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Effectiveness of Foreign Aid on Economic Growth of Nepal

Nagendra Ray iD

Apex College, Kathmandu, NEPAL
Email: nagendra.ray@apexcollege.edu.np

ABSTRACT: This study investigates the impact of foreign aid on the economic growth of Nepal from 1975/76 to 2021/22, with a focus on the association between foreign aid and private investment. The research utilizes secondary data from the National Reserve Bank (NRB), Ministry of Finance (MOF), Central Bureau of Statistics (CBS), and other related government agencies. The study employs the models to analyze the impact of foreign aid on economic growth and investment in Nepal. The Ordinary Least Square (OLS) method is used to establish a simple relationship between the variables under study. The study reveals that foreign aid positively affects the GDP growth of Nepal and is inversely related to private investment. Based on these findings, the following recommendations are made:

Foreign aid plays a significant role in the development of some categories of people in Nepal, but most rural people do not benefit directly due to the ineffective use of foreign aid. The government should focus on improving the efficiency of foreign aid utilization to maximize its benefits for the entire population.

The government should prioritize projects and initiatives that promote economic growth and private investment, as these efforts can help create a more sustainable and prosperous future for the country.

In conclusion, this study highlights the importance of foreign aid in the economic development of Nepal and provides insights into the relationship between foreign aid, economic growth, and private investment. By implementing effective policies and strategies, the government can leverage foreign aid to foster economic growth and improve the lives of the Nepali people.

KEYWORDS: Foreign aid, Economic development, Private investment, Public investment, Gross domestic product, OLS

1. INTRODUCTION

Foreign aid is an ambiguous term which is alternatively called as "economic aid" or "external assistance" or "development assistance". It is called 'foreign' because it originates outside the national boundary of the recipient country; it is called 'aid' because it is not determined by the same principles, which governs the autonomous flows of trade and capital. Foreign aid is foreign resources minus foreign private investment (profit motive in commercial term). Foreign aid can be defined as the form of grants and loans on concessional terms. However, the standard definition of foreign aid comes from the Development Assistance Committee (DAC) of the Organization for Economic Cooperation and Development (OECD), which defines foreign aid as financial flows, technical assistance, and commodities that are designed to promote economic development and welfare.

Unfamiliar guide structures one of the biggest parts of unfamiliar capital streams to low-pay nations yet not to most center pay nations where confidential capital

streams are more significant (Radelet, 2006). The inquiry concerning what unfamiliar guide means for the financial development of emerging nations has drawn the consideration of numerous researchers over the long run. The consequences of their examinations have been differed. Papanek (1972) and Fayissa and El-Kaissy (1999) tracked down a positive connection among help and development. The discoveries of Singh (1985) and Snyder (1993) were on the side of the positive relationship however contingent to the prohibition of state intercession and thinking about country size. Burnside and Dollar (1997), and World Bank (1998) underscored that great strategy climate was fundamental for this positive relationship to happen. In particular, the World Bank (1998) concentrate on noticed that agricultural nations with sound arrangements and excellent public foundations had become quicker than those without them at 2.7 percent per capita Gross domestic product and 0.5 percent per capita Gross domestic product separately. In such manner, one percent of Gross domestic product in help under ordinary situation meant a supported expansion in development of 0.5 percent per capita. A few nations with sound strategies got just limited quantity of help, at this point they actually accomplished 2.2 percent per capita development. The gatherings that were described with great administration and got more guide developed a lot quicker at 3.7 percent per capita Gross domestic product.

Foreign aid is money, materials, and services given or loaned by governments, organizations, and individuals in rich countries to help people in poor countries. According to the OECD (2004), foreign aid is defined as an official development assistance (ODA) given to the developing countries for the promotion of economic development and welfare including humanitarian and emergencies aid. There are two components of foreign aid: grants and loans. Grants component of aid are free resources for which no repayment is required. A loan with at least 25 per cent of grant component is considered as foreign aid. Grants components are measured in terms of interest rate, maturity and grace period (interval to first repayment of capital) of a loan. It measures the concessionality of a loan in the form of the present value of an interest rate below the market rate over the life of a loan.

In accordance with the previous examinations, Singh (1996) in an illustrative examination found that unfamiliar guide neglected to help financial development in Nepal. Singh called attention to that needy individuals didn't profit from help; rather the fundamental recipients of help were high-positioning authorities, administering legislators, project workers, and experts. In this manner, help chiefly helped the rich, which made imbalance the nation over.

