



Government Expenditure impact on the Economic Growth of Pakistan

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ABSTRACT

The primary goal of this study is to inspect the Government Expenditure consequence on the Pakistan's economy growth. For this intention study used data of annual time series from 1980 to 2020. The research-work utilized ADF Unit-Root Test that verify stationary data. And applied (OLS) technique to estimation the connection among the GDP and Govt Expenditure, Inflation, and GDP per capita. The estimation of the OLS method shows there is a positive and significant impact of Govt expenditure and GDP per capita on GDP. While; Inflation has a significantly negative influence on GDP of the country. This study propose that Fiscal Policy Expansionary can be utilized by the Govt to motivate the economic situation during the time of downturn.

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1. Introduction

Increased production of commodities and services used in the economy is referred to as growth in the economy (Chaudhry et al., 2021). GNP or gross domestic product (GDP) is the most general means to assess total economy growth, but alternate metrics are also employed. The Gross Domestic Product of every nation, emerging or developed, determines its economic progress. Every variation in the gross domestic product will have an impact on the nation's overall economic expansion. Any rise in an economy's Gross Domestic Product specifies the growing economy and moving towards a better condition; conversely, a decline in an economy's GDP indicates that the economy is contracting. Simply said, economic growth occurs when a nation's Gross domestic product rises.

The term "government spending" or "government expenditure" refers to all investments, transfers, and purchases made by the government. Government spending is essential for reducing poverty (Farooq et al., 2023). In line with the Keynesian theory, government expenditure may boost aggregate demand, which in turn supports additional economic expansion and job creation. But, cutting back on government spending might have a negative impact on the economy. Pakistan is one of those nations that has access to a variety of natural resources but is still developing, with relatively slow economic growth. The socioeconomic conditions of the nations are impacted both directly and indirectly by these variables, and as a result, the development rates of industrialised and emerging nations differ according to how differently their resources are utilised. Hence, the study identifies the beneficial effects of exports, imports, and government spending on Pakistan's economic growth.

Macroeconomic stability is necessary for a nation's economy to expand sustainably and over the long term (Faheem et al., 2022). The macroeconomic indices have fluctuated often and frequently in Pakistan's economy during the past few years. Government spending that was wasteful and unplanned as well as low levels of income production contributed to macroeconomic instability and widened the fiscal deficit gap. Throughout the previous five years, the nation's average growth rate was constant at 4.7%. whereas 5.4% is the government's aim. In 2017–18, the per capita income climbed by 1.3%, but declined by 9.4% in 2018–19. (Government of Pakistan, 2019). Fiscal reforms and structural changes that drive growth through various short- and long-term channels might increase the country's capacity for growth.

More taxes being enforced makes the economy spin, which lowers economy growth and production. The objective of this work in Pakistan is to supplement empirical research on inflation. Further particularly:

- To quantify the link among the economic growth variable and the rate of inflation;
- To determine the correlation among the economy growth variable and total govt spending;
- To assess link among the rate of inflation, the economy growth variable, and the disaggregated govt spending, namely the current and development spending of the government;
- Examining the directions of the causal link amongst inflation, economy growth, and government spending

Though the general consensus is that government spending, whether recurrent or capital expenditure, in particular on social and economic infrastructure, can be growth-enhancing, financing such expenditures to provide essential infrastructural facilities, including transportation, electricity, telecommunications, water and sanitation, waste disposal, education, and health, can be growth-retarding. (for example, the negative effect associated with taxation and excessive debt). The scope and composition of public spending would dictate the direction and mode growth of the economy (Chaudhry et al., 2021; Faheem et al., 2022).

Both conceptually and practically, the relationship between government spending and economic growth is still open question. Although there are many different theoretical perspectives on the matter, it is widely believed that excessive government expenditure contributes to economic instability or stagnation. Yet, empirical study cannot definitively prove the prevalent knowledge. While some studies indicate a strong adverse or no correlation among a rise in govt expenditure and growth in real production, others find some evidence of significant and positive association amongst growth of the economy and government spending.

2. Literature Review

Rehman et al. (2020), worked on the Govt Expenditure Composition and Economy Growth of Pakistan. The work required to determine the influence of various govt spending components of Pakistan economic development from 1973 to 2018. ARDL has been used to assess the figures in light of the findings of the ADF test. According to the study, the impact of public spending, namely spending on R&D, subsidies and other transfers, employee remuneration, and education, on GDP per capita stayed considerable and positive. But the cost of the military and interest on loans has a notable and detrimental impact on Pakistan's per capita productivity. According to the report, the government should increase expenditure on employment, R&D, and education in command to hasten the nation's growth of economy.

