

# Analysis of Macroeconomic Indicators on Economic Growth: Nepal Perspective

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## **Abstract**

*GDP per capita income growth is one of the most important determinants of economic growth, especially in Nepal. Using time-series data of the last forty-four Years (1975 to 2018) this study tries to investigate the relationship between macro factors and their effect on GDP per capita growth in Nepal. The dependent variable of the study is Gross Domestic Product per capita Growth (annual%). To observe the Growth, other factors like export-import, government expenditure on final goods and services Investment of GDP are chosen. Correlation and multiple regression analysis were conducted to analyze the data. Correlation analysis finds that GDP per capita growth has a positive relation with general government final consumption, import, and investment. In regression analysis, it is observed that the independent variables explained only 17.9% of the variability of GDP per capita growth. The results show the GDP per capita growth has no significant changes in subjects to govern dormant factors. Some unconditional decline on macro factors plagued for further growth. In developing countries like Nepal, GDP per capita growth seems to have no important changes due to ups and downs of uncertain factors.*

*Key Words: economic growth, macroeconomic indicators, GDP growth*

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Economic growth is the prime priority of macroeconomics policy, it is also a highly complex phenomenon and influenced by numerous, and varied factors in any country and Gross Domestic Product (GDP) is considering a key indicator of economic growth. GDP gives an overall picture of the state of the economy. If GDP increases faster than the population of the country, it indicates that GDP per capita of that country is growing. GDP of a country is influenced by the rate of interest, monetary policy, consumption, investment, net export of the country.

According to Mc Eachen (2001) GDP by expenditure is divided into four components: consumption, investment, government purchases, and net export.

Consumption stands for the purchase of goods and services by consumers. Investment is the purchase of capital goods. Government expenditure includes the purchase of goods and services by the government and net export is the difference between total export made by the country and import of the country. When a country

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export of goods and services to the other countries is comparatively more than imports, the nation has a positive balance of trade and it increases the country's GDP. Government consumption expenditure consists of spending by the government to produce and provide the service to public sectors, which provide welfare to the social sector. As investment increases, it creates opportunities for employment and creating buying power for consumers.

In the context of Nepal, the share of consumption to GDP is estimated to remain 79.5 per cent, the ratio of total investment to GDP is estimated to be 62.3 per cent, and similarly, Per Capita GDP at current prices is estimated to increase 12.8 per cent (Economic survey,2018/19).

It is now universally accepted that a considerable macroeconomic structure is necessary for maintaining sustainable economic growth. Moreover, a country's economic position depends on key macroeconomic variables that have a great influence on its growth. The interactions between the important components of the economy and GDP are the major determinant of economic growth. Kitov (2006) argued that real economic growth can be studied using a concept of economic growth and as an economic trend component. The Economic trend or growth is liable for the long term dispersion out and describes economic effectiveness. Dension (1962) suggested that economic growth is the increase of real GDP or GDP per capita, an increase of national product that is measured in constant prices. Chen and Feng (2000) investigated the relationship between net exports as a share of a real GDP; the study found that export is significantly related to the annual average rate of per capita GDP. Public expenditure, capital formation, private or public investment, employment rate, international trade have a different role in economic growth and we should think that these factors have different implications whether the state is devolved or not. The relative growth in GDP can be affected by various factors many of them may have a positive relationship or inverse relationship. This paper is devoted to assessing the extent to which factors affected the GDP growth rate and it discusses the trend analysis of macroeconomic variables related to GDP.

### **Purpose of the study**

The study is based on the secondary data obtained from world development indicators since the year 1875 to 2018 and data related to GDP per capita growth, government expenditure (% of GDP), investment, export and import (% of GDP) of Nepal. The purpose of the study is to answer two basic research questions- what is the

trend of growth of GDP per capita income of Nepal. Besides, what are the relationship between GDP and government expenditure, Net export, and Investment? Based on these questions, the major research objectives of the study is to examine the relationship between macroeconomic variables and their effectiveness in GDP. Along with this study, also explore the role of every macro factor in each other. Therefore, the result obtained from this study provides in-depth information to its readers and provide an overview of the GDP growth rate in Nepal. Therefore, readers can be aware of the scenario of Nepal's economy. To identify the relationship of GDP with Macroeconomic factors following hypothesis is considered.

