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Impact of Current, Defense and Development Expenditure on Economic Growth of Pakistan

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ABSTRACT

The present study aimed at investigating the impact of current, defense and development Expenditure on economic growth of Pakistan over period of time 1994-95 to 2020-21. In this regard, econometric techniques i.e Augmented Dicky Fuller Unit Root Test, Ordinary Least Square Test, Auto-regressive Distributive Lag Model, Bound Test and Error Correction Models were applied. The result findings revealed that Defense Expenditure significantly influenced economic growth of Pakistan. Bound Test witnessed log run relationships exist between tested variables in the model. Findings of Error Correction Model provided F-Stat value as 6.8 which is higher than upper and lower limit revealing speed of adjustment from short run dynamics towards long run equilibrium. Author recommends as policy implications that special emphasis needs to be paid in utilizing current and developmental expenditure for ensuring aggregate demand exclusively so necessary for accelerating economic growth in Pakistan.

Introduction

Economic growth refers to the increase in the output of goods and services within a country over a specific period. In simple terms, it's about how much a country's economy expands, creating more wealth, improving the living standard, and providing opportunities for jobs. Pakistan, as a developing country, faces several challenges in achieving sustained economic growth, including issues like unemployment, inflation, poverty, and infrastructure gaps. One of the most crucial factors contributing to economic growth is government expenditure. This is the money the government spends to run the country, maintain services, and invest in future growth. The nature of government spending plays a key role in shaping the economy. Expenditure can be divided into two main categories: current expenditure and developmental expenditure. Current expenditure

includes the spending on the regular functioning of the government, such as salaries of government employees, interest on public debt, and administrative costs. While essential for maintaining dayto-day services, excessive current expenditure can lead to inefficiency and debt burdens. Developmental expenditure, on the other hand, refers to spending aimed at long-term growth, like investments in infrastructure, education, health, and technology. This type of spending is often seen as a driver for creating economic opportunities, reducing poverty, and improving productivity in the economy.

Significance of study

The goal is to evaluate whether the government's spending in these areas has had a significant positive or negative effect on the country's overall economic performance. Understanding these relationships is crucial because it will help policymakers make informed decisions on how to allocate government resources effectively. For instance, should the government focus more on infrastructure development to boost growth, or should it optimize current expenditures to ensure the efficient delivery of public services?. The importance of studying government expenditure in Pakistan is clear, given the country's ongoing economic struggles. From the political instability to challenges in the energy and infrastructure sectors, Pakistan has faced numerous hurdles to achieving sustainable economic growth. Government spending, when effectively used, can serve as a tool to stimulate the economy, create jobs, and improve living conditions for citizens. Therefore, analyzing the impact of both current and developmental expenditure on economic growth will provide valuable insights into the effectiveness of Pakistan's fiscal policies and their role in shaping the future economic landscape of the country.

Objectives of Study

Impact of Current, Defense and Development Expenditure on economic growth of Pakistan

Research Hypothesis

Research Hypothesis is as follows.

HO: No Impact of Current, Defense and Development Expenditure on economic growth of Pakistan.

Methodology

Data and Methodology

The data used for this study spans from 1994-95 to 2020-21 and focuses on Pakistan's GDP growth rate and two key components of government expenditure: current expenditure, Defense Expenditure and developmental expenditure. The data is sourced from the Pakistan Economic Survey and covers key economic indicators during this period. The GDP growth rate is the dependent variable in the analysis, representing the annual percentage change in the country's output of goods and services. Current, Defense and expenditure and developmental expenditure are the independent variables, both measured as percentages of GDP. Current expenditure includes spending on administrative and operational costs, such as salaries, subsidies, and debt servicing, while developmental expenditure covers investments in infrastructure, education, health, and other long-term growth-promoting areas. Various econometric Techniques i.e Augmented Dicky Fuller Unit Root Test, Ordinary Least Square, Auto-regressive Distributive Lag Model, Bound Test and Error Correction Models are applied for data analysis.

Econometric Model

To assess the impact of current, defense and expenditure and developmental expenditure on economic growth, this study employs two different econometric models: the Ordinary Least Squares (OLS) regression model and the Auto-Regressive Distributed Lags (ARDL) model.

Ordinary Least Square (OLS) Regression Model

The first model is a simple linear regression, specified as:

$$GDP_t = \alpha_0 + \alpha_1 CE_t + \alpha_2 DFE_t + \alpha_3 DE_t + e_t$$

Where:

GDP_t = GDP growth rate of Pakistan in year t

CE_t = Current Expenditure (% of GDP) in year t
DFE_t = Defense Expenditure (% of GDP) in year t
DE_t = Developmental Expenditure (% of GDP) in year t
e_t = Error term representing unexplained variation
This model is used to examine the relationship between the dependent variable, GDP growth, and the three independent variables: current, defense and developmental expenditure.