Khadka (1996) analyzed the connections among help and some keys of macroeconomic factors, like utilization, speculation and financial development in Nepal, for the period 1960-90. He found a positive relationship among's Gross domestic product and per capita help, which he trusted unreasonable given the present status of the economy. In this manner, Khadka, in view of his spellbinding examination, reasoned that unfamiliar guide neglected to further develop levels of pay, reserve funds and venture. In any case, in another review, involving a straightforward relapse examination for the period 1960-90, Khadka (1997) found that help decidedly affected the development of Gross domestic product. In this review, he involved just respective distributions for help information and avoided multilateral payment. Besides, he remembered no approach factors for the model with the exception of commodities and imports. In this manner, the review doesn't give an unmistakable image of help viability in Nepal.

It is obvious that, albeit these examinations have put forth a few attempts in looking at the issue of help viability in Nepal, they have neglected to arrive at an overall agreement. All the more critically, they have not utilized time-series econometric methods that have been grown as of late to improve the heartiness of discoveries by barring the chance of a deceptive relationship.

2. STATEMENT OF PROBLEM

The issue of economic development in Nepal has been a subject of empirical analysis in recent years. Several studies have examined the impact of foreign aid on economic growth in Nepal, but the findings have been mixed. For instance, Bhattarai (2009) found a positive relationship between foreign aid and growth in Nepal, while Singh (1996) found that foreign aid failed to help economic development in the country. Similarly, Mishra, Aithal, and Saremi (2020) examined the financial mobilization status of the People Housing Program in Nepal and found that the program faced several challenges due to inadequate funding. In another study, Mishra and Aithal (2022) emphasized the importance of green financing in Nepal to promote sustainable economic development. These studies highlight the need for effective policies and strategies to promote economic development in Nepal, including the proper management of foreign aid and the adoption of sustainable financing practices (Bhagat, C., Mishra, A. K., &Aithal, P. S., ,2022: Mishra, A.K.,, Kandel, D.

R.,&Aithal, P.S., 2021).These investigations additionally couldn't think about the long-run and short-run elements of help development relationship. Moreover, they have not reached to perceive expressly that the guide viability issue ought to likewise be inspected according to the point of view of monetary way of behaving as help is at last directed through the public authority.

The main objective of this study is to explore the impact of foreign aid on economic growth of Nepal. Specifically, the study aims to identify factors that affect the effectiveness of foreign aid in enhancing investment and growth. Thus the specific objectives of the study are: To review the trend and structure of foreign aid in Nepal, To identify the effect of foreign aid on private investment in Nepal for 47 fiscal years and to measure the effect of foreign aid on economic growth from FY 1975/76 – 2021/22

3. REVIEW OF LITERATURE

A lot of writing has inspected the impact of unfamiliar guide on financial development. Since foreign aid and economic growth has been a widespread topic on economic research, there exist a huge number of studies. I have presented some of the existing literatures that I found relatively important for understanding the subject matter and for the evolution of this article.

Mishra and Aithal (2021) Came about that the genuine Gross domestic product and Help are profoundly related. The relapse line is all around fit and made sense of that 85% genuine Gross domestic product relies upon Swiss guide and the leftover 14% different factors. The coefficient of LNTAD is 0.35 and it shows that one percent expansion in the complete guide increments genuine Gross domestic product by 0.35 percent. The coefficient of LNTAD is positive and critical, implying that the expansion in the all out help increments financial development in Nepal. By utilizing Brush-Godfery LM test, the P esteem is in excess of 5 five percent, which is 32% shows that there is no autocorrelation among the mistake terms.

Mishra & Aithal (2021) founded that in FY 2014/15, the total foreign aid commitment increased by totaling to Rs.1195.5 million as compared to Rs.2125.9 million in FY 2014/15. Of the total commitment in FY 2014/15 the contribution of bilateral aid was totaling and multilateral aid contributed. While categorizing the total foreign aid the share of grant assistance constituted and loan assistance million. In FY 2014/15 the foreign grant assistant subsequently increased by whereas foreign loan assistance decreased. The bilateral aid disbursement was out of total bilateral aid commitment. Multilateral aid disbursement was 56 percent. The amount of loan is

increasing in the economy. This condition also indicates that in future debt burden in budgetary system is directly reducing the development expenditure which decreases the flow of budget in poverty reduction sectors. In amount Swiss aid is much less but is efficiency is widespread in increasing people's living standard. Due to 100% grant Swiss aid doesn't create fiscal burden in the economy.

