

# An assessment of the Determinants of Inflation in Nepal: A study between 1974/75 and 2021/22

**\*Hom Bahadur Chhetri**

## ABSTRACT

*Inflation is one of the important and interestingly touchy macroeconomic variables that influences other macroeconomic variables such as investment, consumption, saving and others. Therefore, it has become renewed interest in recent years mainly for both developed and developing countries. This paper examined the short-run and long-run relationship between inflation and its determinants in Nepal using time series data over the period of 1974/75-2021/22. The ARDL bound test approach to co-integration and error correction model have been used to examine the long-run and short-run relationship between variables. The results from ARDL bound test approach to co-integration show that broad money supply, Indian inflation and budget deficit have a significant positive effect on inflation while exchange rate negatively affect it in the long-run. The result from error correction model also found that Nepalese inflation and Indian inflation are significantly and positively related even in the short-run. However, real GDP affects inflation negatively as expected but it is statistically insignificant. A corollary of the results is that broad money supply, budget deficit, Indian inflation and exchange rate are the main drivers of inflation in Nepal.*

**Keywords:** ARDL, broad money supply, budget deficit, inflation, Nepal

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## INTRODUCTION

A modest level of inflation is considered to be desirable because it creates positive effect on investment, production and employment. Maintaining low and sustainable inflation brings stability to financial systems and encourages sustainable economic growth over the longer run (Fergusson, 2005). However, High and variable Inflation is a worldwide macroeconomic problem that leads to unpredictability in income and expenditure decisions of the different groups of the society; deforms economic growth; reduces savings and investments; and rises cost of capital and exacerbates the income inequality in society (NRB, 2007). High inflation adversely impacts the overall growth of the economy, generating motivations for households

and firms to curtail their horizons and to spend resources in handling inflation risk rather than directing on the most productive activities (Iqbal, Nadim & Akbar, 2022). One of the main objectives of both developed and developing economies is, therefore, to attain a moderate level of inflation (Tufail & Batool, 2013). The major factors that determine inflation in the economy are broad money supply, budget deficit, imported prices from international trade, gross domestic product and exchange rate of country's currency.

Money supply has a direct and proportional relation with inflation assuming the level of real output is constant and the velocity of money is constant (Fishers, 1911). Monetarists, believe that the money supply is the main determinant of economic growth in the short run and the price level over longer periods. Inflation is always and everywhere a monetary phenomenon and it occurs in the economy when the rate of growth of the money supply exceeds the growth rate of the real aggregate output in the economy (Friedman, 1963). Because of the inflationary consequences associated with excessive expansion of money supply, Friedman (1963) asserted that monetary policy should be done by targeting the growth rate of the money supply to maintain economic and price stability. If the government finances a deficit budget either by printing of money by the contra bank or through the open market operations, both of the measures change the nominal money supply in an economy and therefore change the price level (Duodu et al., 2022).

Due to the diverse views among these school of thoughts, numerous scholars have conducted comprehensive examinations of the connection between inflation and its determinants in both developing and developed nations, yielding varied outcomes (Neupane, 1992; Khatiwada, 1994; Mathema, 1998; Chaudhary and Xiumin, 2018; Kovanen, 2011; Adu & Marbuah, 2011; Nasir et al., 2020; Nguyen, 2015; Duodu et al., 2022; Byanjankar, 2020; Pandey, 2005; Poudyal, 2014; IMF, 2014; NRB, 2007).

In the context of Nepal, successive governments have made efforts to maintain a single digit as well as stable inflation rate with the aim of improving the wellbeing of citizens and boosting savings and investment decisions in the economy. However, these efforts have proven unsuccessful, as the inflation rate in the economy continues to fluctuate and remains near to double digits. The inflation rate of Nepal was 12.6 percent in 2008/09. This rate had decreased and reached to 8.3 percent in 2011/12. This rate had again increased and reached to 9.9 in 2012/13. Again, this rate had decreased to 7.2 percent in 2014/15 and increased to 9.9 in 2015/16. This rate had fall drastically to 4.2 percent in 2016/17 and remained stable until 2018/19. Again, this rate increased to 6.1 percent in 2019/20. In 2021/22, it has remained at

6.3 percent. This clearly shows that inflation has not been stable and hence could badly affect major economic decisions.

