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Steering Sustainable Development via Prudent Policy Interventions: An Investigation into the Efficacy of Fiscal Policy Interventions on Sustainable Developed of a Developing Economy

Abstract

This study examines the effects of fiscal policy on Pakistan's economic dynamics, using data for GDP, government spending, budget deficit, tax revenue, and unemployment from Pakistan's Economic Survey (ESP) and the World Development Indicators (WDI) from 1990 to 2022. The study applies VECM and Johansen Cointegration methods within a theoretical and empirical framework. The results reveal long-term cointegration between GDP and fiscal indicators, particularly government spending and tax revenues. In the long run, government spending and tax revenues have a significant positive impact on GDP. However, in the short run, government spending positively impacts GDP, while tax revenues negatively affect GDP. Both budget deficit and unemployment have a significant negative impact on long-term GDP growth. In the short term, the budget deficit shows a developing positive impact on GDP.

Keywords: GDP, Government Spending, Budget Deficit, Tax Revenue, Unemployment.

Authors:

Aneesa Khalil: M.Phil Scholar, Zhongnan University of Economics and Law, Wuhan, China.
Department of Economics, National University of Modern Languages (NUML), Islamabad, Pakistan.

Hidayat Ullah Khan: (Corresponding Author)
Associate Professor, National University of Modern Languages (NUML), Islamabad, Pakistan.
Email: (masmaleo@yahoo.com)

Muhammad Waqas: MS. Scholar, College of Plant Sciences and Technology, Huazhong Agricultural University, Wuhan, China.

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Keywords: [GDP](#), [Government Spending](#), [Budget Deficit](#), [Tax Revenue](#), [Unemployment](#)

Authors:

Aneesa Khalil: M.Phil Scholar, Zhongnan University of Economics and Law, Wuhan, China.
Department of Economics, National University of Modern Languages (NUML), Islamabad, Pakistan.

Hidayat Ullah Khan: (Corresponding Author)
Associate Professor, National University of Modern Languages (NUML), Islamabad, Pakistan.
Email: (masmaleo@yahoo.com)

Muhammad Waqas: MS. Scholar, College of Plant Sciences and Technology, Huazhong Agricultural University, Wuhan, China.

Contents

- [Introduction](#)
- [Significance of the Study](#)
- [Research Gap](#)
- [Literature Review](#)
- [Data and Methodology:](#)
- [Time Series Analysis](#)
- [Unit Root Test](#)
- [Johansen Cointegration Test](#)
- [VECM Model Estimation](#)
- [Model Specification:](#)
- [Long-Run VEC](#)
- [Conclusion and Policy Implications:](#)
- [Policy Implications](#)
- [References](#)

Introduction

Fiscal policy, including government expenditure, taxation, and budgetary measures, assists as a critical instrument for economic management and growth in countries across the world. In the context of Pakistan, the prudent design and effective implementation of fiscal policy have been recurrent concerns, given their significant implications for economic stability,

growth, and social welfare. This study embarks on a thorough examination of fiscal policy and its implementation in Pakistan, aiming to shed light on its dynamics, challenges, and impacts on the country's economy.

Pakistan, as an emerging economy, has encountered complicated economic challenges, from insistent budget deficits to revenue generation



constraints. The country has dealt with the task of framing and executing fiscal policies that effectively stimulate economic growth while addressing socio-economic inequalities. The government's fiscal measures, encompassing both expenditure and Revenue policies are crucial in determining the economic direction of the nation. Despite the significance of fiscal policy, Pakistan has faced continuing issues related to the effectiveness of policy implementation, the administration of budgetary deficits, tax collection inadequacies, and optimal allocation of resources. The country's fiscal policy has been damaged by persistent challenges, necessitating a thorough evaluation to identify underlying obstacles and opportunities for reform.

This study's main goal is to conduct a general analysis of the dynamics and effects of Pakistan's fiscal policy implementation. Assessing the effectiveness of government expenditure and revenue policies in stimulating economic growth and examining the challenges faced in budget management and deficit regulation are also among the precise goals of the research. The study also reports the primary research question marks which are the effect of taxation and spending policies on Pakistan's economic growth and the primary challenges in managing budget deficits and revenue generation in the country.

Significance of the Study

This research holds dominant significance in offering understandings that can inform policymakers, economists, and investors involved in shaping Pakistan's fiscal policy. The results will contribute to a deeper understanding of the strengths, weaknesses, and opportunities existing within the present fiscal framework.

Research Gap

While several studies have observed features of fiscal policy in Pakistan, there remains a need for an updated and comprehensive study that synthesizes the complicated dimensions of fiscal policy implementation, addresses present-day challenges and offers realistic recommendations for policy development.