Pradhan & Phuyal (2020). The discoveries of the review shows that there is a positive however not huge connection between unfamiliar guide and monetary development since unfamiliar award is expanding in lower rate than that of unfamiliar credits. This study saw that unfamiliar guide needs has moved from creation to non-creation for example compassionate and social help area hence offering less to Gross domestic product when contrasted with other full scale financial factors as speculation and settlement. If there should arise an occurrence of unfamiliar help, unfamiliar credit has expanded massively when contrasted with unfamiliar awards. This has expanded the weight of obligation on people in the future. In any case, the review shows that settlement has albeit not huge however regrettable relationship with Gross domestic product. This might be because of purpose of settlement inflows in utilization as opposed to venture. In the mean time, workforce and slacked Gross domestic product shows huge positive relationship with Gross domestic product which suggests that rising workforce has prompted expansion in Gross domestic product and Gross domestic product from earlier year is being utilized as capital in the ongoing year.

Dreher and Langlotz (2015) inspected the effect of help and development involving an excludable instrument for 96 nations from 1974 through 2009. They inferred that there was no effect of help on development. Then again, Galiani et al. (2016) researched the impact of help on development involving a semi try for 35 nations from 1987 through 2010. They tracked down a positive connection among help and financial development. From the writing overview over, one could see that the effect of unfamiliar guide on monetary development is uncertain with contrasts experimental outcomes regarding information, econometric strategy and geological nations applications.

Basnet (2013). This study inspects the viability of unfamiliar guide on development and homegrown investment funds utilizing a synchronous condition framework. The significant finding of this paper is that unfamiliar guide fundamentally affects development in five South Asian nations. Our outcomes uncover a negative connection between unfamiliar guide and

homegrown reserve funds and there is no vagueness that unfamiliar guide unfavorably influences homegrown investment funds in South Asian Nations during the review time frame. The outcomes are vigorous. Our outcomes raise a vital strategy issue that is the beneficial outcome of help on development may be counterbalanced by the adverse consequence on homegrown saving. Consequently, help beneficiary nations ought to gauge the net impact.

Liew et al. (2012) applied the pooled conventional least squares, irregular impact, and fixed impact models to analyze the effect of unfamiliar guide on monetary development in East African nations somewhere in the range of 1985 and 2010. They found that a negative relationship existed between unfamiliar guide and financial development.

Concentrates on finished in the Asian nations have tracked down a positive relationship among help and monetary development. Asteriou (2009) explores the long-run connection between unfamiliar guide and financial development in five South Asian economies and tracked down a positive connection among help and Gross domestic product development. Bhattarai (2009) looks at the impact of help on monetary development for Nepal and presumes that help is emphatically connected with per capita genuine Gross domestic product over the long haul.

Burke and Almadi-Esfahani (2006) test the viability of help in advancing development in three South East Asian nations involving a concurrent model where development and reserve funds not entirely settled. Their discoveries show that help irrelevantly affected the development paces of the testing nations during 1970-2000 and didn't uproot homegrown reserve funds. Dhakal, Upadhyaya and Upadhay (1996) direct a causality test between unfamiliar guide and monetary development for four Asian and four African nations and find that with the exception of Kenya and Nepal, unfamiliar guide is emphatically and fundamentally connected with financial development. Concentrates by Rana and Dowling (1988) and Dowling and Heimenz (1983) likewise found that unfamiliar capital streams have made a positive commitment to the development of Asian non-industrial nations.

A few specialists found that a negative relationship existed between unfamiliar guide and financial development (Gong and Zou, 2001; Mallik, 2008; Mitra and Hossain, 2013; Mitra et al., 2015). Gong and Zou (2001) found that unfamiliar guide diminished capital gathering and the work supply. They proposed that unfamiliar guide would expand the expenditure of residents, while unfamiliar guide might make more relaxation time for residents, in this manner diminishing the work supply. In any case, Mallik (2008) reasoned that unfamiliar guide adversely affected financial development over the long haul. This outcomes in a "drawn out pernicious impact of global guide on expectations for everyday comforts". Utilizing the Philippines, Mitra and Hossain (2013) saw that as expanded of 1% in the unfamiliar guide prompted a financial development diminished of 0.51%. Moreover, Mitra et al. (2015) tracked down the negative connection between unfamiliar guide on monetary in short run and long run for 13 Asian economies. They presumed that expanded of 1% in unfamiliar guide prompted a financial development diminished of 0.18% in Asian economies.

Karras (2006) likewise found a positive effect of unfamiliar guide on financial development utilizing information from 1960 through 1997 for 71 non-industrial nations. Utilizing a pooled mean gathering assessor (PMG), Ndambendia and Njoupouognigni (2010) tracked down a positive effect of unfamiliar guide on financial development in Sub-Saharan Africa.

