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Trend Analysis of Inflation and its Relationship with Economic Growth of Nepal

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ABSTRACT

Background: The price level and its growth, inflation, is an important economic indicator. Inflation can be defined as the persistent rise in the general price level across the economy over time. Inflation is an increase in the volume of money and credit relative to available goods resulting in a substantial and continuing rise in the general price level. Inflation is everywhere and is interestingly touchy issue in macroeconomics.

Methods: This research is cross-sectional and analytical and is completely based on secondary data to examine the trend and impact of inflation on economic growth rate of Nepal. To find the relationship between inflation, GDP, growth rate, money supply, CPI correlation matrix and multiple regression model were used.

Results: Globally the inflation rate of emerging and developing economies is projected to decline by 0.2 percentage points to 4.9 percent in 2021 from 5.1 percent in 2020. In 2021, among the South Asian countries Pakistan is expected to have the highest inflation and Maldives the lowest. The average inflation rate of Nepal during 2015 to 2020 was 6.1 percent. There is fluctuation in annual inflation rate. The trend of GDP and CPI index of Nepal is in increasing order. There is negative correlation between GDP and Inflation while positive correlation of GDP with growth rate, CPI, Money supply.

Conclusions: It is very important that inflation be controlled in order to address poverty as well as economic growth. It can safely be concluded that policies that stabilizes the inflation to the certain threshold level matters for the long run economic growth

Keywords: inflation; consumer price index; money supply M2; real GDP; Nepal.

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INTRODUCTION

Inflation is when prices keep going up over time. It happens when there's too much money compared to the things we want to buy.[1] In the old days, money used to be linked to gold. If we found more gold, money became less valuable, and everything got more expensive. Nowadays, inflation is like a health check for the economy.[2-4] If prices go up too fast, it's not good for everyone. High inflation makes it harder for people to afford things, and that's not good for the country.[5] On the other hand, if prices don't go up enough, it can mean the economy isn't doing well. That can lead to fewer jobs and more poverty.[6-9] Indonesia faced a tough time in 1998 when inflation was really high at 77.63 percent. The value of their money dropped, and things became super expensive.[10] Inflation in Indonesia isn't just a short-term problem; it's more about long-term issues in their economy. It's influenced by things like rising oil prices and not having enough raw materials like coal and gas. This makes energy costs go up, affecting everything from making goods to delivering them. So, inflation isn't just about prices going up; it's about the whole country's economic situation. Inflation affects everyone's daily life.[11] When prices go up a lot, the money you have can't buy as much. Imagine if your pocket money could buy you two chocolates last year, but this year, it only buys one because the price went up. That's how inflation makes things challenging. Even interest rates, or the extra money you get when you keep your money in a bank, are affected. If prices are going up fast, the extra money you get might not be enough to cover the higher costs. It's a big concern for governments worldwide because it influences how much people can save, invest, and even impacts their jobs and income.[12-16] Policymakers try to control inflation to keep things stable and help everyone in the country. The relationship between economic growth and inflation is a debated issue, with differing perspectives on whether inflation

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serves as a catalyst or impediment to growth. In the context of Nepal and other developing economies, sustaining economic growth is pivotal for goals such as poverty reduction, employment generation, and efficient resource utilization. While some argue for the necessity of inflation for economic growth, others, particularly monetarists, contend that inflation is detrimental.[17] Macro-economic policies often aim for a balance, seeking sustained high output growth coupled with low inflation. Recent studies warn of the potential hindrance posed by erratic inflation rates in achieving economic and poverty reduction objectives in developing countries. Control of inflation is seen as vital for maintaining a stable financial environment conducive to economic growth in Nepal, emphasizing the need for an optimal inflation rate over both short and mid-term periods.[1] Research in Nepal suggests a positive relationship between inflation and economic growth, with identified threshold values, highlighting the nuanced impact of inflation on growth, especially when inflation rates are exceptionally high. The objective of this research is to find the trend of inflation in Nepal, to find the relationship of inflation with GDP, Money supply, CPI, economic growth rate and to find the regression equation of inflation with GDP, Money supply, CPI, economic growth rate.