Awan et al (2018), investigate the outcome of government expenditures on development of economy in case Pakistan. The study says that government uses monetary policy and subsidies in development countries to enhance economic growth. The study investigates in short-run, relative monetary-policy have negative effect on economic-growth in the long-run, When inflation is stabilised at a given level, people will be much more willing to invest in the domestic sector. The finding predicts, the improvement of technology in economy expanded share of open consumption in gross national output. The financial analysis will acknowledge the expenses of a somewhat higher government obligation load to get unemployment down and help development.

Dhrifi, A. (2018), analyzed the relationship between Health-care spending, infant mortality and growth in developing and groomed economies. In 93 rich and less developing nations, Utilizing information from 1995 to 2012, the study inspects the influence of health care expenditure on child mortality rates. It does this by utilizing a simultaneous equation model. The study's findings also revealed that at lesser stages of development, public health outlay had a larger influence on death proportions than private spending; however at higher levels of health, development, private spending has a beneficial effect on child mortality ratio.

Chandio et al. (2016), with information from the Pakistan Economic Survey, researchers and statistical year books looked at the government spending influence on the country's agriculture, economic development from 1983 to 2011. In order to analyze the data, the study used the Johansen Co-integration test, the ADF unit root test, and the Ordinary Least Squares methodologies. The findings of the Johansen-Co-integration method demonstrated that Pakistan's government spending on agriculture contributed to agricultural production and growth in the economy had a long-term link. The empirical findings of regression analysis concluded that government spending and production of agricultural had a major influence on Pakistan's growth and economy.

Ali et al., (2015) examined how the cost of defence affected Pakistan's economic development from 1980 to 2013. Moreover, the 2 stage-least-square -estimation approach is employed to estimate a three equation model in instruction to examine in-direct and direct influence of the defence load on growth of economy. The results indicated Pakistan's economic development is slowed down by defence spending both directly and indirectly.

Scrutinized the influence of expenditure on economy growth by Muhammad et al., (2015) in Pakistan. The aim's research is utilizing time series data for the years 1972–2013, to examine the impact on growth of spending in Pakistan. Secondary Data is attaining from the Statistical Bureau of Pakistan and the World Development Index. ADF approach was employed to transmute non-stationary data into stationary. According to the co-integration reveals conclusion, there is no indication of a long-standing

link among national income and spending.

Lahirushan et al. (2015) studied of Asian regions that the effects on economy output of government expenditure. The methodology is quantitative and uses panel-based-data of Asian nations from time duration 1970 to 2013 in conjunction with granger causality, panel fixed effects modeling, and co-integration econometrics. The Random Effects Panel ordinary least square approach is the one that was employed. Similar to the aforementioned methods, the study discovered an intriguing result. First, actual data reveals that govt spending's have a tremendously good conclusion on the region's GDP. Second, in Asian nations, here is a long-run correlation amid in government spending and development of economy.

Khan et al. (2014), factors influencing Pakistan's economy output tendencies. In the instance of Pakistan, this research work looked at the causes of economic development between 2008 and 2012. The degree of GDP growth has been utilised as a variable indicator of economic progress. When compared to government spending, import and export effects on the GDP were less pronounced. Government spending and GDP were shown to be highly significant, whereas the impact of exports and imports was found to be less so. Due to the restricted amount of data and time available for analysis, this may differ from previous studies.

Sheikh et al. (2014), examines Pakistan's and India's defence spending and economic expansion. Based on a supply side model (Fader-type), this study presents empirical data on the connection among growth and defence for Pakistan, India from 1972 to 2010. The combined influence of the civilian and defence sectors on economic growth under the two-sector model is favourable for both Pakistan and India. The coefficients for the defence and civil sectors remain the same in sign. For both countries, the overall impact of the export industry is favourable and important. Furthermore, all of the models have maintained the same level of overall performance and explanatory power. The results show the augmented Fader-Type and Fader-Type models predict the defense sector's overall impact on growth is favorable for both Pakistan and India. Under the two and three sector models, the Pakistani military industry's externality effect is still negative, whereas it is positive in the four sector model.