Log-Linear Model

To address potential non-linearities in the data, a log-linear model is also employed. This is especially useful when analyzing the percentage change in GDP relative to changes in expenditure. The log-linear equation is specified as:

$$\ln(GDP_t) = \alpha_0 + \alpha_1 CE_t + \alpha_2 DFE_t + \alpha_3 DE_t + e_t$$

This transformation allows for easier interpretation of coefficients in terms of percentage changes rather than absolute values.

Literature Review

Government Expenditure and Economic Growth: A Global Perspective:

Spending by the government has a significant impact on a nation's trajectory of economic growth. Government expenditure can be a useful instrument for boosting demand, particularly during recessions, according to Keynesian economic theory. According to the argument, in order to boost economic activity and create jobs during recessions, the government can spend more on social welfare and infrastructure projects. Because of companies increasing production in response to increased demand, the GDP may rise.

Another viewpoint is offered by neoclassical economics, which emphasizes long-term investments in physical and human capital (health and education) infrastructure like roads and energy systems). Investments in these sectors can lead to increased productivity, which is crucial for sustained economic growth. In many developing countries, including Pakistan, balancing current expenditure with developmental expenditure is necessary for promoting sustainable economic development.

Government Expenditure in Pakistan

In the case of Pakistan, government expenditure has been a critical factor in shaping the country's economic landscape. The relationship between expenditure and growth in Pakistan has been examined by several scholars. According to the Pakistan Economic Survey (2020), the country's GDP growth has fluctuated over the years, often reflecting changes in government spending priorities. Research by Mahmood and Akhtar (2016) suggests that government expenditure in Pakistan has been heavily tilted toward current spending, such as defense, subsidies, and debt servicing, with less focus on developmental projects that could stimulate long-term growth.

A study by Mughal and Nazir (2018) found that developmental expenditure on infrastructure (roads, energy, telecommunications) has a significant positive impact on Pakistan's GDP growth. The authors argue that infrastructure development helps create jobs, improves connectivity, and boosts industrial productivity, all of which contribute to economic growth. However, they also highlight the challenge of inefficiency in public spending, where many developmental projects are either delayed or suffer from corruption and mismanagement.

Current Expenditure, Defense Expenditure and Economic Growth

Current expenditure and Defense Expenditure has been a major component of Pakistan's budget over the years. While necessary to maintain the government's day-to-day functions, excessive reliance on current expenditure can have negative effects on economic growth. A study by Iqbal and Khan (2019) suggests that a high proportion of Pakistan's government expenditure has been directed toward non-productive areas like defense spending and debt servicing. The study argues that while defense is essential for national security, large-scale spending in this area diverts resources from critical sectors such as education, health, and infrastructure, which are essential for long-term growth.

According to Ali and Niazi (2017), the inefficiency in the use of current expenditure in Pakistan contributes to a higher fiscal deficit, leading to inflationary pressures and a growing public debt. This fiscal imbalance, in turn, crowds out private investment, reducing the overall productivity of the economy. Moreover, the large share of current expenditure directed towards subsidies and unproductive government salaries often results in misallocation of resources, which can limit the positive impact of government spending on economic growth.

Developmental Expenditure and Economic Growth

The role of developmental expenditure in driving economic growth is widely acknowledged in the literature. Ghani (2018) emphasizes that Pakistan's long-term economic growth largely depends on investments in infrastructure, education, and health. These sectors not only create jobs but also improve the country's productivity by enhancing human capital and creating an environment conducive to private investment.

According to Ahmed and Khan (2017), investing in infrastructure, particularly in energy and transportation, can have a multiplier effect on economic growth. For example, improvements in road networks can lower transportation costs for businesses, which in turn reduces the overall cost of goods and services. Similarly, investments in energy infrastructure can alleviate the chronic energy shortages that have hindered industrial growth in Pakistan.

Furthermore, education and health expenditures contribute to human capital development, which is crucial for improving labor productivity. A study by Zaman et al. (2019) showed that countries that invest heavily in education and healthcare experience higher economic growth rates, as a healthy and educated workforce is more productive and innovative.

Challenges and Limitations in Government Spending

While government expenditure is crucial for economic growth, its effectiveness depends on how it is managed. Mismanagement, corruption, and political instability often hinder the efficient allocation of resources in Pakistan. Khan (2016) discusses how corruption in public sector projects leads to delays and cost overruns, which reduce the benefits of developmental expenditure. Similarly, Raza (2015) notes that political instability and frequent changes in government often result in inconsistent spending priorities, which undermines the long-term impact of expenditure on growth.