METHODS

An analytical cross-sectional study was conducted based on secondary data of Nepal from 1985/1996 to 2019/2020. Data related to Inflation, GDP, Money supply, growth rate, CPI have been extracted from the website of Ministry of Finance, Nepal Rastra Bank annual report and economic survey of Nepal. In order to access the impact and trend of inflation we have to use different statistical tool. Data was analyzed by suing descriptive and inferential statistical tools. In the descriptive statistics data has been presented through suitable diagrams and graphs. In the analytical part correlation matrix were used between Inflation, GDP, Money supply, growth rate, CPI and then regression was carried out. In this research dependent variable was taken as inflation while independent variables were GDP, Money supply, growth rate and CPI. The following regression model has been used as the major working model:

$Y=\alpha+\beta 1X1+\beta 2X2 + \beta 3X3+\beta 4X4 +\varepsilon$

Where, Y is inflation, X1 is GDP, X2=Money supply, X3=growth rate and X4=CPI. Also, the diagnostic tests of the fitted regression model have been carried out using multicollinearity. Variance inflation factors less than ten was taken as doesn't exist multicollinearity between independents variables. Data was analyzed by using SPSS 20. P-value <0.05 was considered as statistically significant.

RESULTS

The trend of Inflation of Nepal. The trend of inflation was higher in earlier years and decrease in few years. Now the trend of inflation is in increasing order (Figure 1).

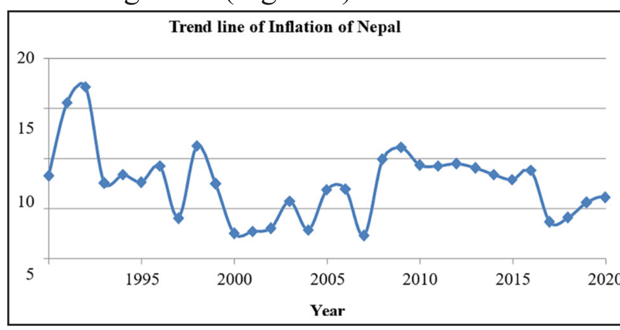

Figure 1. Trend line of Inflation of Nepal (Based on consumer Price in percentage)

The global economy was contracted by 3.3 percent in 2020, where majority of nation's experienced negative economic growth due to the slowdown in global economic activities caused by the Covid-19 pandemic. With the production and distribution of vaccines against Covid-19, various countries.

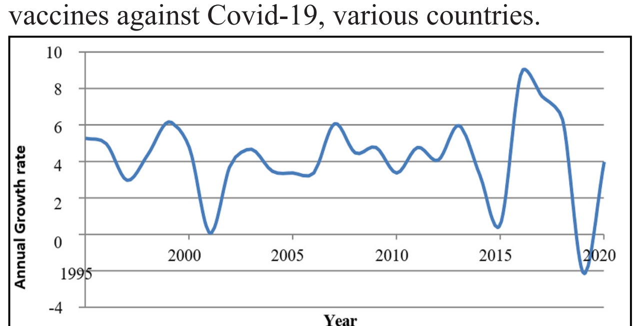

Figure 2. Trend line of annual Growth rate of Nepal.

Above figure 2 showed the trend line of GDP of Nepal. This showed that the trend of GDP of Nepal is in increasing order.Trend of gross domestic product (GDP) Table 1 in appendix shows the gross domestic product from fiscal year 1995/96 to 2017/18. GDP was 239300 million rupees in the fiscal year 1995/96 and it has become 3031000 million rupees in the fiscal year 2017/18. GDP is 1074495.65 million rupees in average (Figure 3).

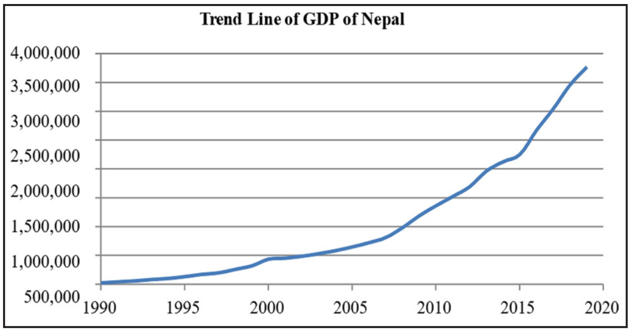

Figure 3. Trend line of GDP of Nepal.