Khan et al., (2014) in Pakistan stated the determinants of eco-growth. The aims of the research study are to discover the expenditure effect on eco-growth in Pakistan, time-series-data utilizing from 1972 till 2013. Second-hand data is acquiring from WD Index and Statistical-Bureau of Pakistan. Augmented Dicky Fuller method was employed to transform stationary data into non-stationary. The integration results indicate that there is no any association amid national income , expenditure in the long-run.

Christie et al. (2014), examines testing the non-linear hypothesis on how spending by the government impacts economic expansion. For a set of 25 transition economies between 1992 and 2004, theoretic frameworks predict a non-linear link amongst the proportions of the government and long-term eco-development. Yet, due to the endogeneity of Government spendings and the precise location of inflexion facts, experimentally proving that concept in cross-country research is challenging. By using threshold examination in a cross board or off-road growth regression, the study investigates the non-linear theory. The approach uses a sample-splitting architecture and a methodical approach to discovering and verifying changes in the slope. For a large panel of nations, the data offer proof in recommend or in esteem of the non-linear hypothesis.

Attari et al. (2013) conducted a study on Inflation, government expenditure eco growth in file of

Pakistan from 1980-2010. In example of Pakistan, the research work investigated the connection among growth, spending's and inflation rate. Government spending in the research has been divided into 2 groups: current government spending and the development spending. The time-series data from the years 1980 to 2010 are used to conduct the research. To study this link, econometric procedures such the ARDL, Johansen co-integration, the Granger-causality test, the Augmented Dickey Fuller (ADF) unit root test are utilised. The outcomes of using these econometric techniques reveal a long-term association among the economy growth, government spending and inflation rate, which indicates that public spending has beneficial externalities and links.

Ali et al. (2013), examines the relationship amid the makeup of government-spending and economy expansion employing data from Pakistan. The research aims to inspect the function of subdivisions of government-spending under the Pakistan democratic and military administrations between 1972 and 2009. ARDL methodology was tested in this research work. The findings indicate that Islamic Republic Pakistan experiences contractionary fiscal expansion. Moreover, economic growth is positively impacted by the coefficient of development spending. The public-capital-concept, which holds that private & public investment is complementary to one another, is supported by this. The findings also demonstrate that present spending does not support economic expansion. According to the report, in order to maintain macroeconomic stability, the government should cut back on wasteful spending and improve resource mobilisation.

Muritala et al. (2011), study attempted to investigate empirically the trends as-well-as influence of government spending on the real GDP output rate in Nigeria from the last few decades about to (1970-2008) by utilizing econometrics methodologies with the technique of OLS. The findings showed the optimistic association among real GDP output as against the capital and recurrent expenditure.

Baum, N. D., & Lin, S. (1993), analyzed the differential effects on economic growth of government expenditure on education, welfare and defense. This study basically examined the three dissimilar kinds of welfare, per-capita education and government expenditures effect, defense and GDP/Capita Growth Rate utilizing cross-section data over the both developing & developed economies from 1975-1983. The finding revealed that for both time series and cross-section data base the output ratio of government expenditure had a positive impact on the output rate of Gross-Domestic-Product.

3. Theoretical Framework

As an alternative, the Keynesian hypothesis postulated that through funding public initiatives and programmes, government expenditure contributes to growth of economy. According to the Keynesian school of economics, government must interfere in the economy by increasing spending on social programmes and public works initiatives to encourage economic activity and growth (Dilrukshini, 2009, Ageli, 2013). The argument is predicated on the idea that increasing government expenditure on social and infrastructure initiatives helps to foster a climate that is more conducive to private sector investment and, as a result, is more effective in fostering employment development and economic expansion (Palley, 2013; Ono, 2011).

In 1956, Robert Solow and Trevor Swan published a neoclassical economics-based model of long-term economic development. This economic model states that external forces determine an economy's long-term growth rate. Exogenous influences include labour market expansion, capital accumulation, and technical improvement, among others. According to a typical Solow model, the only option to continue development when economies attain their steady state equilibrium is through technological progress. Solow's concept has an intriguing conclusion that poor countries should develop more quickly

and eventually catch up to affluent nations. The Mankiw, Romer, and Weil (1992) enhanced Solow-Swan neoclassical growth model, sometimes known as MRW, is of interest. One benefit of using the MRW neoclassical method is that a straightforward theoretical foundation for empirical growth regression is clearly developed. So, using the MRW paradigm as a foundation for empirical research on economic growth is helpful.