The issue of inflation has consistently captured the attention of numerous researchers in the field of economics as it influences major decisions such as investment, consumption and savings among others (Duodu et al., 2022). Additionally, inflation can lead to the failure of important policies or projects because it disrupts budget allocation, ultimately hindering the economic progress. Considering the adverse consequences of inflation is likely to have on economies as well as the livelihood and welfare of citizens, the dynamics of inflation, money supply and budget deficit have continuously received attention from both theoretically and empirical perspectives (Adom et al., 2018). Different scholars employ different methods to describe the phenomenon of inflation. Due to the complexity and uncertainty of inflation, different theories have been formed according to the influential factors of inflation (Wang, Wang, & Skare 2022). Price stability is the prime objective of monetary policy. It is not possible to carry out effective policy without understanding the main determinants of inflation. Therefore, it is necessary to study the relationships between inflation and its determinants in order to formulate correct policies regarding in Nepal. In this context, this paper aims to examine the short-run and long-run relationship between inflation and its determinates in Nepal.

The rest of the paper has been structured in the following manner: section 2 discusses the data and methods used in the study; section 3 presents the empirical results and the discussion and finally, section 4 concludes the paper with some policy implications.

## **DATA AND METHODS**

Theoretical framework as well as data and estimation techniques are presented in this section. This section is divided into three parts. Theoretical framework and model specification are presented in the first part of this section. The second part presents estimation strategy, whereas data and variable description are shown in third part.

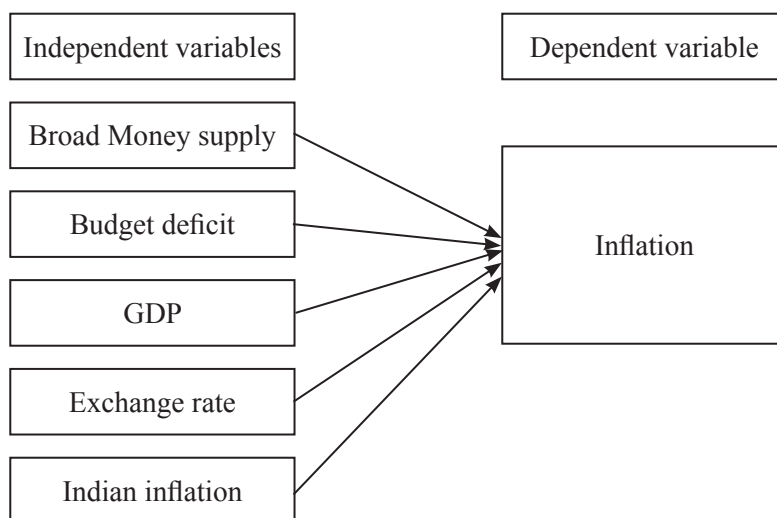
### **Theoretical Framework and Model Specification**

Inflation can be defined as the persistent and appreciable rise in the price level of goods and services in an economy. It is measured as the percentage change in the general price level of goods and services. The quantity theory of money states that inflation in the economy entirely depends on money supply. Inflation can be set in motion when budget deficits are

financed by the monetary authority, like the Central Bank. This can happen through means such as seigniorage, which involves the central bank creating money, or by supporting government expenditures through open market operations, which involve acquiring interest-bearing government securities. Due to more than two-thirds of Nepalese trade concentrated with India, the past studies showed that as inflation occurs in India it carries over in Nepal through trade. Therefore, this study has taken Indian inflation rate as an independent variable. Furthermore, this study has also considered real GDP and nominal effective exchange as independent variables. The conceptual framework has been shown in the following figure 1.

**Figure 1**

*Conceptual Framework*



This study has taken inflation as a dependent variable whereas broad money supply, budget deficit, Real GDP, Indian inflation and exchange rate are also considered as independent variables in the model. Based on Duodu et al. (2022), the study has specified the following functional form:

$$\text{LnNCPI}_t = f(\text{LnM2}_t, \text{LnBD}_t, \text{LnRGDP}_t, \text{LnNEER}_t, \text{LnICPI}_t) \dots\dots\dots (1)$$

Where,  $\text{NCPI}_t$ ,  $\text{M2}_t$ ,  $\text{BD}_t$ ,  $\text{RGDP}_t$ ,  $\text{NEER}_t$ , and  $\text{ICPI}_t$  represents Nepalese consumer price index, broad money supply, budget deficit, real gross domestic product, nominal effective exchange rate, Indian consumer price index and  $t$  denotes time trend. Ln denotes natural log form.