H<sub>1</sub>: Macroeconomic indicators have a significant impact on GDP per capita growth.

## Literature Review

The Keynesian model emphasized that investment, savings, and government expenditure as the major variables affecting the growth rate of GDP. This model suggests that a high rate of saving is essential for the high rate of growth in GDP. Saving can be changed into investment and cut off expenditure through a balanced budget. To examine the relationship between macro factors and GDP many countries have been conducted different studies.

Varlamova and Lrionova (2015) argued that consumption expenditure is a share of GDP. Since household activities, for consumption increases every year. Anti, Mills, and Zho (2013) mentioned that foreign direct investment brings capital investment, technology, knowledge needed for economic growth. By using time series data they concluded that independent macro variables, GDP, Growth National Income (GNI), Consumption are all significant to explain the variation in Foreign Direct Investment (FDI) in Ghana.

Mustapha, Mathew, and Oluwaseum (2017) explained the upshot of macroeconomics indicators on the economic growth of Nigeria and found that net export positively affects the GDP of Nigeria. A study examined that, macro variables inflation and rate of interest spread harm Pakistan's economic growth. While the exchange rate has a positive consequence on the economy ( Chughtai, Malik, and Krim, 2015). Similarly, another study found that there may be a considerable upshot of inflation, interest, and exchange rate on the GDP of Pakistan ( Hussan, Sabir, and Kashif, 2016). In the case of Nepal, Domestic capital has been a noteworthy source of economic growth whereas Foreign aid had not any effect on it. The empirical evidence finds that financial development is the cause of economic growth but economic growth sustains

financial development ( Dhakal, Pradhan, and Upadhyaya, 2009). The strength and weaknesses of every economy can be assessed by analyzing the various macroeconomic determinants like GDP, GNP, Investment, Consumption, which are empirically tested and these vary from country to country and time to time. Khor (2000) states that foreign investment helps to upgrade economic growth by the quality factor of production and transfer of modern technologies to an underdeveloped country. It also helps to increase investment and employment opportunity, which enhance economic growth. It also helps to increase investment and employment opportunity, which enhance economic growth. In light of the above researches, this paper also tries to find out whether Nepal's economic growth was good enough or not by comparing the relationship between GDP and other Macroeconomics variables that influence it. This research analyzed the data of the past 44 years taking dependent variables GDP and the rest of the variables as independent variables.

## **Methodology**

This study was based on secondary data which were extracted from the website of World Development Indicators. All information belongs to the macroeconomic indicators of Nepal for the sample period of 44 years. i.e. from the year 1975 to 2018. The information is related to GDP per capita growth (% annual), General government final consumption expenditure (% of GDP), Export of goods and services (% of GDP), Investment (% of GDP), and import of goods and services (% of GDP). Simple descriptive analysis, time series, and regression analysis are conducted to analyze these data.