Bista (2006). The paper recommends that help has not exclusively been immaterial to development in Nepal, it adversely affects the nation's economy. Help has upgraded inappropriate legislative strategies and practices, has been expanding the consistently apparent weight of obligation, and has produced adverse consequence to the commodity area. Either the givers have fanciful assumptions from Nepal, or the Nepalese government just comes up short on capacity to appropriately deal with any types of assets. The public authority is backing on its execution of the tenth intend to assuage the country from every one of its tragedies and difficulty.

Papanek (1973) utilized a cross-country relapse to inspect the effect of unfamiliar guide on financial development and tracked down a positive connection between unfamiliar guide and monetary development. Singh (1985) applied a common least squares (OLS) model to research the effect of unfamiliar guide on financial development. He found that unfamiliar guide added to financial development somewhere in the range of 1970 and 1980 in LDC.

Levy (1988) examined the effect of help on financial development in Sub-Saharan African and presumed that a positive relationship exists among help and monetary development. Burnside and Dollar (2000) recommended that great financial, money related and exchange strategies decidedly affected help and monetary

development in emerging nations. Utilizing nine years perceptions, Cungu and Swinnen (2003) applied POLS and fixed impact to look at the effect of help on financial development. They tracked down that positive effect among help and monetary development. Dalgaard et al. (2004) inferred that unfamiliar guide decidedly affected financial development, while the extent relied upon the environment conditions. Breaking down Sub-Saharan African nations, Gomanee et al. (2005) tracked down a similar outcome as Levy (1988).

Different specialists observed that a connection among help and monetary development was unimportant. Mosley et al. (1987) reasoned that help no affected monetary development. The aftereffects of Boone's (1996) study agreed with that of Mosley et al. (1987). Lensink and Morrissey (2000) found that an irrelevant connection between unfamiliar guide and monetary development existed.

4. RESEARCH METHODOLOGY

This study analyzes the effects of foreign aid on economic growth of Nepal; it is based on time series data for 47 years (1975-2021) which has been published by Ministry of finance, Central bureau of statistics and Nepal Rastra Bank. The main objective of the study is analyzing of long run effect of foreign aid or association of foreign aid and economic growth in Nepal instead of consumption function so that the model including major determinants of national economic growth of Nepal as explanatory variables as (*POPt, EXPt, IMPt, CPIt, SAVt, EDBt, EXRt*) are selected. The use of natural logarithm permits to interpret the coefficients as elasticities. However, some economists are using other models like recursive model, simultaneous equation model and dynamic model.

4.1 Model Specification

In general, Most of the growth models have their foundation on neoclassical framework of the model (1956). This framework developed by the Solow[2] takes as its preliminary point on aggregate production function relating output to factor inputs and the variables that generally referred to as a total factor productivity (Reinhart and Khan, 1989): can be stated as follows:

$$Y_t = Af(K_t, L_t, Z_t)........................(1)$$

The Solow model succeeds in explaining all stylized facts of economic growth in industrialized countries. The key element of the model is the neoclassical constant-returns production function. Since returns to capital alone are decreasing, economies grow faster at lower levels of capital, until they approach the steady state, where units of effective labor and capital grow at the same rate.

Where,

Y_t = the level of output.

K_t = the stock of physical capital.

L_t = the labour force.

Z_t = a vector including other factors of economic growth.

A = a measure of factor productivity.

Equation 1 can be written in growth term as follows

$$\frac{dY_t}{Y_t} = [A \bullet \frac{\partial Y_t}{\partial K_t}]\frac{dK_t}{Y_t} + [A \bullet \frac{\partial Y_t}{\partial L_t} \bullet \frac{L_t}{Y_t}]\frac{dL_t}{L} + [A \bullet \frac{\partial Y_t}{\partial Z_t} \bullet \frac{Z_t}{Y_t}]\frac{dZ_t}{Z_t} + \frac{dA}{A} ....(2)$$

For the purposes of estimation equation 2 can be expressed as

$$\frac{\Delta Y_t}{Y_{t-1}} = \beta_0 + \beta_1 \frac{I_t}{Y_{t-1}} + \beta_2 \frac{\Delta L_t}{L_{t-1}} + \beta_3 \frac{\Delta Z_t}{Z_{t-1}}.................... (3)$$

Where,

$\beta_0 = (dA)/(A)$

$\beta_1 = A \bullet (\partial Y_t)/\partial K_t$

$\beta_2 = A \bullet (\partial Y_t)/\partial L_t \bullet (L_t)/Y_t$

$\beta_3 = A \bullet (\partial Y_t)/\partial Z_t \bullet (Z_t)/Y_t$

And $I_t = dK_t$

The constant term (β_0) is assumed to capture the growth in productivity, β_1 is the marginal productivity of capital, β_2 is the elasticity of output with respect to labor and β_3 is the elasticity of output with respect to other factors.

