



Examining the contribution of fiscal policy on economic growth: Analytical insights from Pakistan

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Abstract

To better understand the influence of fiscal policy (FP) on economic growth (EG) in Pakistan, this study investigates the importance of the amount of output produced by different factors of production in Pakistan's economy. The annual time series data has been collected from the State Bank of Pakistan and World Bank Data-Base from the years (2001–2020). The Autoregressive Distributed Lag (ARDL) model is used for empirical research to assess the significant factors of EG, and the Augmented Dickey-Fuller (ADF) unit root test is used to ensure that all of the variables are stationary. Using annual time series data from 2001 to 2020. Based on these findings, this study recommends adopting a proactive fiscal policy framework that incorporates expansionary measures. We argue that this strategy has the capacity to stimulate and maintain Pakistan's economic growth path, thereby fostering a more promising and prosperous future. Moreover, the study found the impact of government expenditures (GE), gross fixed capital creation (GFCC), and direct and indirect taxes on Gross domestic Product (GDP). Additionally, findings showed that government expenditures, gross fixed capital creation, indirect, and direct taxes have a strong effect on economic growth. It is argued that an expansionary fiscal policy in the future could greatly benefit Pakistan's economic growth.

Keywords:

Autoregressive distributed lag

EG

Fiscal deficit

FP.

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1. Introduction

The development of an economy is affected by a multitude of factors. These factors have been the subject of much debate. Many economists believe that FP is an essential component of the economic process, and that discussing growth without it is incomplete. Because of the prevalence of market flaws, governments often step in to correct the economy's course. Sticky prices and wages, along with the inability of market forces to improve the economy's plight, provide convenient justification for government intervention. Additionally, During the Great Depression of the 1930s, a significant number of individuals embarked on a westward migration in pursuit of employment opportunities due to the scarcity of jobs in the U.S. The recognition of the significance of government did not occur until the post-Great Depression era. For the economy to function smoothly, government action in the form of FP is emphasized (Keynes, 1937). In 2008, FP in the United States boosted EG after a recession had taken hold. Therefore, its significance has been greatly emphasized in the modern, interconnected world. Therefore, EG cannot be achieved without using FP as a driver. The mechanism for its operation is the transmission. The economy is propelled towards expansion by the implementation of a meticulously designed FP, whereas EG is hindered by an inefficient FP. In general, there are two primary parts to FP. These methods are deployed to counteract the effects of cyclical unemployment, inflation, and deflation.

There exist broad-based & constrictive kinds of FP. During a slump in the economy, expansionary FP measures are employed to stimulate aggregate demand by the implementation of either increased government spending, reduced tax rates, or a combination of both. During a contractionary FP the government implements measures such as increasing taxes or reducing GE, or both, in response to indicators of an economic upswing. These measures are taken to mitigate the risk of the economy reaching a state of overheating.

When it comes to the effectiveness of FP, economists usually take one of two positions. The neoclassical perspective posits that the economy is influenced in the long run by various factors, including advancements in physical, human, and technological domains, as well as demographic variables such as population. The neoclassical perspective posits that the economy is influenced over the long term by various factors, including physical, human, and technological advancements, as well as demographic variables such as population dynamics. The viewpoint being discussed is exemplified by the theoretical frameworks referred to as endogenous growth models. The growth variables in the economy described above were elucidated by neo-classical economists (Solow, 1956; Swan, 1956) within the framework of their growth models. These economists saw the FP as a means by which the government could incentivize its citizens to save and invest, but they did not subscribe to the view that FP can lead to sustained expansion of the economy. According to Chamley (1986), the impact of FP on EG is limited to the short term, with no discernible effect on long-term growth.

However, some neo-classical economists argue that government action has lasting effects. Barro (1990); Barro and Sala-i-Martin (1997) and Lucas (1990) are only a few examples. These coincide with the opinions of Easterly and Rebelo (1993). All of the models offered by these economists included the government's FP position. According to Barro (1990) and Barro (1991), the outcomes will be uncertain if there is an increase in both productive expenditures and distortionary tax. An increase in GDP per capita can be observed when non-distortionary taxes are utilized to enhance government expenditure on productive endeavors. The growth of per capita income is hindered when tax revenue is obtained by non-distortive methods and afterward allocated towards non-productive activities.

There is widespread consensus among economists that governmental action can affect the economy. When Government spends more, aggregate demand rises, resulting in growth. However, if government spending exceeds its receipts, a fiscal deficit results, which halts EG. Therefore, the government should employ FP in a way that allows the economy to reach a steady state of growth and avoid the deficit, which retards expansion.