Trend of consumer price index Table 1 in appendix shows the Consumer Price Index (CPI) from fiscal year 1995/96 to 2017/2018. CPI was 40.07 in 1995/96 and it has become 171.80 in 2017/18. CPI is 87.55 in average. CPI was below the average from 1995/96 to 2008/2009 whereas it was above the average from 2009/10 to 2017/18. CPI has been increasing from 1995/96 to 2017/18. The trend of percentage change in CPI is found fluctuated (Figure 4).

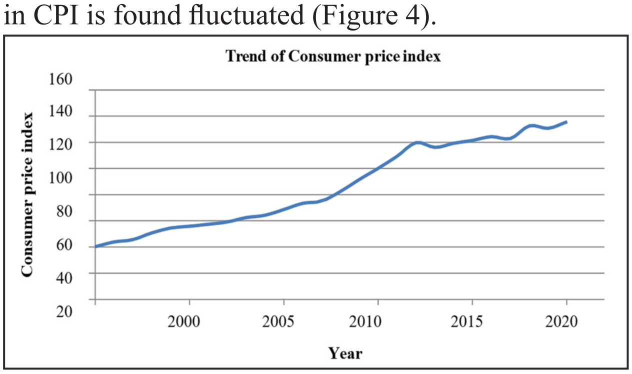

Figure 4. Trend line of Consumer price index of Nepal.

Correlation matrix showed the correlation between growth rate, inflation, CPI, Money supply and GDP. This showed that there is negative correlation between GDP and Inflation. This relation was found to be statistically insignificant (p-value>0.05) (Table 1). Here all the independent variables has VIF less than 10, this showed that there is no multicollinearity among the set of independent variables (Table 2).

The relationship between independent and dependent variables (Table 5).

Table 1. Correlation matrix between Inflation and GDP.

Correlation Matrix		Growth rate	Inflation	CPI	Money Supply	GDP
Growth rate	Correlation	1	0.001	0.01	0.058	-0.068
	P-value		0.994	0.96	0.778	0.741
Inflation	Correlation		1	0.11	0.073	-0.067
	P-value			0.61	0.724	0.744
CPI	Correlation			1	.905**	.930**
	P-value				<0.001	<0.001
Money supply (M1) Rs in Million	Correlation				1	.872**
	P-value					<0.001
GDP	Correlation					1

**. Correlation is significant at the 0.01 level (2-tailed).

Table 2. Test of multicollinearity.

Model	Unstandardized Coefficients		t	p-value	Collinearity Statistics	
	B	SE			Tolerance	VIF
(Constant)	1.625	3.107	0.523	0.606		
Economic growth	-0.148	0.274	-0.54	0.596	0.93	1.075
CPI	0.115	0.059	1.964	0.063	0.097	10.29
Money supply	2.67E-06	0	0.268	0.791	0.17	5.9
GDP	-3.74E-06	0	-2.39	0.027	0.123	4.159

Table 3. Model Summary.

R	R Square	Adjusted R Square	Std. Error of the estimate
.473[a]	0.224	0.076	2.97308

a. Predictors: (Constant), GDP, Growth rate, Money Supply, CPI

Table 4. ANOVA table.