4. Methodology & Data Sources

To examine the linkage between the dependant and independent variables, the current work analysed yearly time-series data from 1980 to 2020. The data of different variables like GDPPC, Government Expenditure, and inflation are gathered from WDI officials links.

4.1 Ordinary-Least-Square Approach

The Ordinary Least Square approach was used in the current investigation to define the connection among the response and respond variables. OLS is a technique for figuring out a linear regression model's unknown parameters. Previous literature has been used different econometrics methodologies to assess the relationship of different variables in different regions (Chaudhry et al., 2020; Farooq et al., 2020; Faheem et al., 2022; Tanveer et al., 2022). The information for the dependant and independent variables is expressed in logarithmic form. The calculated equation looks like this:

$$GDP = f(\text{Government Expenditure, Inflation, GDP per Capita})$$

The following is the study's multiple regression model:

$$GDP = \beta_0 + \beta_1GE + \beta_2INF + \beta_3GDPPC + \mu_i$$

5. Results and Discussion

In this section of the study, analysis of experimental data will be present.

5.1 Descriptive Statistics:

	GDP	GE	INF	GDPPC
Mean:	117.2010	12.92776	8.207073	714.4424
Median:	72.31000	7.121000	7.840000	534.3039
Maximum:	314.5600	36.84700	20.28000	1482.213
Minimum:	23.69000	2.377000	2.520000	303.0510
Std. Dev:	93.81074	10.57917	3.809431	385.8285
Skewness:	0.812988	1.023643	0.654290	0.680611
Kurtosis:	2.159629	2.606736	3.625393	1.938257
Observations:	41	41	41	41

Sources: Software E-views 9

Descriptive statistics are summarised observations of 41 are specified in above table. The 1st row explain the average of GDP, Government Expenditure, inflation and GDP per capita is (117.2010), (12.92776), (8.207073) and (714.4424) correspondingly.

The table's second-to-last row contains the skewness values. Skewness symbolizes the disparity and asymmetry in the data distribution's mean. If the bell curve's centre and top point correspond to the mean, the mean median, and the mean mode are the same., the data distribution is skewed. Here in the table we can see that, GDP, Government Expenditure, Inflation and GDP per capita they are

favourably skewed because the mean value exceeds the median value.

The values of Kurtosis are displayed in the last row, demonstrating the data's flatness and peakness relative to a normal distribution. If a high peak appears in the probability distribution, the value of Kurtosis is higher than (3), this is known as Leptokurtic (>3). When the value of the kurtosis is less than 3 (<3), the probability distribution is understood to be platykurtic, indicating that the data is flat. (GDP, Government Expenditure, Export, Import) values are less than 3, so these are platykurtic variables and the value of variable Inflation is bigger than 3, it is known as Leptokurtic that mentioned in table below;

5.2 Pair – Wise Correlation Matrix

The problem of multi-collinearity between variables is commonly identified by Pair-wise-correlation. The problem of multi-collinearity is demonstrated through the high coefficients of correlation of many variables.

Variables	GDP	GE	INF	GDPPC
GDP:	1.000000			
GE:	0.918116	1.000000		
INF:	-0.006544	-0.006124	1.000000	
GDPPC:	0.905141	0.970336	0.008477	1.000000

Sources: Software E-views9

The above table explains the matrix of correlation of all variables. The outcome confirm that GDP (1.000000) shows positive correlation with GDP. GE (0.918116) and GDPPC (0.905141) are highly correlated with GDP. This shows the problem of co-linearity, other variable like inflation (-0.06544) shows negative correlation with GDP and shows less co-linearity with GDP.

5.3 Unit Root Test

The present study applied to verify that the data are steady, employ the Augmented Dickey Fuller methodology for unit root. By and large the conclusion reveals the results of the Augmented Dickey Fuller table for unit-root is prearranged in below tabular form.