The primary objective of this research is to assess the impact of fiscal policy (FP) on the economic growth (EG) of Pakistan. The study is designed to investigate the influence of budgetary policies, with a specific focus on government expenditures (GE) and both direct and indirect taxation, on EG. This research will analyse various FP instruments and pinpoint those that are most suitable for fostering EG. The ultimate goal is to formulate comprehensive policy recommendations based on our findings to stimulate and sustain Pakistan's economic expansion. Given the existing lack of consensus within the academic literature on this topic, our study aims to empirically explore the behavioural consequences of budgetary tools for economic growth within the unique context of Pakistan.

This study uses ARDL to assess FP's effect on Pakistan's EG. The rest of this study follows this structure: Section 2 categorizes prior similar studies on FP's impact on Pakistan's EG as positive, negative, or non-positive or negative. Section 3 details the empirical datasets, data sources, endogenous, exogenous, and control variables, formulas, empirical models, and mathematical interpretations and conclusions. Empirical results test the study's hypotheses in Section 4. Section 5 discusses the findings, physical significance, limits, and research direction.

2. Literature Review

There are numerous studies showed that GE influences EG is a subject that neither economic theory nor empirical evidence can definitively resolve. While there exists a degree of agreement regarding the impact of spending by the government on economic growth, the academic literature on fiscal policy is divided on whether this effect is primarily due to its supportive role or the potential crowding-out impact it may have on private investments. One potential benefit of government expenditure on human capital investment is the potential to enhance labour productivity and stimulate private investment. Nevertheless, its reliance on increased taxation and government borrowing may impede economic growth (EG). Therefore, it is posited that the implications of FP shocks on economic expansion (EG) are transitory in neoclassical models of growth (Cass, 1965; Solow, 1956), whereas long-lasting expansion is externally influenced by technological advancements. According to these models (Abdullateef, Mobolaji, Kilishi, Yaru, & Yakubu, 2011; Romp & de Haan, 2007), government spending has little impact on overall output.

The theory of endogenous development posits that expenditure by governments exerts an advantageous effect on societal results, in contrast to neo-classical growth models (Fedderke & Romm, 2006; Lucas, 1990; Rebelo, 1991; Romer, 1986, 1990) are all examples of endogenous growth models. In these models, there may be a link between government size and EG, as FP shocks can increase the stable per capita income of the country (Alqadi & Ismail, 2019; Romp & de Haan, 2007). Consequently, GE, akin to the Keynesian model, serves as a valuable policy instrument that enhances EG. GE can be conceptualized as an integral element within the broader framework of the production function (Alqadi & Ismail, 2019). There are two main principles in the existing literature on how to incorporate government spending into the production function. The accumulation of human and physical capital is subject to direct influence and can be regarded as a determinant of multifactor productivity. On the opposite end of the spectrum, expenditure by the Government can be perceived as a technological limitation that has an impact on the overall efficiency of production factors (Duggal, Saltzman, & Klein, 1999; Romp & de Haan, 2007).

On the other hand, there is a lack of clear information about the effect of growth on GE. There are a few ways to categorize these studies. Although their findings are still inconsistent, cross-sectional studies like those conducted by Barro (1991); Landau (1983); Landau (1986); Ram (1986) and Romer (1986) generally report that government spending slows EG. This can partly be explained by the fact that interpersonal dynamics are not captured (Abu-Bader & Abu-Qarn, 2003). In order to extensively evaluate the dynamics of this relationship, previous studies have predominantly employed time series methodologies, including the unit root test and the cointegration test (Narayan, Narayan, & Prasad, 2008). But their response is still murky. Public investment is consistently connected with EG, as shown by time series studies such as those conducted by Easterly and Rebelo (1993). However, Barro (1990) and Barro (1991) confirms the adverse relationship of the public sector on EG.

The conditions under which government spending contributes to EG were established in a separate study. A 1994 World Bank study concluded that public spending alone could not afford continuous growth in the economy. According to Banister and Berechman (2001), public spending in developing countries can increase growth under certain conditions. Some research categorizes GE as either effective or ineffective. These experiments illustrate that even necessary expenditures might become useless if made in excess (Devarajan, Swaroop, & Zou, 1996). Government spending is beneficial to EG, according to empirical data reported by Wu, Tennyson, and Hsia (2010), which are independent of the methods used to measure government size and EG. Indeed, disaggregated studies have shown how the growth impact of GE will eventually depend, inter alia, on the contribution of different parts to EG, which need not be the same or homogenous across all parts (Devarajan et al., 1996).