The degree of innovation can be impacted by unfamiliar guide, since help adds to the obtaining of specialized information in emerging nations (see Islam, 2003 and Marvotas, 2002). This occurs through two channels: (1) importation of capital gear and (2) specialized help. Help funds capital imports like apparatus and gear from created nations. The import of new gear presents new innovation as well as overhauls nearby mechanical information. With regards to Nepal, during the 1990s more than 40% of complete guide came as specialized help (HMG/N, 2002). Hence, it is sensible to accept that unfamiliar guide influences Gross domestic product development through innovative advancement as specialized help adds to further developing foundations and strategies.

So, in this study to clarify contribution of foreign on growth, the growth function developed by Karras (2006) is used in following modified form.

$Y_t = F (FA_t, POP_t, EXP_t, IMP_t INFL_t, SAV_t) \dots (4)$

Foreign aid consist of external debt (foreign loan), external debt is one of the source of financing capital in an economy. Countries at early stages of development have small stocks of capital and require foreign borrowing for their investment needs and meet their external resource gap. Nepal's dependence on foreign assistance, nearly for the last five decades, can be viewed from the same perspective. Most of the studies showed that external borrowing has positive impact on economy.

In this regard one of the objectives of the present study is to examine impact of external debt on growth. For this the model developed by Solow (2000) in modified form is adopted as follows

$Y_t = f (EDB_t, POP_t, EXR_t, INFL_t,) \dots \dots (5)$

Neo-Keynesian and Neo-exemplary venture hypothesis recommend speculation is emphatically connected with the development of genuine Gross domestic product. Venture is partitioned into public speculation and confidential speculation. There is proof that piece of the clarification for the effect of public venture increment is that there seems, by all accounts, to be swarming out of confidential speculation, as high open speculation is related with lower private venture to-Gross domestic product proportion. Many investigations showed that unfamiliar guide positive effect of private venture. In Nepal the portion of private venture is more than that of public speculation so this study attempts to figure out the effect of unfamiliar guide on confidential speculation on for this current review embraced the model created by Daniel M'Amanja and Oliver Morrissey (2006) as follows

$PIV_t = f (GIV_t, FA_t, IMP_t, INFL_t,) \dots \dots (6)$

The notations in equation 4 to 6 stand for:

Y_t = Gross Domestic Product (In Real term)

FA_t = Foreign aid

POP_t = Population (Economically active labor force)

EXP_t = Export

IMP_t =Import

$INFL_t$ = Inflation

SAV_t = Saving

EDB_t = External debt

EXR_t = Exchange rate

PIV_t = Private investment

GIV_t = Government investment

t = time period expressed in year.

To assess the functional relationship of variables used in above equation, it is converted into econometric models as

The First Model

$Y_t = \alpha_0 + \alpha_1 FA_t + \alpha_2 POP_t + \alpha_3 EXP_t + \alpha_4 IMP_t + \alpha_5 INFL_t + \alpha_6 SAV_t + u_t \dots (7)$

$Y_t = \beta_0 + \beta_1 EDB_t + \beta_2 POP_t + \beta_3 EXR_t + \beta_4 INF_t + v_t \dots (8)$

$PIV_t = \delta_0 + \delta_1 GIV_t + \delta_2 FA_t + \delta_3 IMP_t + \delta_4 INF_t + w_t \dots (9)$

Where,

α_i (i = 0, 1, 2, --------7) = Parameters to be estimated.

u = Stochastic error terms.

t = 1, 2, 3.   T = the period of time, years

In model I, effect of foreign on economic growth has been presented. In model II, Total aid is divided into internal debt and external debt. The model examines the overall effect of all given factors on economic growth. This allows us to compare the effect of all repressors, especially foreign aid and domestic aid on economic growth. In model III, foreign assistance and government investment to the private investment has been shown.