The econometric models of equation (1) can be written as:

$$\text{LnNCPI}_t = \alpha_0 + \beta_1 \text{LnM2}_t + \beta_2 \text{LnBD}_t + \beta_3 \text{LnRGDP}_t + \beta_4 \text{LnNEER}_t + \beta_5 \text{LnICPI}_t + \epsilon_t \dots\dots\dots (2)$$

$\alpha_0$  and  $\epsilon_t$  are the constant and the stochastic error terms, respectively, such that the error term is

normally distributed with a mean of zero and a constant variance [ $\epsilon_t \sim N(0, \sigma^2)$ ]. Again, the  $\beta$ 's (1, 2, 3, . . . , 5) are the respective coefficients of the variables to be estimated, and  $\ln$  denotes the natural logarithm.

**Estimation Strategy**

The study adopts the Autoregressive Distributed Lag (ARDL) bound test propounded by Pesaran and Shine (1999) and Pesaran et al., (2000) to test the hypothesis regarding the relationship between inflation and its determinants. As a prerequisite of the ARDL model, stationarity properties of the sampled variables in the study are checked to avoid inconsistent and unreliable results. The ARDL is applicable when the series are integrated of order zero [I (0)] (or at the level) or order one [I (1)] (or at the first difference) or fractionally (at the level and the first difference). The parametric Augmented Dickey-Fuller (ADF) test (Dickey & Fuller, 1979) and the non-parametric Phillips and Perron (1988) are employed to establish the stationarity properties of the series. In these tests, the null hypothesis of unit root (non-stationarity) is tested against the alternative hypothesis of stationarity (no unit root). The rejection (non-rejection) of the null hypothesis implies that the series are stationary (non-stationary) within the sampled period. After establishing the stationarity properties of the series, the cointegration test of the variables is tested using ARDL bound test developed by Pesaran and Shine (1999) and Pesaran et al., (2000) to decide whether there exists a long run relationship among the variables. The ARDL model used in this study can be written as:

$$\Delta \text{LN CPI}_t = \alpha + \sum_{i=0}^p (\gamma_{1i} \Delta \text{LN CPI}_{t-i}) + \sum_{i=0}^p (\gamma_{1i} \Delta \text{LN CPI}_{t-i}) + \sum_{i=0}^q (\gamma_{2i} \Delta \text{LN M2}_{t-i}) + \sum_{i=0}^q (\gamma_{2i} \Delta \text{LN M2}_{t-i}) + \sum_{i=0}^r (\gamma_{3i} \Delta \text{LN BD}_{t-i}) + \sum_{i=0}^s (\gamma_{4i} \Delta \text{LN RGDP}_{t-i}) + \sum_{i=0}^t (\gamma_{5i} \Delta \text{LN NEER}_{t-i}) + \sum_{i=0}^u (\gamma_{6i} \Delta \text{LN BD}_{t-i}) + \sum_{i=0}^r (\gamma_{3i} \Delta \text{LN BD}_{t-i}) + \sum_{i=0}^s (\gamma_{4i} \Delta \text{LN RGDP}_{t-i}) + \sum_{i=0}^t (\gamma_{5i} \Delta \text{LN NEER}_{t-i}) + \sum_{i=0}^u (\gamma_{6i} \Delta \text{LN BD}_{t-i}) + \beta_1 \text{Ln CPI}_{t-1} + \beta_2 \text{Ln M2}_{t-1} + \beta_3 \text{Ln BD}_{t-1} + \beta_4 \text{Ln RGDP}_{t-1} + \beta_5 \text{Ln NEER}_{t-1} + \beta_6 \text{Ln ICPI}_{t-1} + \epsilon_t \dots\dots\dots 3$$

Where,  $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5,$  and  $\beta_6$  are long-term coefficients and  $\gamma_{1i}, \gamma_{1i}, \gamma_{2i}, \gamma_{2i}, \gamma_{3i}, \gamma_{3i}, \gamma_{4i}, \gamma_{4i}, \gamma_{5i}$  and  $\gamma_{6i}, \gamma_{6i}$  and  $\gamma_{6i}$  represents short-run dynamics and  $\epsilon_t =$  represents a random disturbance term.

H0:  $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = 0$  (there is no cointegration)

H1:  $\beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq \beta_6 \neq 0$  (there is cointegration)

The F-test will be employed to test co-integration among the variables. If the computed F-value exceeds the F-value for the upper bound, then the null hypothesis of no co-integration is rejected, otherwise the test was inconclusive. (Pesaran et al. 2001).