“variables”	At-Level		At-1st-Difference		“conclusion”
	Intercept	Trend-Intercept	Intercept	Trend-Intercept	
GDP	-----	-----	.0045	-----	1 (1)
GE	-----	-----	.0000	-----	1 (1)
INF	-----	-----	.0472	-----	1 (1)
GDPPC	-----	-----	.0009	-----	1 (1)

Sources: Software E-views 9

The Augment-Dickey-Fuller-test for Unit-Root is displayed in above table. This is utilised to conclude whether or not a time series of data is stationary. The ADF tests scrutinize the likelihood that a unit-root exists in the time-series sample. All variables in table GDP, GE, GDPPC and INF are stationary at 1st Difference intercept.

5.4 Ordinary-Least-Square-Approach Results;

Below tabular reveals the association of response variables on responds variables.

Variables:	Coefficients:	Std. Error:	t-Statistics:	Prob.
GE	2.221023	0.228180	9.733651	0.0000
INF	-0.276393	0.085910	-3.217256	0.0028
GDPPC	0.139299	0.004090	3.405595	0.0000
C	-29.86743	1.337615	-2.632888	0.0000
GDP(-1)	0.188457	0.030908	6.097399	0.0000
R²:	0.999576	Durbin-Watson Test:		2.072146
Adjusted R²:	0.999527			

Sources: Software E-views 9

According to the table, the coefficient value of variable GE is significantly positive impact on gross domestic product. It illustrates that 1% enhance in Government Expenditure it will (2.221023) unit augment in gross domestic product. The coefficient value of variable INFLN put significantly negative effect on gross domestic product. It confirm that one percent increase in Inflation it will (0.276393) units diminish in GDP. The results support the findings of Attari et al. (2013). The coefficient worth of variable GDP per capita put positive but significant impact on gross domestic product. It illustrates that, one percent enhance in GDP per capita it will increase (0.139299) units in GDP. The outcome confirms the results of Rehman et al. (2013). The more the fellow of Adjusted R-squared, the more the fate model is. The ideal value of Adj R-squared is 1. The value of Adj R-squared is (0.999527). which is nearer to 1.it means model is good. Durban-Watson value lies between 0 to 4.2 is ideal value of Durban-Watson. If Durban-Watson value is greater than 2, it indicates that is negative auto-correlation. There is no autocorrelation if the Durban-Watson value is 2, and there is autocorrelation if the Durban-Watson value is less than 2. Here the figure of Durban-Watson is (2.072146), it means there is no autocorrelation.

5.5 Auto - Correlation

The autocorrelation problem is tested by Breusch-Godfrey-Serial-Correlation LM test. Below The table specify the results of Breusch-Godfrey-Serial-correlation LM test.

Serial-Correlation LMTTest	
F-Statistic	1.341467
Prob.	0.2753

Source: Software E-views9

Autocorrelation issue is tackled by using the lag of the dependant variable. The probability value is negligible, demonstrating the absence of autocorrelation.

5.6 Hetero-skedasticity

The Breusch-Godfreyt-Approach is employed to assess the hetero-skedasticity problem. The findings of the Breusch-Godfrey test for heteroskedasticity are displayed in the table below.

HeteroskedasticityTest	
F-Statistic	.720498
Prob	.5838

source: Software E-views 9

The table shown above shows the outcomes of the Breusch-Pagan-Godfrey test for heteroskedasticity. The probability figure value is negligible, demonstrating the absence of heteroskedasticity in the data that we used.

6. Conclusion

The primary goal of the existing research work is to determine how-much government spending affects Pakistan's economic expansion. The research work makes use of yearly time-series data from 1982 through 2020 for this aim. The current study evaluates a number of academic articles on government spending and global economic development in Pakistan and other nations. The study looked into the correlation among growth of economy and government spending through analyses to prior studies. The Solow Swan growth hypothesis, which illustrates the influence of external factors on economic growth, is also clarified by the study. The study also sheds insight on Keynesian philosophy, which is founded on the idea that increasing government expenditure on social programmes and infrastructure helps to improve the business climate.

The study first identifies the outcomes of descriptive statistics. Second, the ADF test was used in this study to determine if the data were stationary. The current study then looks at the relationships between various factors and GDP. In the current study, co-integration and the search for relationships among the respond variable and the response variables are both accomplished employing the ordinary-least-square approach. The results demonstrate the government spending & GDPPC have a favourable and considerable influence on economic growth. Economic growth is negatively and significantly impacted by inflation. The results imply the govt should employ an expansionary fiscal policy to boost the economy during a downturn. The report also indicates that decision-makers should be aware of how government spending affects economic growth and implement measures that are appropriate for Pakistan's economic development.

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