4.2 Complementary Effect of Foreign Assistance on Domestic Private Investment and Economic Growth

Model I, presents a reduced-form of the estimation equation in which the impact of foreign assistance captures not only the direct productivity impact of public capital but also the improvement to productivity through stimulation of domestic private investment. However, there is evidence that part of the explanation for the impact of public investment increase is that there appears to be crowding-out of domestic private investment and foreign assistance - GDP ratio. Following the approach by Double log model (also called log linear model) is used to find the partial elasticity and the obtained results are presented in percentage form (Gujarati, 2006) and economic growth is expressed, as follows:

Model 1

$$LogY_t = \alpha_0 + \alpha_1 LogFA_t + \alpha_2 LogPOP_t + \alpha_3 LogEXP_t + \alpha_4 LogIMP_t + \alpha_5 LogINFL_t + \alpha_6 LogSAV_t + u_t \dots\dots(10)$$

FA_t = Foreign assistance (Foreign aid and Foreign debt) is direct related with the GDP growth of the nation.

4.3 Aggregate Effect of Foreign debt on Economic Growth

Model II, presents complementary effect of external debt on economic growth. However, there is need to find out aggregate effect of foreign debt and domestic debt on growth so model 2 is restructured by incorporating foreign assistance on private investment.

$$LogPIV_t = \delta_0 + \delta_1 LogGIV_t + \delta_2 LogFA_t + \delta_3 LogIMP_t + \delta_4 LogINF_t + w_t\dots\dots\dots(12)$$

4.4 Methods of Analysis

The ordinary list square method (OLS) has been used to estimate and analyze the coefficients. This paper intends to use the following methods of analysis.

Residual Test

The serial correlation is tested by using Breusch-Godfrey Serial Correlation LM tests in this study. The heteroscedasticity is checked by using Breusch-Pagan Godfrey test. Accordingly, Jarque-Bera test is used to test the normality of residuals. Similarly, Cumulative Sum test and cumulative sum of square test are used to test the stability of the models.

5. IMPIRICAL ANALYSIS

5.1 The empirical result on the basic model I

The empirical results on the basic model 1 which explore the impact of foreign aid on economic growth of Nepal are given in the Table 4.1
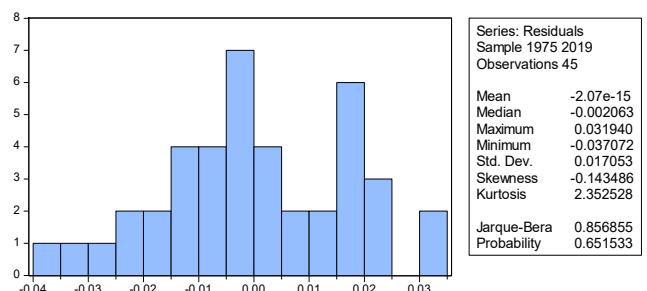
Table 4.1: Regression Results of Model I

Variables	Coefficients	Standard Error of Coefficients	t-statistics	P-value
LFA	0.0562	0.0173	3.2485	(0.0051)*
LPOP	0.8346	0.8243	1.0125	(0.3384)
LEXP	0.0534	0.0167	3.1976	(0.0013)*
LIMP	-0.4126	0.0542	-7.6125	(0.0000)*
LINF	-0.0827	0.0102	-8.1078	(0.0000)*
LSAV	0.0424	0.0164	2.5854	(0.0143)**
C	0.7024	0.1287	5.4577	(0.0000)*
R^2 = 95.83 Adjusted R^2 = 95.17		DW = 1.873 N = 45 after adjustments F= 145.67 Probability of F statistics = (0.0000)*		

Notes: An asterisk (*) and double asterisk (**) denote the statistical significance at the 1 percent and 5 percent levels, respectively.

Source: Author's calculations.

The table 4.1 shows that the variables LFA, LEXP, and LIMP, LINF and constant term, are significant at 1 percent level, and LSAV is statistically significant at 5 percent level whereas the variable LPOP is insignificant. The adjusted coefficient of determination is 95.17percent. The F-statistics, which shows the overall fitness of the model, is statistically significant at one percent level of significance. The variables LFA, LEXP, LSAV have positive effect on growth and the variables LIMP and LINF has negative effect on growth.

Figure 5.13: Distribution of Residuals of Model I

Series: Residuals	
Sample 1975 2019	
Observations 45	
Mean	-2.07e-15
Median	-0.002063
Maximum	0.031940
Minimum	-0.037072
Std. Dev.	0.017053
Skewness	-0.143486
Kurtosis	2.352528
Jarque-Bera	0.856855
Probability	0.651533

Source: Based on the Apendix V

5.2 The empirical result on the model II

The regression results of alternative specification **model II** are presented below.