Literature Review

Fiscal policy, an influential instrument in economic management, plays a significant influence on how nations' economies are shaped worldwide. In Pakistan's case, the construction and execution of fiscal policies have been fundamental in addressing economic challenges and developing sustainable

growth. This literature review aims to provide a comprehensive synthesis and critical analysis of academic works, empirical research, and policy analyses focused on fiscal policy within the framework of Pakistan. By digging into the details of fiscal policy design, implementation, and outcomes, this review pursues to shed light on the effectiveness, challenges, and impacts of fiscal measures in Pakistan's economic framework. Abdou et al. (2014) examined the link between fiscal policy and its potential impact on the economic situation in Asia. Their analysis of the economic landscape in the region highlighted a relatively limited level of government intervention, suggesting a need for increased government involvement to bolster the region's economic influence. The study underscored that tax on assets exerts a more significant influence on economic progress in comparison to direct tax.

Ahmad and Sheikh (2011) led a study highlighting that Pakistan's contribution of taxes to its Gross Domestic Product (GDP) remains significantly low as compared to other developing economies. The study extensively inspected the tax reforms implemented over the past two decades. They assessed that Pakistan's tax system is categorized by qualities such as inelasticity, non-neutrality, complexity, and inefficiency. Efforts to restore the tax structure were started in the late 1970s, assisted by policymakers and international financial institutions. Despite these events, the study revealed that the objectives of increasing public revenue, improving the tax system, and raising public awareness about taxes were not accomplished. The study identified several reasons for these ineffective changes, assigning them to issues prevailing both at political and organizational levels. Recent studies have continued to explore fiscal policy's role in economic growth in Pakistan. A study by Kiani and Alam (2023) analyzed the impact of fiscal deficits on Pakistan's GDP and found that while deficits stimulate short-term growth, they contribute to long-term economic instability. Similarly, Shahid et al. (2024) concluded that fiscal austerity measures, including cuts in government spending, can have detrimental effects on GDP growth, especially in emerging economies like Pakistan, where economic recovery is still fragile.

Ahmad et al. (2016) investigated the correlation between the total tax revenues collected by the government and the economic growth of the Islamic Republic of Pakistan. They employed a time series dataset lapping from 1974 to 2010, analyzing both short and long-term trends. Their results indicated a negative association between tax revenue and economic progress over extended periods.

Specifically, they found that a 1% rise in total revenues led to a 1.25% cut in economic expansion. Ahmed (2011) used annual time series data from 1982 to 2010 to investigate how government policies affected Pakistan's economic development. An analysis of revenues and expenses was part of the study, categorizing revenues into tax and non-tax sources, including both federal and provincial government revenues. Expenses remained separated into developing and non-developing expenditures. The empirical conclusions revealed that non-taxes revenues positively impacted development both at state and local government levels. However, tax revenue presented a substantial negative effect on economic growth, particularly at the federal government level. Moreover, expenditures assigned to developmental projects were found to enhance economic progress, although non-developing expenditures showed no visible impact on economic development.

According to Gerson (1998), fiscal policies impact economic growth through three primary channels. Firstly, policies focused on enhancing education and healthcare levels among the labor force contribute to skill development, thereby positively inducing labor productivity. Fiscal policies targeting the improvement of human capital and enhancing workers' productivity can produce favorable effects on the economy. The second channel operates by enhancing the efficiency of the present capital and reinvesting it into new projects to boost physical capital. Investing in innovative skills, substructure, and research and development through fiscal policy can significantly boost economic growth prospects. Gerson further notes that fiscal policies encouraging open trade, and facilitating the import of modern technology, have shown success. Lastly, the third set of policies can impact the stream of labor and the amount of capital through tax inducements or hindrances, thus affecting economic development. Turnovsky (2002) conducted an analysis of fiscal policy within an economy functioning at a non-scale growth level, considering both the public and private sectors. The study showed a significant impact of fiscal policies on growth, particularly during shift periods. It was suggested that in a planned economy, government investment might produce more favorable outcomes than government consumption.

Afonso et al. (2005) recognized numerous networks through which fiscal policy influences a state's economic development. The first recognized network is the magnitude of the communal sector, which can also hinder or enhance economic

development. A large government sector with efficient institutions might accelerate economic growth. However, a large public sector joined with complex tax weights and incompetent government could hinder the efficacy of fiscal policy in increasing economic growth. The second channel revolves around the structure and efficiency of public expenditures. Development-oriented expenditures on infrastructure, education, and research and development, if performed efficiently, can significantly impact the success of fiscal policy. The third channel relates to the construction and competence of the income structure, surrounding tax improvements, and the introduction of less misstating taxes. A well-structured revenue system is key to successful fiscal policy. The fourth channel emphasizes good fiscal governance as crucial for promoting economic progress through fiscal policy. Lastly, the fifth channel highlights the importance of proper working of markets and the corporate environment. This could be enhanced by efficient and less misstating income and spending systems and by establishing strong fiscal organizations.