The short-run dynamics of the variables was described by employing the Error Correction

Model (ECM). The ECM representation was specified as follows:

$$\Delta CPI_t = \alpha + \sum_{i=0}^p (\mu_{1i} \Delta \ln CPI_{t-i}) + \sum_{i=0}^p (\mu_{1i} \Delta \ln CPI_{t-i}) + \sum_{i=0}^q (\mu_{2i} \Delta \ln M2_{t-i}) + \sum_{i=0}^r (\mu_{3i} \Delta \ln BD_{t-i}) + \sum_{i=0}^r (\mu_{3i} \Delta \ln BD_{t-i}) + \sum_{i=0}^s (\mu_{4i} \Delta \ln RGDP_{t-i}) + \sum_{i=0}^s (\mu_{4i} \Delta \ln RGDP_{t-i}) + \sum_{i=0}^t (\mu_{5i} \Delta \ln NEER_{t-i}) + \sum_{i=0}^t (\mu_{5i} \Delta \ln NEER_{t-i}) + \sum_{i=0}^u (\mu_{6i} \Delta \ln ICPI_{t-i}) + \sum_{i=0}^u (\mu_{6i} \Delta \ln ICPI_{t-i}) + \mu_7 ECT_{t-1} + v_t \dots\dots\dots (4)$$

Where  $\mu_{1i}, \mu_{2i}, \dots, \mu_{6i}$  are the short-run dynamic coefficients of the model's convergence to the equilibrium and  $\mu_7$  is the speed of adjustment parameter, indicating how quickly the series can come back to its long-run equilibrium. The sign of the coefficient must be negative and significant.

This study has employed three diagnostic tests after ARDL bound in order to identify whether the models were correctly specified or not. Breusch- Godfrey Serial Correlation Test, Breusch-Pagan –Godfrey Test and Jarque- Bera Test have been carried out to test whether the model has serial correlation or not, whether the model has heteroskedasticity or not and whether the model has normality or not respectively. The stability test of the model and the stability test of the individual parameter have been carried out by plotting cumulative sum of recursive residuals (CUSUM) and the cumulative sum of squares of residuals (CUSUMQ).

**Data and variable description**

Annual time series data on sampled variables from 1974/75 to 2021/22 have been used to address the objective of the study. The web sites of Nepal Rastra Bank, Ministry of Finance of Nepal and World Bank have been used as the tools and methods of data collection. It is assumed that data are valid and reliable because they are collected from responsible ministry, the central bank of Nepal and the world bank. Excel 19 and EViews 12 version software have been employed to run ARDL model. In short, the description of variables, measurement, notation, source, unit and expected signs have been shown in Table 1.

**Table 1**

*Descriptions of Variables*

Variables	Measurement / Proxy	Notation	Source	Unit	Expected sign
Inflation (Dependent Variable)	Nepalese consumer price index	NCPI	Nepal Rastra Bank	natural logarithm form, base year 2010/11	-
Money supply (First Core Independent Variable)	Broad money supply	M2	Nepal Rastra Bank	natural logarithm form (Rs. million)	Positive

Budget deficit (Second Core Dependent Variable)	Total tax revenue minus total expenditure	BD	Economic survey of Nepal	natural logarithm form (Rs. million)	Positive
Gross domestic product (First Control dependent Variable)	Real gross domestic product	RGDP	Economic survey of Nepal	natural logarithm form, base year 2010/11 (Rs. million)	negative
Exchange rate (Second Control dependent Variable)	Nominal effective exchange rate	NEER	Nepal Rastra Bank	natural logarithm form, base year 2010/11	Positive / Negative
Indian inflation (Third Control dependent Variable)	Indian consumer price index	ICPI	Word Development	natural logarithm form, base year 2010/11	Positive

