent variable. After dropping

the variable LnREM, β_5^* the coefficient of error term has been 1.8 percent meaning that the system corrects its previous period disequilibrium at a speed of 1.8 percent annually. (Appendix- I). Now, it can be checked serial correlation, Heteroscedasticity and normal distribution.

Table 1.5: Summary Results of Serial Correlation, Heteroscedasticity and Normal Distribution

Particulars	F statistics	Obs* R-squared	P- Value
Breusch-Godfrey Serial Correlation LM Test:	1.238259	3.259226	0.1960
Heteroskedasticity Test: Breusch-Pagan-Godfrey	0.198696	1.269906	0.9380
Histogram Normality test	--	--	0.684093

Source: Based on author's calculation.

Here we choose Obs*R-squared and the corresponding P- value which is greater than 5 percent in above three cases so here we cannot reject null hypothesis. The null hypothesis are not serially correlated, residuals are homoscedasticity, residuals are normally distributed which is desirable for the Error Correction Model. So in conclusion this error correction model is accepted.

5.2.4 Result of First Difference Granger Causality Test

It cannot be rejected the null hypothesis because P- value is greater than 5 percent, meaning there is no short run and long run relationship among the variables. (Appendix -II)

Conclusion

Remittance impact on GDP is statistically significant. Model I is also statistically significant and fit. As the same way in model II REM, FDI and EXP are statistically significant to the GDP but IMP is statistically insignificant to GDP. Model II is overall statistically significant. In unit root test all the variables got unit root at level series but if all the data have been converted into the first difference series variables got stationary. So the series are integrated of order one I.e. I (1) meaning they have a long run relationship. After running the Error Correction Model (ECM) the model is not a spurious model. This model is free from the autocorrelation, heteroscedasticity and residuals are normally distributed.

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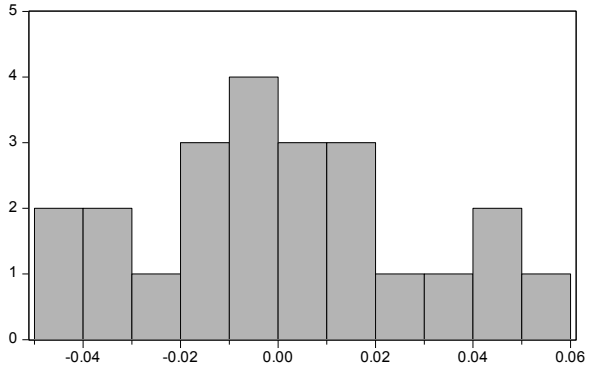
APPENDIX- I

Error Correction Model (ECM) Test of Normality, Serial Correlation and heteroskedasticity



Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.238259	Prob. F(2,15)	0.3179
Obs*R-squared	3.259226	Prob. Chi-Square(2)	0.1960

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 04/20/16 Time: 12:57
Sample: 2 24
Included observations: 23
Presample missing value lagged residuals set to zero.

Variables	Coefficients	Std. Error	t-Statistic	Prob.
C	-0.009178	0.013573	-0.676217	0.5092
D(LNREM)	0.015576	0.020066	0.776239	0.4497
D(LNFDI)	0.003524	0.014550	0.242180	0.8119
D(LNEXP)	0.032058	0.059623	0.537672	0.5987
D(LNIMP)	0.004812	0.060372	0.079705	0.9375
ECT(-1)	-0.080072	0.125579	-0.637622	0.5333
RESID(-1)	0.509761	0.328058	1.553878	0.1411
RESID(-2)	-0.170114	0.356499	-0.477178	0.6401

R-squared	0.141705	Mean dependent var	-1.06E-17
Adjusted R-squared	-0.258832	S.D. dependent var	0.027624
S.E. of regression	0.030994	Akaike info criterion	-3.841861
Sum squared resid	0.014409	Schwarz criterion	-3.446906
Log likelihood	52.18140	Hannan-Quinn criter.	-3.742531
F-statistic	0.353788	Durbin-Watson stat	2.010127
Prob(F-statistic)	0.915159		

Heteroskedasticity Test : Breusch-Pagan-Godfrey

F-statistic	0.198696	Prob. F(5,17)	0.9586
Obs*R-squared	1.269906	Prob. Chi-Square(5)	0.9380
Scaled explained SS	0.439723	Prob. Chi-Square(5)	0.9942

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 04/20/16 Time: 12:58
Sample: 2 24
Included observations: 23

Variables	Coefficients	Std. Error	t-Statistic	Prob.
C	0.000911	0.000350	2.600724	0.0187
D(LNREM)	-0.000339	0.000509	-0.665748	0.5145
D(LNFDI)	-0.000300	0.000429	-0.698600	0.4942
D(LNEXP)	-0.000717	0.001662	-0.431130	0.6718
D(LNIMP)	0.000280	0.001770	0.158372	0.8760
ECT(-1)	0.000223	0.003275	0.068209	0.9464

R-squared	0.055213	Mean dependent var	0.000730
Adjusted R-squared	-0.222665	S.D. dependent var	0.000840
S.E. of regression	0.000929	Akaike info criterion	-10.90519
Sum squared resid	1.47E-05	Schwarz criterion	-10.60897
Log likelihood	131.4097	Hannan-Quinn criter.	-10.83069
F-statistic	0.198696	Durbin-Watson stat	1.767283
Prob(F-statistic)	0.958633		

