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Impact of Government Expenditure on Education and GDP

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Abstract

This study investigates the impact of government expenditure on education and its relationship with GDP, alongside the effects of school enrollment in secondary education and inflation rates. Grounded in the endogenous growth theory, the study emphasizes the importance of education as a driver of economic growth, particularly in developing nations like Nepal. Using time series data from 1990 to 2020, the research applies a multiple regression model to explore these relationships. The results indicate a significant positive impact of government expenditure on education and school enrollment on GDP, while inflation shows a negative association. The study concludes that increased investment in education leads to substantial economic growth, advocating for policy focus on educational expenditure and inflation management to promote overall development.

Keywords : Gross Domestic Product (GDP), Economic Growth, Government Expenditure, Inflation and Human Capital

Introduction

The gross domestic product (GDP) is one of the most well-known measures in today's world. It is employed as a crucial development progress indicator as well as an economic indicator. To develop both financial and non-financial policies, it is widely used by economists, politicians, journalists, businessmen, societies, and governments. In another way, different analysts defined the term GDP as an economic indicator that measures the total market value of final goods and services that are produced within a a certain area and a specific time (European Commission et al., 2009; Van den Bergh, 2009; Costanza et al., 2009). The gross domestic product (GDP) is the economic output of an economy. Government expenditure, Foreign direct investment, inflation, import and export of goods and services, market openness, supply and demand for goods and services, population, political climate, and so on are all important factors in the operation of economies. Climate change, diversification, and sustainable development are all natural factors influencing economic growth.

In the same line, most of the economists aim to find policy options to increase the economic growth of the country by decomposition analysis of the gross domestic product. Lucas (1988), Romer (1990), and Barro (1991) proponents of the endogenous growth model, conformed the importance and benefit of education in fostering economic growth. Therefore, investment in education benefits both the individual labor force and the economy. Additionally, nations with higher human capital stocks and greater investments in education, research and development will have faster economic growth. It argues that one of the main causes of the slow growth rate of some developing nations like Nepal islower human capital

stocks. This suggests that raising the quality of education at all level is crucial for the growth of Nepal. According to Hanushek and Woessman (2008) highlighted two key transmission mechanisms by which education influence economic growth. The human capital of the labor force is first, increased by education, which boost labor productivity and transitional growth to a higher equilibrium output level. Second, according to endogenous growth theories, education boosts the economic capacity for innovation and enhances knowledge of the new technology.

According to Ahsan, Kwan and Sahni (2012), Kolluri, Pank and Wahab (2016), and Ghali(2018), increasing government spending has beneficial impact on economic growth. The general agreement is that government spending, both ongoing and capital may increase growth specially when it comes to social and economic infrastructure. If economic growth is defined as a sustained increase of GDP over a long period of time, several factors can cause that growth. In light of conventional determinants, a number of economists have explored the multiple sources of growth and measure the separate contribution (Ackley, 1978). The relationship between the education and economic growth received increased interest from the Lucas (1988) and Romer (1986) endogenous growth theory. Education enhances human capital which will enjoy a faster rate of economic growth (Romer, 1990).

Government spending on education has been utilized as a public spending variable, and gross domestic product has been used as a measure of economic growth, in Okerkeoti's study, which used data from 1999 to 2020. Regression analysis was also employed in the study to test the hypothesis. The study's findings indicate that, at a 5% level of significance, there is a positive and significant relationship between government spending on education and RGDP. According to Okerkeoti (2022), there are no chances for economic growth in the absence of educational opportunities.

Another study was done to see whether or not spending on education has an impact on economic growth. The study used time series data for India from 1951 to 2012. The bi-variate VAR model, co-integration, granger causality, variance decomposition, and impulse response have all been used to examine the data. The outcome of vector error correction shows a long-run equilibrium relationship between economic growth and education spending. The study recommends focusing public expending on education to have better result in human development (Malick & Das, 2015).

To determine whether spending on education has an impact on economic growth, more study has been done. Based on time series data for India from 1951 to 2012 the study with the use of the bi-variate VAR model, co-integration, granger causality, variance decomposition, and impulse response, the data has been studied. The vector error correction result shows that there is an equilibrium relationship between spending on education and economic growth over the long run. According to the study, public spending should be directed on education for improved human development (Malick & Das, 2015). Cobb-Douglas production function, economic theory of measurement, Autoregressive Distributed Lag Bound Test have been used for data analysis. The result is comparatively different in case of Indonesia. Econometric test reflected positive relation in long run but negative relation in short run; on the other hand

gross fixed capital formation shown positive relationship but labor variable has a negative relationship in short and long run (Sunwandaru et. al, 2020).

On the other hand, public spending has been credited for supporting several economic sectors, according to Luthuli (2017) and Mutinda (2017). There aren't many literary sources that discuss Nepal. Kharel and Adhikari (2021) and Shah and Bhusal (2017) have addressed the relationship between public spending and economic growth based on their research, but they have not discussed the influence of government spending on education on economic growth. Similarly, both Chandra (2010) and Mutinda (2019) discussed the positive and negative effects of government spending on economic growth. Book literature also demonstrates the effects of culture on public spending. In all industries, the results do not match the expectations.