Source: Various Publications

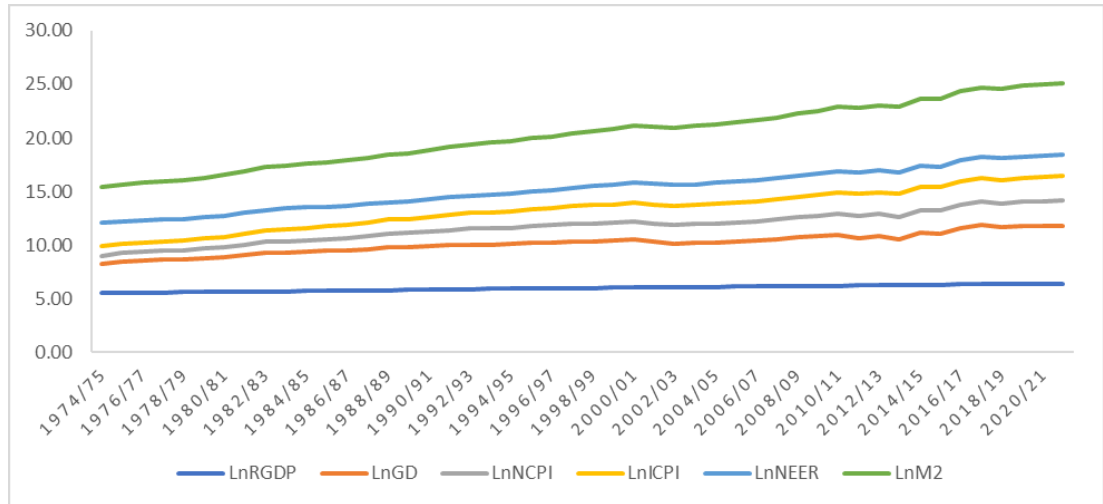
## RESULTS AND DISCUSSION

This section has discussed the trend analysis, descriptive statistics and empirical results of the study. This section is divided into two parts. The first part of this section presents the trend analysis and descriptive statistics of the variable used in the study while the second part presents the results of empirical analysis.

The trends of money supply (M2), budget deficit (BD), inflation (NCPI), RGDP, NEER and ICPI over the study period are shown in the figure 2. It is observed that RGDP, BD & M2 have a steady upward trend over the study period. However, ICPI, NCPI & NEER, have been fluctuating over the years, but shows an upward trend. The summary of the descriptive statistics in terms of mean, standard deviation, skewness, kurtosis, Jarque-Bera and linear correlation are reported in Table 2.

### Figure 2

*Trend Analysis of Broad Money Supply, Budget Deficit, Indian Inflation, NEER and Real GDP with Inflation in Nepal*

**Table 2***Summary of Descriptive Statistics*

Variables	LnNCPI	LnM2	LnBD	LnRGDP	LnNEER	LnICPI
Mean	3.63	11.69	9.60	13.72	4.35	3.68
Median	3.83	11.84	9.68	13.75	4.52	3.84
Maximum	5.31	15.52	12.62	14.74	4.97	5.20
Minimum	1.75	7.63	6.22	12.76	3.67	2.00
Std. Dev.	1.11	2.32	1.58	0.61	0.33	1.03
Skewness	-0.21	-0.05	-0.03	-0.02	-0.68	-0.14
Kurtosis	1.84	1.86	2.74	1.77	2.23	1.76
J-B	3.02	2.60	0.14	3.02	4.92	3.20
Probability	0.22	0.27	0.14	0.22	0.08	0.20
Pair-Wise Correlation						
LnNCPI	1	-	-	-	-	-
LnM2	0.99	1	-	-	-	-
LnBD	0.94	0.98	1	-	-	-
LnRGDP	0.99	0.77	0.77	1	-	-
LnNEER	0.06	0.11	0.01	0.02	1	-
LnICPI	0.99	0.99	0.98	0.79	0.10	1

From Table 2, it is observed that money supply (M2), budget deficit (BD), Indian inflation (ICPI), real GDP, exchange rate (NEER) and Nepalese inflation (NCPI) have mean (standard deviation) values of 11.69 (2.32), 9.60 (1.58), 3.68 (1.03), 13.72 (0.61), 4.35(0.33)



and 3.36 (1.11) respectively. The maximum (minimum) values for money supply (M2), budget deficit (BD), Indian inflation (ICPI), real GDP, exchange rate (NEER) and Nepalese inflation (NCPI) are 15.52 (7.63), 12.62 (6.22), 5.20 (2), 14.74 (12.67), 4.97 (3.67) and 5.31 (1.57), respectively. In all, it is observed that the sample variables do not deviate much from their respective mean values as indicated by the standard deviation values. Furthermore, the values for the Skewness, Kurtosis and the Jarque-Bera show that the data is normally distributed. Turning to the linear correlation, it is observed that except NEER money supply (M2), budget deficit (BD), Indian inflation (ICPI), real GDP and Nepalese inflation (NCPI) have a strong positive correlation with inflation. The results from the ADF and P-P unit root tests are reported in table 3.