Romer & Romer (2007) conducted an analysis using narrative archives to evaluate the effect of tax policy on economic activities, aiming to examine the scale, control, and primary motivations behind major post-war tax policy actions. The study revealed that tax increases had a particularly contractionary effect. The results were healthy and significantly larger than the estimates obtained using broader procedures of taxation. Particularly, higher taxes on investment were observed to cause larger effects on GDP related to other types of taxes. The study concluded that reducing budget deficits through established tax increases sustained lower output costs compared to other forms of taxes. On the other hand, Babalol & Amin (2010) examined the connection between the fiscal plan and economic growth using cointegration techniques in Nigeria. Their findings suggested a reassuring and long-term positive impact of productive expenditures on economic growth during the study period. They recommended increasing government expenditures in productive sectors such as education, healthcare, and economic infrastructure to boost economic progress.

Ali and Ahmad (2010) led research to investigate the possible effect of fiscal policy on the progress dynamics of Pakistan's economy. Their discoveries suggested that a favorable correlation exists between economic development and budget deficit up to a certain threshold level. However, past this specific threshold, a persistent negative relation between

budget deficit and economic progress was observed. These outcomes affiliated with theoretical expectations, indicating a positive relationship for a temporary period, while the relationship turned negative for longer durations. Buti and Gaspar (2015) highlighted the modern global economic conditions and emphasized the necessity of a revised fiscal policy to tackle obstacles associated with worldwide economic development. They emphasized the need for fiscal policy reform, particularly within the Euro area, to address the predominant issues in today's economies. The study suggested that restructuring automatic stabilizers of fiscal policy might be the most real approach to overcoming country-specific developmental issues. However, they recognized the complexity of this task, noting that adjustments to tax and expenditure policies inside the economy could possibly conflict with the benefits now in place.

Data and Methodology:

Data Sources

The empirical analysis in this study is done upon data sourced from two primary datasets: the World Development Indicator (WDI) published by the World Bank and the Economic Survey of Pakistan, which offers complete economic data and information on Pakistan's fiscal indicators, economic performance, and policy actions.

Time Series Analysis

The data collected is prepared as time series data, classically covering a prolonged period of years from 1990 to 2022 to detect trends and variations in fiscal indicators and economic performance.

Unit Root Test

Prior to estimating the VEC model, it is essential to test the stationarity of the pertinent variables. A unit root test, like the Augmented Dickey-Fuller (ADF) test, can

be used to determine whether the variables are stationary or non-stationary. The ADF test looks for each variable's unit root, which denotes a non-stationary series. For the Johansen Cointegration Test, all the specific variables used in the research need to be stationary after 1st difference.

Johansen Cointegration Test

The Johansen cointegration test is used to determine the strength and nature of the long-term relationship between the variables in our model. Also identified as the Unobstructed Cointegration test, it helps to identify stable long-term steadiness. Basically, this method examines the long-term relation between cointegrated variable quantity or those variables initially identified as stationary after the first difference, I (1).

VECM Model Estimation

Investigating the short- and long-term relationships between specific fiscal policy variables and economic indicators is done using the Vector Error Correction Model (VECM). This multivariate time-series model allows the estimation of how fluctuations in fiscal policy variables affect economic growth and other applicable economic outcomes.

Model Specification:

$$\text{GDP Growth}_t = \beta_0 + \beta_1 \text{GS}_t + \beta_2 \text{TR}_t + \beta_3 \text{BD}_t + \beta_4 \text{UE}_t + \epsilon_t$$

- GS_t , TR_t , BD_t , and UE_t are values of government spending, tax revenues, budget deficits, and unemployment rate, respectively. GDP Growth_t is the GDP growth rate of Pakistan used as the dependent variable in this research.
- The coefficients to be estimated in the study are β_0 , β_1 , β_2 , β_3 , and β_4 .
- ϵ_t represents the error term.

Result and Discussion

Table 1

Unit Root Test

Variables	T-Statistic	Prob.*	Integration Order
GDP	-4.316783	0.0018	I(1)
S	-5.299283	0.0001	I(1)
BD	-5.855593	0	I(1)
TR	-7.355174	0	I(1)
UE	-6.391019	0	I(1)

The Augmented-Dickey Fuller test is displayed in Table 1 to verify the unit-roots of each variable being

examined. The Johansen, 1990 Cointegration test can be used on these variables because, as Table 1 states,

all of the variables were non-stationary at level but stationary after the first difference.