The empirical results on the basic model which explore effect of external debt on economic growth of Nepal are given in the Table 4.2

Table 4.2: Regression Results of Model II

Variables	Coefficients	Standard Error of Coefficients	t-statistics	P-value
LEDBT	0.1164	0.0272	4.2794	(0.0002)*
LPOP	0.4107	0.8674	0.4735	(0.0923)
LEXR	-0.0297	0.0198	-1.3586	(0.0370)**
LCPI	-0.0146	0.0114	-1.2807	(0.0410)**
C	0.6687	0.0913	7.3242	(0.0000)*
R^2 = 95.83 Adjusted R^2 = 95.16		DW = 1.914 N = 45 after adjustments F= 145.6721 Probability of F statistics = (0.0000)*		

Notes: An asterisk (*) and double asterisk (**) denote the statistical significance at the 1 percent and 5 percent levels, respectively

Source: Author's calculations.

The table 4.2 shows that, the variables LEXR and LCPI are significant at 5 percent significance level whereas the LEDBT and constant term is statistically significant at 1 percent level. The variable LPOP is insignificant. The adjusted coefficient of determination is 95.16 percent. The F-statistics, which shows the overall fitness of the model, is statistically significant at 1 percent level of

significance. The variables EBDT and LPOP have positive effect on growth and the variables LEXR and LCPI have negative effect on growth.
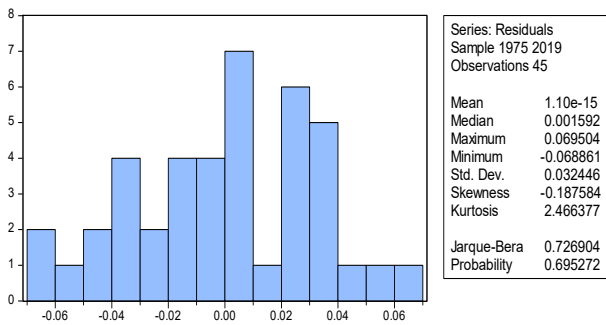

Figure 5.14: Distribution of Residuals of Model II

Source: Based on the Apendix VI

Regression Results of Model III

To test aggregate effect of public investment and consumption on economic growth, the model 2 is restructured by including the variable LGVI and LFA. The regression results of alternative specification **model 3** are presented below. The empirical results on the basic model which explore effect of foreign aid on private investment are given in Table 4.3

Table 4.3: Regression Results of Model III

Variables	Coefficients	Standard Error of Coefficients	t-statistics	P-value
LGVI	-0.0845	0.0101	-8.3663	(0.0000)*
LFA	-0.0619	0.0239	-2.5899	(0.0138)**
LIMP	-1.0215	0.0737	-13.8602	(0.0000)*
LCPI	-0.0478	0.0169	-2.8284	(0.0019)*
C	0.7995	0.0858	9.3182	(0.0000)*
R^2 = 98.41 Adjusted R^2 = 98.35		DW = 1.951 N = 45 after adjustments F= 1692.306 Probability of F statistics = (0.0000)*		

Notes: An asterisk and double asterisk denote the statistical significance at the 1 percent and 5 percent levels, respectively.

Source: Author's calculations.

The table 4.3 shows that the variables LGVI, LIMP, LCPI and constant term are significant at 1 percent significance level. Whereas the variable LFA is significant at 5 percent level of significance. The adjusted coefficient of determination is 98.41 percent. The F-statistics, which shows the overall fitness of the model, is statistically significant at 1 percent level of significance. The variables LGVI, LIMP, LCPI and LFA have negative effect on growth.
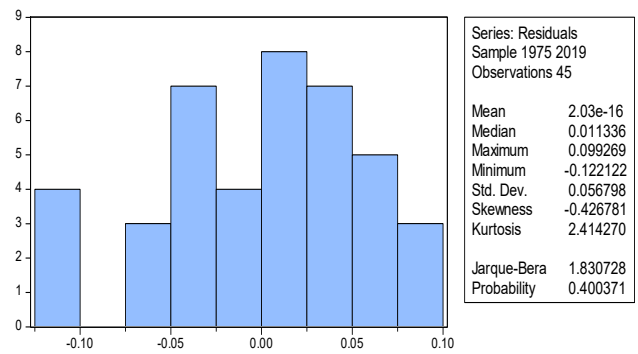

Figure 5.15: Distribution of Residuals of Model III

Source: Based on the Appendix VI

The Breusch-Godfrey Serial Correlation LM Test shows that there is no any serial correlation problem in any model used in this study as the p-value are more than 5 percent.

Results of Heteroscedasticity Test

The Breusch- Pagan Godfrey test is used to detect heteroskedasticity. There is no any problem of Heteroskedasticity in any model used in this study as the p-values are more than 5 percent. So, the residuals have equal variance.