**Table 3**

*Stationary Test (Unit Root Test)*

Variables	ADF Test		P-P Test	
	I(0)	I(1)	I(0)	I(1)
LnNCPI	-1.19	-5.38*	-1.004	-5.56*
LnM2	-2.08	-4.87*	-2.12	-4.94*
LnBD	-2.60	-8.82*	-2.26	-8.82*
LnRGDP	-3.60**	-4.40*	-3.50**	-8.36*
LnICPI	-1.54	-4.69*	-1.70	-4.73*
LnNEER	-2.07	-6.13*	-2.19	-6.24*

Note: (\*), (\*\*) & (\*\*\*) show 1%, 5% and 10% level of significance respectively.

From the results, both tests confirm real GDP is stationary at its level data [I (0)] and first difference [I (1)]. However, money supply (M2), BD, NCPI, NEER and ICPI are all stationary at the first difference [I (1)]. This implies that some series are stationary at [I (0)] and some are at [I (1)]. Due to the presence of mixed orders of integration [I (0)], [I (1)], an appropriate method of analyzing the long run relationship between variables is Autoregressive Distributed Lagged (ARDL) bounds test (Pesaran et al., 2000). Therefore, this study used ARDL bound test approach to examine the cointegrating relationship among variables under study. Following the confirmation of stationarity properties of the variables, the study proceeds with the Autoregressive Distributive Lag model of cointegration.

The calculated F- statistics, the lower bound critical value I(0) and upper bound critical value I(1) are presented in the Table 4. Calculated F-statistics is compared with the Pesaran et al. (2001) critical value.

**Table 4**

## Bound Test Results

Variables	F-Statistics	Co-integration	Lag Optimal
F (LnNCPI , LnM2, LnICPI, LnBD LnRGDP, LnNEER)	9.30	Co-integration	(1, 0, 1, 0, 0, 0)
	Critical value	Lower bound I(0)	Upper bound I(1)
	1%	2.25	3.26
	5%	2.67	3.78
	10%	3.59	4.98

Note: (\*), (\*\*) & (\*\*\*) show 1%, 5% and 10% level of significance respectively.

The calculated F-statistic is 9.30 which is greater than upper bound critical values at 1, 5 and 10 percent level of significance. This implies that the null hypothesis of no co-integration among the variables is rejected. Therefore, there is cointegration between inflation, broad money supply, Indian inflation, budget deficit, real GDP and exchange rate in the long-run i.e., these variables move in the same direction in long-run.

The estimated long-run coefficients are presented in table 5. The coefficients of money supply (M2), real gross domestic product (RGDP), Indian inflation (ICPT) and exchange rate (NEER) are positive and statistically significant as expected.

**Table 5***Estimated Long-run Coefficients*

Dependent Variable: LnNCPI

Variable	Coefficient	Standard Error	T- Statistics
LnM2	0.23*	0.07	3.18
LnBD	0.02***	0.015	1.75
LnRGDP	-0.09	0.22	-0.43
LnNEER	-0.16*	0.02	-6.27
LnICPI	0.64*	0.11	5.53
C	0.79	2.37	0.33

Note: (\*), (\*\*) & (\*\*\*) show 1%, 5% and 10% level of significance respectively.

The long-run elasticity of M2 is 0.23 which indicates that money supply is positively related to inflation and inflation increases by 0.23 percent as money supply increases by 1 percent. Similarly, long-run elasticity of BD is 0.02 which is positive as expected and statistically significant indicating that which implies that on an average, as BD increases by percent this increases inflation rate by 0.02 percent in Nepal for the sample period. Moreover, the long-run coefficient of Indian inflation (ICPI) is 0.64 which shows that Nepalese inflation

increases by 0.64 percent as Indian inflation (ICPI) increases by 1 percent. The negative and statistically significant long-run coefficient of exchange rate (NEER) suggests that the devaluation of currency by 1 percent decreases inflation by 0.16 percent. However, real GDP is negative as expected but statistically insignificant. Table 6 reports the short-run coefficient estimates obtained from the ECM version of the ARDL model.