The model used for testing the hypothesis is

$$Y = C_0 + C_1X_1 + C_2X_2 + C_3X_3 + C_4X_4 + \infty$$

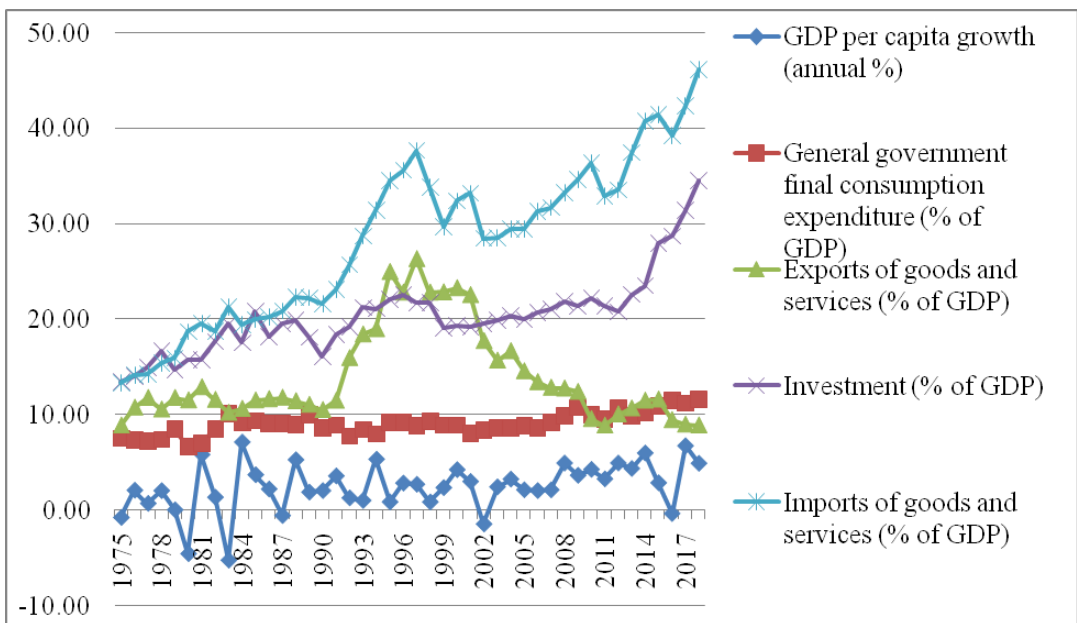
Where Y represents the dependent variable i.e GDP per capita Growth ( % annual) and  $C_0$  is the intercept  $C_1, C_2, C_3, C_4$  are coefficients;  $X_1, X_2, X_3,$  and  $X_4$  are taken as independent variables. i.e EXPRT=Export of Goods and Services (% of GDP), GCE= General Government Final Consumption (% of GDP), IMPRT=Import of Goods and Services (% of GDP), INV= Investment (% of GDP), PCR= GDP Percapita Growth(annual %).

## **Result and Analysis**

This section represents the data analysis and the empirical analysis from the

estimations of the model. The first section presents the trend of macroeconomic indicators that are used in the paper. The second section explains the descriptive evidence for the variables in the model. And finally, correlation and regression analysis using the least square model.

Figure 1 shows GDP per capita growth( annual%) was negative at the beginning of the observation and it has fluctuated till 2017. The general final consumption of GDP is increasing but not so significantly as compared to Investment. Investment level goes on increasing from the year 2014 onwards significantly. The export of goods and services of GDP was maximum in the year 1999 than after it goes on decreasing. Similarly, the import of goods and services is significantly increasing from the very beginning.



**Figure1 :** The Trend of Macroeconomic Indicators

## Descriptive Statistics Analysis

Table 1 shows some of the relevant statistics of the variables that are examined and reported. The evidence from the descriptive statistics shows that the average GDP per capita growth ( annual %) is 2.48163 with minimum and maximum value of -5.21418 and 7.01726. For EXPRT, GCE,IMPRT, and INV the average values are 13.98265, 9.091781, 28.23591, and 20.36539 respectively. Similarly, their respective standard deviations are 4.931479, 1.169878, 8.591962, and 4.173498. This indicates a significant

deviation of the path of IMPRT as denoted by the high standard deviation value. The direction of Skewness of all variables is positive except IMPRT. Here EXPRT and INV are platykurtic as their kurtosis value is less than 3 but the rest of the variables are leptokurtic as their value is greater than 3.

**Table 1 :** Descriptive Statistics of Macroeconomic Indicators

	EXPRT	GCE	IMPRT	INV	PCR
Mean	13.98265	9.091781	28.23591	20.36539	2.48163
Median	11.72356	8.959688	29.47193	19.93296	2.438776
Maximum	26.32784	11.63451	46.1774	34.54786	7.172615
Minimum	8.901093	6.702068	13.36673	13.415	-5.21418
Std. Dev.	4.931479	1.169878	8.591962	4.173498	2.582072
Skewness	1.147017	0.226036	-0.0047	1.286214	-0.80406
Kurtosis	3.029315	2.744507	2.030029	5.594434	4.216712
Jarque-Bera Probability	9.649655	0.49435	1.725043	24.47221	7.455186
	0.008028	0.781004	0.422097	0.000005	0.024051
Sum	615.2368	400.0384	1242.38	896.077	109.1917
Sum Sq. Dev.	1045.738	58.85038	3174.338	748.9778	286.6852
Observations	44	44	44	44	44

*Note:* EXPRT=Export of Goods and Services (% of GDP), GCE= General Government Final Consumption (% of GDP), IMPRT=Import of Goods and Services (% of GDP), INV= Investment (% of GDP), PCR= GDP Percapita Growth(annual %).