Table 2

Johansen Cointegration Test

H ₀	H ₁	Trace-Statistic	Critical Value	Max-Eigen Statistic	Critical Value
r = 0	r ≥ 1	141.8141*	69.81889	75.62015*	33.87687
*shows 5% significance level					

To determine whether the model contains any cointegrating equations, the Johansen, 1988 cointegration test is used. As shown in Table 2 the absence of cointegrating equations is the null hypothesis (r=0), while the alternate hypothesis is that there is at least one cointegrating equation present (r≥1). We reject the null hypothesis because the trace

statistic value (141.8) is higher than the critical value (69.8), which means there exists a long-term cointegration between the variables. At the 5% level of significance, the max-eigen statistic (75.6) is likewise higher than the critical value (33.8) indicating the presence of at least one cointegrating equation.

Table 3

Vector Error Correction Model

Cointeq eq	Cointeq1
GDP(-1)	1 1.38682
GS	(-1)-0.3411 [4.06571] -1.476344
BD	(-1)-0.27334 [5.40105] 0.211942
TR	(-1)-0.2155 [-0.98349] -0.483416
UE	(-1)-0.07203 [-6.71177]
C	-7.067636

Long-Run VEC

The table shows the long-run cointegration among all the variables. Apart from tax revenue, every other variable shows a statistically significant impact on GDP. The government spending and tax revenue coefficient shows a positive correlation with Pakistan's GDP growth rate, which means a 1 unit

increase in government spending and tax revenue will lead to a 1.4 unit and 0.2 unit increase in GDP, respectively which is coherent to the theory. In contrast, budget deficit and unemployment showed a negative long-term relationship with GDP stating that a 1 unit increase in budget deficit and unemployment will lead to a reduction in Pakistan's GDP by 1.5 unit and 0.5 unit respectively.

Table 4

Short-Run VEC

Error Correction	D(GDP)
Cointeq1	-0.358 -0.27481 [-4.16020]
D(GS(-1))	1.331325

Error Correction	D(GDP)
	-0.61218
	[2.17474]
D(BD(-1))	1.222255
	-0.37115
	[3.29313]
D(TR(-1))	-0.59944
	-0.4189
	[-1.43098]
D(UE(-1))	-0.71832
	-0.3599
	[-1.99589]

Table 4 shows the short-term estimates of the VEC model. As shown in the table the error correction term is approximately (-0.4) which means that the GDP of Pakistan will adjust from short-term shocks towards the long-term equilibrium at the adjustment speed of

almost 40%. All the variables are showing insignificant impact due to their low t-values. Here government spending and budget deficit exhibit a positive relationship while tax revenue and unemployment have a negative relationship over short-run.

Table 5

LM test for Breusch-Godfrey Serial Correlation

Lags	LM-Stat	Prob.*
1	16.4255	0.9016
2	22.93829	0.5812
3	31.72562	0.1661

The Breusch-Godfrey serial correlation test is displayed in Table 5 to check for autocorrelation among the variables. We reject the null hypothesis,

which states that there is no autocorrelation between the variables being observed because the probability value of each lag is greater than 0.05.

Table 6

Jarque Bera Normality Test

Variable	Jarque-Bera	df	Prob.
1	1.687899	2	0.43
2	0.740907	2	0.6904
3	0.082795	2	0.9594
4	0.596147	2	0.7422
5	1.482443	2	0.4765

The Jarque Bera test is used to determine whether the distribution in the series is normal. As shown in table 6 all the values of probability are greater than 0.05 which concludes that the series is normally distributed.

Conclusion and Policy Implications:

Conclusion

This research was conducted to analyze the implementation and impact of fiscal policy measures in Pakistan. The World Development Indicators (WDI) and the Economic Survey of Pakistan (ESP) provided the data for the time span of 1990 to 2022. VECM and Johansen Cointegration were amongst the main

techniques used for the estimation of the desired results which were produced by the theoretical and empirical frameworks.

The outcomes display that there exists a long-term cointegration between GDP and fiscal indicators such as government spending and tax revenues. In the long term government spending and tax revenues showed a highly positive and statistically significant effect on Pakistan's GDP, although in the short run government spending showed a positive relationship but tax revenues had away adverse effect on GDP.

In contrast, budget deficit and unemployment in the long run showed a highly negative and insignificant impact on the GDP growth of Pakistan,

while in the short run budget deficit started to have a positive impact on GDP.

Policy Implications

- Evaluate and adapt taxation and expenditure strategies to encourage economic stability and growth.
 - Increase subsidies for education, healthcare, and infrastructure to improve economic development.
 - Implement more actions to control inflation rates and to create more jobs for a stable economy.
- Introduce modifications to improve market competitiveness and enable fair trade for economic growth.
 - Foster an environment encouraging technological advancements and innovation to drive economic productivity and progress.
 - Uphold accountable fiscal practices, guarantee transparent governance, and build investors' confidence for sustained economic stability and growth.

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