Results of Normality Test

The sample period is just 44 which may not be enough for time series analysis. So, the residuals are not found normally distributed except model 5. The JarqueBera statistics was used to test normality.

6. CONCLUSION AND RECOMMENDATION

6.1 Conclusions

Foreign aid serves as an important source of fund for under-developed and developing countries. There have been countless arguments over the period on whether aid has been utilized effectively for the economic speed and growth of the recipient countries. Nepal is one of the least developed countries and it is highly dependent on foreign aid. Therefore, it is important to analyze the effectiveness of aid in the Nepalese economy.

The empirical analysis revels that the share of foreign assistance is increasing in the Nepalese economy. The average ratio of foreign assistances to GDP remains stick to 86.01%. While talking about composition of foreign assistance, the average share of multilateral loan to total external loan on review period stick on 82.01percent whereas the average shares of bilateral loan to total external loan is 17.39 percent. The share of internal borrowing is increasing as compare to external borrowing. The average annual growth rate of internal debt is 25.42 percent whereas the average annual growth rate of external debt is 20.73 percent.

The empirical results reveal there is positive relationship between foreign aid and growth of Nepal. It shows foreign aid is the tools of economic growth for developing countries like Nepal. Aid is not bad and must be effectively utilized to attain national objective. Similarly, external debt, export and saving are positively related with GDP and hence are the promoters to increase economic growth of Nepal. The empirical result revels that government investment, foreign aid, import and inflation are inversely related with private investment. Similarly, empirical result shows that exchange rate, inflation and import are negatively related with GDP.

6.2   Recommendations

From the empirical findings and conclusions, the following recommendations can be made for policy implications.

- Foreign aid played a positive role in improving economic growth of Nepal through financing investment by filling saving investment gap. Aid is not bad and must be effectively utilized to attain national objective.

- Foreign aid is composed of grants and loans, however the debt servicing associated with loan component of aid erodes the investment of a country which leads a larger loss in the present and future output of the country. Hence, external borrowing decision must be linked to a general policy frame work that will guarantee profitability of invested funds and generation of foreign exchange earnings for external debt servicing.

- The result revealed that inflation works against investment in the study period in Nepal. Since inflation (higher rate) is taken as an indicator of a government that has lost control over the management of the economy, it is capable of transmitting a negative signal for investment. Therefore, emphasis should be given to control inflation towards an acceptable level through the use of appropriate mix of fiscal and monetary policies. Such policies will have the tendency to minimize the unfavorable impact of inflation on entrepreneurs spending behavior and also benefit consumers to relieve the high cost of living associated with higher inflation.

- The Nepalese economy is characterized by low level of saving; therefore, foreign aid can be used to finance this problem and enhance economic growth. Loan assistances should be focuses on areas that help generate private sector activities and promote external sector transactions that enhance the foreign exchange earnings Capability.

- Government should utilize foreign assistance in projects and infrastructure development promising high returns on investments and government should analyze the various implications of each new loan before accepting it.

- The Foreign Aid Policy, 2002 emphasizes on the grant aid since it does not constitute the burden for the future generations and also does not constrain the already tight fiscal structure of Government. Nepal needs to encourage aid more in such form and utilize them most effectively. So, the government's policy will be to seek grants first and, in the event grant assistance is not forthcoming, seek highly concessional loans. Action will be taken to facilitate arrangements to obtain concessional loans.

- The government should develop a framework for recording and monitoring all contingent liabilities and also formulate and implement a policy for management of the contingent liabilities. Periodic reporting of the outstanding liabilities will also ensure transparency to the public and donor countries on the management of these debts.

- The government should continue to implement wider reforms that promote investment in Treasury bonds, and encourage institutional investors such as pension funds and insurance companies to invest in Treasury bonds. Sound corporate governance for these institutional investors is also necessary for their continued investment in government securities.

- Government ought to utilize the outer obligation on exceptionally useful areas which can add to take care of the guideline and interest and to assist with creating the capital arrangement. Government ought to move towards financial lopsidedness and solid monetary discipline through control of useless use and augmenting income assembly. The public authority ought to be adequately dynamic to keep up with serious areas of strength for the of observing, assessment and oversight which help to diminish defilement and to expand responsibility, obligation and execution

6.3   Limitations

There are few limitations of the study. First, there is methodological limitation of this study. The paper used simple ordinary least square (OLS) regression method. So, the conclusions drawn by this study may not match with the conclusions drawn by the study using other

methodology. Secondly, the annual data from government publications are used and it covers only from 1975-2022. Only limited variables like gross fixed capital formation, public investment, national GDP, private investment, inflation, etc are used

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