### Correlation and Regression Analysis

Table 2 presents the result of the correlation analysis between variables from the table. It can be seen EXPRT has negatively correlated with GDP per capita (-0.030012). on the other hand, other macro variables have weak positive correlation coefficients. There is a strong positive correlation between variables IMPRT and GCE, INV and EXPRT, whereas INV and EXPRT, GCE and EXPRT have negative correlations.

From table 3, we can conclude that all the macro variables have not a significant relationship with PCR because their p-value is greater than 0.05. Similarly, DW value is greater than 2 so there is negative autocorrelation.

**Table 2 :** Correlation Analysis of Macroeconomic Indicators

	EXPRT	GCE	IMPRT	INV	PCR
EXPRT	1.000000	-0.230438	0.254060	-0.023163	-0.036759
GCE	-0.230438	1.000000	0.714062	0.806107	0.302725
IMPRT	0.254060	0.714062	1.000000	0.869922	0.386278
INV	-0.023163	0.806107	0.869922	1.000000	0.329394
PCR	-0.036759	0.302725	0.386278	0.329394	1.000000

*Note* EXPRT=Export of Goods and Services (% of GDP), GCE= General Government Final Consumption (% of GDP), IMPRT=Import of Goods and Services (% of GDP), INV= Investment (% of GDP), PCR= GDP Percapita Growth(annual %).

Table 3

Dependent Variable: PCR

Method: Least Squares

Date: 09/27/20 Time: 11:42

Sample: 1975 2018

Included observations: 44

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.184874	4.597008	0.475282	0.6372
GCE	-0.115738	0.610161	-0.189684	0.8505
IMPRT	0.199344	0.111998	1.779880	0.0829
INV	-0.130248	0.224328	-0.580613	0.5648
EXPRT	-0.116365	0.102994	-1.129819	0.2655
R-squared	0.179178	Mean dependent var		2.481630
Adjusted R-squared	0.094991	S.D. dependent var		2.582072
S.E. of regression	2.456376	Akaike info criterion		4.741896
Sum squared resid	235.3176	Schwarz criterion		4.944645
Log-likelihood	-99.32172	Hannan-Quinn criter.		4.817085
F-statistic	2.128333	Durbin-Watson stat		2.548834
Prob(F-statistic)	0.095607			

*Note* EXPRT=Export of Goods and Services (% of GDP), GCE= General Government Final Consumption (% of GDP), IMPRT=Import of Goods and Services (% of GDP), INV= Investment (% of GDP), PCR= GDP Percapita Growth(annual %).

## Conclusion



The probability of all countries around the world have a basic aim is to get better economic growth and Nepal is no exception. The finding of correlation analysis suggests that there is a negative correlation between dependent variable GDP per capita growth and Export of goods and services. While GDP per capita growth has a negative correlation with Government import of goods and services and investment. Similarly, as per regression analysis Export of goods a service (% of GDP), General government final consumption (% of GDP), Import of goods and services( % of GDP), and Investment (% of GDP) have not important impact on the GDP per capita growth (annual %) of Nepal. Hence the change in independent variables merely do not effect on GDP per capita growth(annual %). Ayyoub, Chaudarhry, and Farooq (2011) found that Inflation has shown a negative coefficient with GDP per capita growth. Kira (2013) conclude that the macro factors of developing countries are inactive so that their influence on GDP is not significant. He further explained developing countries' GDP is mostly influenced by consumption and export which indicated that developing country has to create developed projects aiming to increase overall investment. Furthermore, Chowdhery, Hamid, and Akhi ( 2019) concluded that inflation and foreign exchange rate have no significant impact on GDP growth where household consumption expenditure has a positive impact on GDP growth. Due to fluctuation in the price of import goods and services, political instability, corruption, inflation etc. are a variety of the source of decrease in GDP. However, these findings are not the concluding judgment regarding the significant relationship with GDP per capita growth of Nepal.

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