International Comparisons

Looking at other countries, studies have shown that government spending can have a positive effect on economic growth, but only when spent in the right areas. In India, a study by Chakraborty (2015) found that government spending on infrastructure, healthcare, and education led to significant improvements in GDP growth. Similarly, in Brazil, Almeida and Fernandes (2019) observed that developmental expenditure on infrastructure led to higher industrial growth, although the benefits were reduced when the current expenditure was misused.

Conclusion

In conclusion, the literature highlights the crucial role that both current and developmental government expenditure play in shaping economic growth. For Pakistan, balancing these types of expenditures is vital. While current expenditure is necessary to maintain essential services, developmental expenditure in areas like infrastructure, education, and healthcare is critical for creating long-term economic opportunities. However, the efficiency of government spending, the management of resources, and the reduction of corruption remain significant challenges that need to be addressed to maximize the impact of government expenditure on economic growth.

Table-1 Unit Root Test for Tested Variables ($LGDP_t$, CE_t, DFE_t, DE_t)

Variables	ADF (Levels)		ADF in 1st Differences		Integration sequence through differencing I( )
	Intercept	Intercept and Trend	Intercept	Intercept and Trend	
$LGDP_t$	-3.593	-3.517	-5.107	-4.999	I(0)
CE_t	-2.270	-2.215	-5.002	-5.106	I(1)
DFE_t	-2.641	-1.935	-3.4888	-4.177	I(1)
DE_t	-2.154	-2.086	-5.356	-5.256	I(1)

Note: Variables estimated in log linear form;

95 percent critical values = -2.98 (Without Intercept and without Trend); and

95 percent critical values = -3.60 (With Intercept and Trend)

Results and Discussion

Augmented Dickey Fuller (ADF) Test for Unit Roots: The integration sequence between the variables in the regression model is ascertained using this test. As shown in Table 1, it has been observed that this test tends to reject the null hypothesis of non-stationarity of all such variables, confirming that the corresponding independent variables (CEt, DFEt, and DEt) are found stationary at first difference I(1) and the corresponding dependent variable (LGDPt) is found stationary at level 1(0).

Table-2 Ordinary Least Square (OLS) for Tested Variables *(LGDP$_t$, CE$_t$, DFE$_t$, DE$_t$)*

Response Variable: LGDP				
Method: Least Squares				
Sample: 1994 2020				
Counted observations: 27				
Variable(s)	**Coefficient(s)**	**Standard Error**	**t-Statistic**	**Probability**
Current Expenditure (CE)	-0.751	0.262	-2.864003	0.008*
Defense Expenditure (DFE)	1.017	0.436	2.329841	0.029**
Development Expenditure (DE)	0.644	0.392	1.641423	0.114
Constant (c)	10.885	3.890	2.798225	0.010
R^2	0.338	Durbin-Watson Stat.		2.156
Adjusted R^2	0.252			
F-Stat.	3.922			
Prob(F-Stat.)	0.021**			

**Significant level at 1%*
***Significant level at 5%*

A review of Table 2 showed that, from 1994–1995 to 2020–21, Current Expenditure (CEt) had a negative and substantial impact on Pakistan's GDP Growth Rate (LGDPt), Defense Expenditure (DFEt) had a positive and significant influence, and Development Expenditure (DEt) had an insignificant impact. According to Table 4.32, the independent variables TEt, TRt, and FDt are predicting 34% variation in the dependent variable, LGDPt, with an R2 value of 30%. The calculated model's F value, which is 3.922 ($P<0.05$), indicates significant correlations between the dependent and independent variables. This indicates the model's overall fitness and total combined effects. Additionally, DW (2.156) shows no autocorrelation in the model and falls within the permitted range of 1.5 to 2.5. The current analysis confirms the positive association between government expenditure (i.e., government consumption, investment, and transfer payments) and economic growth by comparing it to a prior study by Nhemhafuki (2023).