The literature mentioned above is sufficient to explain how public investment on education contributes to economic growth in any country. It was determined that the specific research located outside of Nepal were insufficient to comment on Nepal. Researchers thought it was vital to conduct a thorough investigation of Nepal utilizing pertinent data from the World Bank.

Whereas, there are limited studies have been conducted by academician and researchers in the particular domain i.e. developing economies. Besides that, gross domestic product is impacted by different marco-economic variables including government expenditure, saving, employment, consumption, inflation, money supply and so on. Most of the studies mainly concerned with the identification of the impact of other economic indicators (import, export, employement, remittence) on GDP rather than government expenditure on education and economic growth to the nations. After reviewing the previous studies, the present researcher found research gap and that made more curious to observe the role of goverment expenditure on education and economic growth.

Objective

The growth thoeries suggested that human capital accumulation from the education is a driver of economic growth of an economy. The main objective of this study is to examine the impact of government expenditure on education and GDP along with the impact of the inflation.

Research Questions and Hypothesis

In this study, the researcher has prepared research questions to justify the gap that between previous and current study. Following are the research questions:

RQ1: What is the impact of government expenditure on education to GDP ?

RQ2: Does school enrollment in secondary level influences to GDP ?

RQ3: What is the impact of inflation rate on GDP ?

Hypothesis of the Study

Null hypothesis significance testing is the most widely accepted and frequently used approach to statistical inference in quantitative communication research. However, it is highly controversial, and several serious problems with the approach have been identified. Null hypothesis significance testing is the dominant approach to statistical inference in quantitative research likewise economics, sciences and business aspects (Levine et al., 2008).

Thus, after making a research questions, the present researcher attempted to set-up null hypothesis for justification the relation between selected major economic indicators and GDP. With the reference of the previous studies on the relationship between GDP growth and education based on endogenous growth model, this study build up the following hypothesis. The null hypothesis of the study are given below;

H_{01}: There is no significance impact of government expenditure on education and GDP.

H_{02}: There is no significance impact of school enrollment in secondary level on GDP.

H_{03}: There in no significance impact of inflation on GDP.

Conceptual Framework

After reviewing the previous related studes, the present researcher attempts to identify the dependent and independent variables. Gross domestic product (GDP) is recognized as a dependent variable whereas Govt. expenditure, school enrollment in secondary level and inflation rate are ascertained as independent variables. In this study, the secondary time series data (1990 to 2020) has been used to examine the relationship among the taken variables. The conceptual framework can be shown as follows;

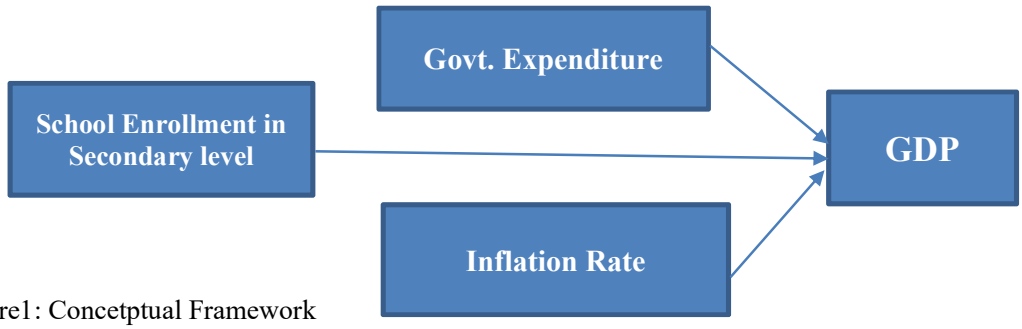

Figure1: Concetptual Framework

Method

The positivist paradigm is best in the assumption that a single tangible reality exists one that can be understood, identified, and measured (Park, Konge, & Artino, 2020). Beside that, Mahootian and Eastman (2009) defined that positivism is aligne with the hypothetic deductive model of secience. This study used quantitative and deductive research methods while adhering to a postpositive worldview and keeping the research purpose in mind. The investigation was conducted by scrutinizing the pertinent information gathered from secondary sources. The research is based on thirty-year time series data spanning the years 1990 to 2020. Such information has been gathered on variables like the gross domestic product (GDP), inflation (INF), government expenditure (GE), and school enrollment in secondary level (SE).