	Sum of Squares	df	Mean Square	F	p-value
Regression	53.586	4	13.396	1.516	.234[b]
Residual	185.623	21	8.839		
Total	239.208	25			

a. Dependent Variable: Inflation

b. Predictors: (Constant), GDP, Growth rate, Money Supply, CPI

DISCUSSION

The regional economy does not escape from the economic diseases of inflation that always appear in the economy. Inflation as an economic turmoil should not be abolished at all but controlled at a certain rate so as to promote economic growth. Globally the in-

Table 5. Regression equation.						
Model	Unstandardized coefficient		t	p- value	95 % Confidence Interval	
	B	SE			Lower Bound	Upper Bound
(Constant)	1.625	3.107	0.523	0.606	-4.835	8.086
Economic growth	-0.148	0.274	-0.54	0.596	-0.718	0.423
CPI	0.115	0.059	1.964	0.063	-0.007	0.237
Money supply	2.67E-06	0	0.268	0.791	0	0
GDP	-3.74E-06	0	-2.39	0.027	0	0
a. Dependent Variable: inflation						

flation rate of emerging and developing economies is projected to decline by 0.2 percentage points to 4.9 percent in 2021 from 5.1 percent in 2020. In 2021, among the South Asian countries Pakistan is expected to have the highest inflation and Maldives the lowest. The average inflation rate of Nepal during 2015 to 2020 was 6.1 percent, while that of neighboring countries India and China was 4.6 percent and 2.1 percent, respectively. In 2021, the inflation

Y=1.625-0.148Economic growth+0.115CPI+
0.000002672Money supply-0.000003742GDP

in Nepal, India and China is projected to be 4.2 percent, 4.9 percent and 1.2 percent, respectively. The trend line of inflation of Nepal is in increasing order. There is fluctuation in annual inflation rate. The global economy was contracted by 3.3 percent in 2020, where majority of nation's experienced negative economic growth due to the slowdown in global economic activities caused by the Covid-19 pandemic. The trend of GDP and CPI index of Nepal is in increasing order. The annual economic growth has remained 4.6 per cent on an average in the last decade. There is negative correlation between GDP and Inflation while positive correlation with growth rate, CPI, Money supply. Analyzing upon the presentation and analysis part of this thesis, the following conclusions have been made to provide the summary information of this report. The main aim of this paper was to establish the relationship between inflation, money supply, real GDP and imported price (CPII) by reviewing relevant studies using Nepal as the reference country. One of the most important targets for least developed country like Nepal is to achieve high economic growth. Nepalese inflation is really harmful in the point of view of economic growth or this inflation has the significant role in promoting economic growth is still inconsistent. Even if there are some common or similar findings the relationship between two variables is still inconclusive and controversial. Some studies have revealed positive relationship between the inflation and the economic growth. The inflation and economic growth are one way related to each other, there is one way causal relationship from inflation to economic growth but not from economic growth to inflation. It is widely agreed that low and stable inflation brings stability to financial systems and fosters sustainable economic growth over the longer run. It is clear that the growth of money supply, the growth rate of real GDP and import price are the main determinants of inflation in Nepal. This study suggests that prices in Nepal are highly dependent on Indian prices because of a weaker supply of domestic production supplemented by the increased imported goods from India. Inflation control is not an easy task for country like Nepal which shares open border with big country and is heavily dependent on the imported goods for the daily consumption and materials for other development purposes. In this context, dominant factor for inflation is supply shock generated outside the country. Thus, inflation control becomes more challenging and complicated for the monetary authorities since the monetary and fiscal policies framed to control the inflation seem to have lesser implications. However, it does not imply that there is no room for such policy implications at all. This empirical study suggests that, given the open border with India and liberalized trade regime, there exists higher prospect of Indian domination on the domestic prices in Nepal. Therefore, it is very important that inflation be controlled in order to address poverty as well as economic growth. It can safely be concluded that policies that stabilizes the inflation to the certain threshold level matters for the long run economic growth. This research is based upon few variables (time and number of tourist arrival), so this study can be enlarged by using more variable.

CONCLUSIONS

Controlling inflation is deemed crucial for addressing both poverty and fostering economic growth. The statement posits that stable inflation, maintained through effective policies, prevents erosion of purchasing power, particularly for vulnerable populations. Additionally, it asserts that stable inflation creates a favorable environment for economic activities, encouraging investment and reducing uncertainty. The emphasis on a certain threshold reflects the idea that policymakers aim for a balanced approach to inflation management. Ultimately, the focus is on achieving sustained, long-term economic growth by mitigating the adverse impacts of inflation.

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