APPENDIX- II

Result of First Difference Granger Causality Test

Pairwise Granger Causality Tests
Date: 04/20/16 Time: 13:05
Sample: 1 24
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
D(LNREM) does not Granger Cause D(LNGDP)	21	0.11940	0.8882
D(LNGDP) does not Granger Cause D(LNREM)		0.80976	0.4624
D(LNFDI) does not Granger Cause D(LNGDP)	21	0.87838	0.4346
D(LNGDP) does not Granger Cause D(LNFDI)		1.31695	0.2955
D(LNEXP) does not Granger Cause D(LNGDP)	21	1.11528	0.3520
D(LNGDP) does not Granger Cause D(LNEXP)		1.87087	0.1862
D(LNIMP) does not Granger Cause D(LNGDP)	21	0.00291	0.9971
D(LNGDP) does not Granger Cause D(LNIMP)		3.01974	0.0772
D(LNFDI) does not Granger Cause D(LNREM)	21	2.79478	0.0910
D(LNREM) does not Granger Cause D(LNFDI)		1.43421	0.2673
D(LNEXP) does not Granger Cause D(LNREM)	21	0.63854	0.5410
D(LNREM) does not Granger Cause D(LNEXP)		0.60419	0.5585

D(LNIMP) does not Granger Cause D(LNREM)	21	1.49920	0.2531
D(LNREM) does not Granger Cause D(LNIMP)		1.04765	0.3736
D(LNEXP) does not Granger Cause D(LNFDI)	21	0.91668	0.4199
D(LNFDI) does not Granger Cause D(LNEXP)		0.29483	0.7486
D(LNIMP) does not Granger Cause D(LNFDI)	21	2.50414	0.1132
D(LNFDI) does not Granger Cause D(LNIMP)		0.42208	0.6628
D(LNIMP) does not Granger Cause D(LNEXP)	21	1.94485	0.1754
D(LNEXP) does not Granger Cause D(LNIMP)		0.68471	0.5184

Source: Author's calculation

APPENDIX – III

Gross Domestic Production (GDP), Remittance (REM), Foreign Direct Investment (FDI), Export (EXP) and import (IMP) in Nepal over twenty four years (Rs. in millions)

YEAR	GDP	REM	FDI	EXP	IMP
1990/91	120370	549.70	398.51	5763.4	7745.9
1991/92	149487	423.60	406.28	10020.6	8349.1
1992/93	171492	549.70	597.84	10389.5	11255.3
1993/94	199272	223.00	3083.67	16033.2	18638.5
1994/95	219175	2906.70	1378.76	15624.5	21527.3
1995/96	248913	2660.20	477.59	14719.4	21361.5
1996/97	280513	2938.00	2219.86	15603.9	24099.7
1997/98	300845	4084.20	2396.00	16255.3	29590
1998/99	342036	6520.60	2000.00	18766.6	34185.9
1999/2000	379488	6031.40	1666.00	23724.4	41152.2
2000/01	441519	9797.60	1418.00	29789.7	66569
2001/02	459443	14859.80	3103.00	18311	52791.4
2002/03	492231	41630.00	1210.00	22578.9	64296.7
2003/04	536749	56629.80	1794.00	22490	71494.9
2004/05	589412	61784.80	2765.00	20851.9	63086.7
2005/06	654084	92748.60	1636.00	21738.5	67684.3
2006/07	727827	107417.40	2606.00	22366.8	74881.8
2007/08	815658	139421.50	3227.00	28663.2	93727.2
2008/09	988272	194215.60	9811.00	40496.5	132931.2
2009/10	1192774	213998.90	6245.00	44395.5	141258.5
2010/11	1366954	255943.00	9100.00	38450.6	132749.6
2011/12	1527344	333366.80	10051.00	52983.2	156750.4
2012/13	1695643	394348.70	7141.00	64325	190312
2013/14	1941617	490303.00	9509.00	74822	227245

Sources: *Economic Surveys 2008/09, 2009/10, 2010/11and 2014/15*

APPENDIX – IV

Natural log value of Gross Domestic Production (GDP), Remittance (REM), Foreign Direct Investment (FDI), Export (EXP) and import (IMP) in Nepal over twenty four years.

YEAR	LnGDP	LnREM	LnFDI	LnEXP	LnIMP
1990/91	11.69833	6.30937	5.98773	8.659283	8.954919
1991/92	11.91496	6.04879	6.00704	9.212398	9.029909
1992/93	12.05229	6.30937	6.39332	9.248551	9.328594
1993/94	12.20243	5.40717	8.03388	9.682417	9.832985
1994/95	12.29763	7.97477	7.22894	9.656595	9.977077
1995/96	12.42486	7.88616	6.16875	9.596922	9.969346
1996/97	12.54438	7.98548	7.7052	9.655276	10.08995
1997/98	12.61435	8.31488	7.78156	9.696174	10.29519
1998/99	12.74267	8.78272	7.6009	9.839834	10.43957
1999/2000	12.84658	8.70473	7.41818	10.07426	10.62503
2000/01	12.99798	9.18989	7.257	10.30192	11.10599
2001/02	13.03777	9.60641	8.04012	9.815257	10.8741
2002/03	13.1067	10.6366	7.09838	10.02477	11.07126
2003/04	13.19329	10.9443	7.4922	10.02083	11.17738
2004/05	13.28688	11.0314	7.9248	9.9452	11.05227
2005/06	13.39099	11.4376	7.40001	9.98684	11.12261
2006/07	13.49782	11.5845	7.86557	10.01533	11.22367
2007/08	13.61175	11.8453	8.07931	10.26337	11.44814
2008/09	13.80371	12.1767	9.19126	10.60897	11.79759
2009/10	13.99179	12.2737	8.73954	10.70089	11.85835
2010/11	14.1281	12.4527	9.11603	10.55713	11.79622
2011/12	14.23904	12.717	9.21543	10.87773	11.96241
2012/13	14.34357	12.885	8.87361	11.0717	12.15642
2013/14	14.47903	13.1028	9.15999	11.22287	12.33378

Source: *calculation based on appendix **III***