**Table 6**

*Estimated Short-run Coefficients and Diagnostic Tests*

Dependent variable: LnNCPI

Variables	Coefficients	Standard Error	T- Statistics
D(LnICPI)	0.70*	0.05	13.54
ECM (-1)	-0.70	0.08	-8.66
Diagnostic tests			
<b>Serial Correlation</b>	F(1, 38) = 1.07 [0.30]		
Normality	0.05[0.97]		
Heteroscedasticity	F(7, 39) = 0.66[0.70]		
R <sup>2</sup>	0.99		
Adj. R <sup>2</sup>	0.99		
F- Stat.	15900*		
DW- Stat.	1.67		

Note: (\*), (\*\*) & (\*\*\*) show 1%, 5% and 10% level of significance respectively.

As expected, Indian CPI has a positive impact on Nepalese CPI in the short run. The short-run elasticity of Indian CPI is 0.70 and is significant 1 percent. This shows that a 1 percent increase in Indian CPI results in a 0.70 percent increase in Nepalese CPI. The ECM coefficient is - 0.70 and is statistically significant at a 1 percent level of significance. This shows that short-run disequilibrium on the system converges to equilibrium at a speed of 70 percent per annum.

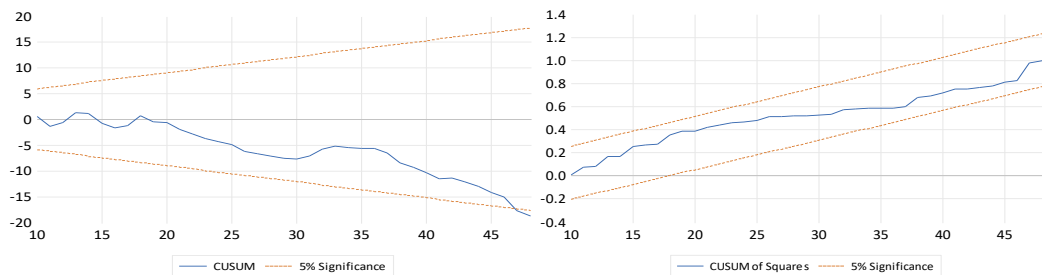
The study also carried out all diagnostic tests such as Breusch-Godfrey serial correlation test for serial correlation, Breusch-Pagan – Godfrey test for heteroskedasticity test and Jarque-Berra test for normality. The result of Breusch-Godfrey serial correlation test showed that there is no serial correlation because p value is greater than 5 percent and this accepts the null hypothesis of no serial correlation. The result of Breusch-Pagan –Godfrey test of heteroskedasticity showed that there is no heteroskedasticity because p value is greater than 5 percent and this accepts the null hypothesis of no heteroskedasticity. The result of Jarque –Bera test of normality showed that there is normality in residuals because p value Jarque –

Bera test is greater than 5 percent which accepted the null hypothesis of there is normality in residuals. The results of diagnostic tests indicated that the model was correctly specified. The results of diagnostic tests show that there is no serial correlation, no heteroscedasticity and there is normality in residuals. The results of R squares and F-statistics showed that the model is well fitted.

The stability test of the model as well as individual parameters were carried out by plotting cumulative sum of recursive residuals (CUSUM) and the cumulative sum of squares of residuals (CUSUMQ). The results of CUSM and CUSUMQ for model 1 and 2 are shown in Figures 3. In both models, the residuals are within the critical bounds at the 5 percent significance level which indicated that the model was correctly specified and stable.

**Figure 3**

*Plot of CUSUM and CUSUMQ*



*Source: Author's Calculation*

*Note: The straight line represents critical bounds at 5 percent level of significance.*

In both models, the residuals are within the critical bounds at the percent significance level which indicated that the model was correctly specified and stable.

## CONCLUSIONS

Using annual time series data over the period of 1974-2021/22, this study has explored the relationship between inflation and its determinants in Nepalese economy. The ARDL model has been employed to decide whether there exists a long run relationship among the variables. Similarly, the Error Correction Model (ECM) has been used to test the short-run dynamics of the variables used in the study. The results from the ARDL bound test show that inflation, broad money supply, Indian inflation, budget deficit, real GDP and exchange rate are cointegrated i.e., there is a long-run relationship among the chosen variables. The study also found that broad money supply, deficit budget and Indian inflation exert a significant

positive effect on inflation, whereas exchange rate has significant negative relationship with inflation. Similarly, the result from ECM shows that Indian inflation has a significant positive effect on inflation even in the short-run. However, real GDP does not have any significant effect on inflation.

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