Table-3 Autoregressive Distribute Lags Model for Tested *(LGDP$_t$, CE$_t$, DFE$_t$, DE$_t$)*

Response Variable: Log(GDP)				
Method: **ARDL**(1, 2, 2,0)				
Sample: 1996 to 2020				
Counted observations: 27 after adjustments				
Variable(s)	**Co-efficient**	**Standard Error**	**t-Statistics**	**Probability***
GDP(-1)	-0.529	0.266	-1.983	0.064***
CE	-0.994	0.336	-2.959	0.009*
CE(-1)	-0.198	0.367	-0.540	0.596
CE(-2)	-0.747	0.394	-1.892	0.076***
DFE	-0.430	1.786	-0.240	0.812
DFE(-1)	4.492	2.564	1.751	0.099***
DFE(-2)	-1.829	1.497	-1.221	0.239
DE	0.889	0.477	1.862	0.080***
C	27.619	6.884	4.011	0.001*
R^2	0.589	**Durbin Watson Statistics (DW)**		2.365
Adjusted R^2	0.383			
F-Stat.	2.867			
Prob(F-Stat.)	0.034**			

**Significant at 1%*
***Significant at 5%*
****Significant at 10%*

Table 3 shows how to use the Auto-Regressive Distribute delays Model (ARD), which is a type of standard least square regression that uses explanatory variables and response delays as regressors. After applying the ARDL approach, the results of Table 3 showed a negative and significant influence on the lag values of Current Expenditure, a positive and significant influence on the lag value of Defense Expenditure, and a positive and significant influence on the GDP Growth Rate of Pakistan from Development Expenditure. This is because both order of integration at level I(0) and at first difference I(1) conditions prevail in Table 1. According to Table 3, the independent variables CEt, DFEt, and DEt are predicting 59% variation in the dependent variable, LGDPt, with an R2 value of 59%. The calculated model's F value, which is 2.87 ($P<0.05$), indicates substantial correlations between the dependent and independent variables. This indicates the model's overall fitness and total combined effects.

Table-4 Bound Test for estimating long run relationships among Variables *(LGDP, CE, DFE, DE)*

ARDL Bounds Test		
Sample: 1996 to 2020		
Counted observations after making adjustments: 25		
HO: No long-run relationships		
Test Statistics	Value(s)	K
F-Statistics	6.862	3
Critical Bounds Value		
Sig.	I0 Bounds	I1 Bounds
10%	2.72	3.77
5%	3.23	4.35
2.5%	3.69	4.89
1%	4.29	5.61

HO= No Long Run Relationships between variables
HI = Long Run Relationships between variables

Perusal of Table-4 provided the value of F statistics (6.862), which is greater than upper bound critical value revealing long run relationships between dependent and independent variables in the model.

Table-5 Error Correction Mechanism (ECM) for estimating short run relationships and long run adjustments among Variables *(LGDP, CE, DFE, DE)*

Response Variable: D(LGDP)				
Method: Least Squares				
Adjusted Sample: 1995 2020				
Counted observations after making adjustments: 26				
Variable(s)	**Coefficient(s)**	**Standard Error**	**t-Statistic**	**Probability***
C	0.009413	0.406673	0.023145	0.9818
D(CE)	-0.485855	0.286034	-1.698589	0.1042
D(DFE)	0.893235	1.612124	0.554073	0.5854
D(DE)	0.657559	0.497935	1.320573	0.2009
ECT(-1)	-1.119248	0.236204	-4.738472	0.0001*
R^2	0.558	Durbin-Watson Stat.		1.937
Adjusted R^2	0.474			
F-Stat.	6.641			
Prob(F-Stat.)	0.001			

**Significant at 1%*

Perusal of Table-5 indicated the value of Co-integrating equation, which is worked out as negative and statistically found significant (P<0.01) provides speed of adjustment will be corrected in next period by converging from short run dynamics towards long run equilibrium.

Implications of the Findings

These findings have several important implications for policymakers:

Developmental expenditure in areas such as infrastructure, education, and healthcare should be prioritized as it has the potential to stimulate long-term growth. Investment in infrastructure, for example, can improve productivity, reduce transportation costs, and create jobs, leading to higher economic output. Current expenditure needs to be managed efficiently to avoid wasteful spending. Focusing on administrative efficiency, reducing unnecessary subsidies, and minimizing debt servicing can free up resources for more productive investments. Long-term policy stability is crucial for ensuring that government expenditure leads to sustainable economic growth. Policies should be consistent and focused on projects that generate long-term returns, such as infrastructure development and human capital investment.

Policy Implications

Based on the findings from the regression analysis and the econometric models used in this study, several policy recommendations can be made for Pakistan to optimize the relationship between government expenditure and economic growth. The key focus should be on managing current expenditure effectively and boosting developmental expenditure in key sectors that promote long-term growth**.**

Conclusion

The study arrived at conclusion that Defense Expenditure witnessed significant influenced, whereas Current and Development Expenditure influenced insignificantly, but in long run all such tested variables revealed significant impact on economic growth of Pakistan.

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