In the present study, education is taken as function of production or growth because it plays an important role in economic growth by enhancing skills and knowledge of human

capital. It should be noted that various studies measured education quantity using various proxies. For instance, education quantity is measured by schooling enrollment ratios (Mankiw, Romer & Weil 1992; Barro, 1991; Levine & Renelt 1992), adult literacy rate (Durlauf & Johnson 1995; Romer 1990) and education spending (Baldacci et al., 2005). Here to investigate the impact of education on economic growth, government expenditure (GE) and school enrollment (SE) has been taken as education indicators. So, the estimated regression model is;

$GDP = \alpha + \beta_1 INF + \beta_2 GE + \beta_3 SE + \mu$ …… (1)

Where,

GDP = Gross Domestic Product

INF = Inflation Rate

GE = Government Expenditure

SE = School Enrollment in Secondary Level

As per the research needs, multiple regression model has been taken as the major tools to draw the inferences between the dependent and independent variable. Where GDP is the dependent variable and all other variables such as GE, SE, INF are independent variables.

Analysis of the Data, Discussion and Conclusion

On the basis of taken time series data, the researcher fucused to apply inferential statistics to justify the designed hypothesi. In order to test the hypothesis, the ordinary least square (F-test) is used as to examine the impact of governmnet expenditure, school enrollment and inflation rate. The empirical results of the data analysis can be shown as:

Table 1

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GE	3.562278	2.823498	1.261654	0.2179
INF	-2.160639	1.527327	-1.414654	0.1686
SE	10.70730	1.153201	9.284853	0.0000
C	-275.7426	272.2605	-1.012790	0.3202

R-squared	0.961138	Mean dependent var	673.8725
Adjusted R-squared	0.956820	S.D. dependent var	189.6989
S.E. of regression	39.41894	Akaike info criterion	10.30628
Sum squared resid	41954.03	Schwarz criterion	10.49131
Log likelihood	-155.7474	Hannan-Quinn criter.	10.36660
F-statistic	222.5898	Durbin-Watson stat	0.957044
Prob(F-statistic)	0.000000		

Note: According to the author's own calculations using Eviews-10, GDP, government expenditure, secondary school enrollment and inflation were expressed as percentage.

Table 1 displays that the coffecients of government expenditure (GE), and school enrollment (SE) are significant at1 percent, 5 percent, and 10 percent significance level with positive sign. It indicates that there is significance association and impact between dependent and independent variables. The coefficient of GE 3.562 depicts that one unit changes in GE causes about 3.562 units positive changes in GDP. Similarly, The coefficient of SE10.707 depicts that one unit changes in GE causes about 10.707 units positive changes in GDP. But inflation rate (INF) is insignificant at different significance levels with negative sign. The coefficient of INF -2.160 depicts that one unit increase in INF decreases in GDP. In the same line, the model reveals that about 95.70 percent of total variation in GDP is clearify that the given independent variables. Similarly, the P-value (0.000) indicates that the model is statistically significant at 1 percent, 5 percent and 10 percent significance level. Thus, the P-value (0.000) is less than the significance levels it indicates that the null hypothesis is rejected.

Conclusion

According to the findings of least square regression analysis, investing extensively in the educational sector will help the government achieve better outcomes. Education has a strong beneficial impact on economic growth. In particular, for developing nations like Nepal, education is a useful instrument for the government to boost GDP growth. School attendance in secondary level ratios can be used as a proxy for education. Additionally, enrolment in secondary and higher secondary schools may serve as proxies.

In this context, it has been found that investing extensively in the educational sector can lead to significant improvements in various outcomes, particularly in the realm of economic growth. This finding holds great relevance, especially for developing nations such as Nepal, where education can serve as a powerful tool for the government to boost its Gross Domestic Product (GDP) growth. Education is widely recognized as a catalyst for economic development and prosperity. It equips individuals with the knowledge and skills necessary to participate in the workforce and contribute to the overall growth of the economy. Additionally, an educated population tends to have higher incomes, better health outcomes, and a greater capacity to innovate, which are all key drivers of economic advancement.

One of the ways to gauge the impact of education on economic growth is by using school attendance in secondary-level ratios as a proxy for education. This metric provides insights into the extent to which students are completing their secondary education, which is a critical stage in the educational journey. Higher rates of secondary school attendance typically indicate a more educated workforce, which can contribute to higher productivity and, consequently, economic growth.

Moreover, enrollment in secondary and higher secondary schools can also serve as proxies for assessing the impact of education on economic growth. When more students enroll in these educational levels, it suggests that there is a growing demand for advanced education

and skills development. This can lead to a workforce that is better equipped to take on higher-skilled jobs, foster innovation, and drive economic progress.

For a country like Nepal, which is classified as a developing nation, investing in education becomes even more crucial. Developing nations often face a range of challenges, including limited access to quality education, high levels of poverty, and a need for economic diversification. Education can address many of these challenges simultaneously.

I can see that the school enrollment in secondary level encompasses the economic growth of the country, after all, education build the children as potential human capital stock of the country. In thsi study, it was found that the inflation has negative impact on GDP. The finding of this paper emphasis that the government has to gradually increase the amount of government expenditure on education along with maintaining inflation for the overall development of the country. Thus, the upcoming academician, researcher and policy makers can be used the results as a source of information.

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