The influence of FP shock on South African output is examined using threshold and time-varying parameter structure vector autoregressive approaches (Jooste, García-Aparicio, Brienzo, van Zyl, & Görgens, 2013; Nuru & Kefelegn, 2020). They discovered that FP shocks have different effects on output depending on when they occur and the status of the economy. This study also examines short- and long-term relationships between FP variables and EG using the Johansen vector error correction model. Subhani (2010) uncovered potential outcomes of government policy in the Pakistani context. Variables such as taxes, inflation, and trade deficit were used to examine this connection. Their analysis found no effect of taxes on inflation. Only the trade balance was considerably affected by taxation.

There is a significant way in which the current study stands out from the aforementioned literature. It uses a time-series approach because cross-section analysis fails to capture the dynamic link between GE and EG. Conventional time series regressions used to explain government expenditure and GDP growth presume FP's linear effect on EG. This study examines the nonlinear short-term and long-term relationship between GS and EG, with the goal of identifying policy implications.

In contrast, the Keynesian approach suggests a larger multiplier for spending rather than taxes. (Mountford & Uhlig, 2009) discovered that the impact of tax multipliers was larger than that of their spending scenario. When comparing the two, we find that "government spending and real GDP due to the crowding-out effect" is negatively correlated. Arief (2003) backed up their findings, noting that higher levels of government spending in turn would place a burden on the productive sector in the form of higher taxes. High debt-to-GDP ratios are also associated with a decline in real GDP (Blanchard & Perotti, 2002; Sutherland,

1997). Another side of the coin is that Tang, Gorelick, Veksler, and Boykov (2013) showed that in Asia, real GDP is negatively correlated with GS. The results of empirical studies showed GS positively correlated with EG (Adegoriola, 2018; Akbar & Joseph, 2016; Mahmood & Sial, 2012; Musa & Asare, 2013; Mutuku & Koech, 2014; Sen & Kaya, 2015). Additionally, the paper examines the behavioral impact of budgetary instruments on EG by focusing on novel characteristics of the setting in Pakistan, highlighting the gaps in the current literature. In order to "evaluate the effects of FP on EG in Pakistan," the research is being carried out. The bearing of FP on EG is examined for this reason through government spending, direct expenditure, and indirect expenditure. Moreover, the research will center on FP instruments and emphasize which budgetary policy instrument is best for promoting EG.

3. Empirical Data and Research Methodology

3.1. Empirical Data

We examine four independent variables—GDP, GCE, GFCF, and direct and indirect taxes—to determine how FP affects EG. Data from the World Development Indicators (WDI) was collected annually from 2001 to 2020 to empirically analyse the suggested model. The Finance Division of Pakistan can be accessed at www.finance.gov.pk.

3.2. Research Methodology

The study used the Augmented Dickey-Fuller (ADF) unit root test to evaluate if the variables were stationary. We adopt (Mahmood & Sial, 2012) "Autoregressive Distributive Lag (ARDL) Model" for long-term cointegration association as part of a conditional-free error correction technique. To discover persistent associations between variables, an ARDL estimation strategy is employed. The method's "Cumulative Sum (CUSUM) and Cumulative Sum of Square (CUSUMQ)" test is used to achieve parametric stability. The bound test was utilized to accomplish long-run dynamics. In order to determine the optimal lag duration prior to analysis, the Vector Autoregressive (VAR) is used. The study purpose determines the following econometric equations.

$$GDP_t = f(FP_t) \quad (1)$$

Whereas

$$FP = FCE + IND.TAX + GFCF + D.TAX \quad (2)$$

Therefore, the equation is as under:

$$GDP_t = f(FCE_t + IND.TAX_t + GFCF_t + D.TAX_t) \quad (3)$$

The final econometric model is given as under:

$$GDP_t = \alpha_0 + \alpha_1 FCE_t + \alpha_3 Ind.Tax_t + \alpha_2 GFCF_t + \alpha_4 D.Tax_t + \mu_t \quad (4)$$

Taking the log of Equation 4:

$$\ln GDP_t = \alpha_0 + \alpha_1 \ln FCE_t + \alpha_3 \ln Ind.Tax_t + \alpha_2 \ln GFCF_t + \alpha_4 \ln D.Tax_t + \mu_t \quad (5)$$

In a regression model, α_0 is the intercept, whereas α_1 , α_2 , α_3 , and α_4 are independent variable coefficients. The variables FP, FCE, IND, GFCF, Tax, D.Tax, μ , and t indicate final consumption expenditures, gross fixed capital formation, indirect and direct taxes, error term, and period. FP factors in this analysis include "direct, indirect taxes, final consumption expenditure, and gross fixed capital formation". Regression assumes two assumptions: a linear relationship between two variables and statistical significance. The slope of the line estimates an independent variable's coefficient in a basic regression model. In a multiple regression model, the estimated coefficient of an independent variable represents its net effect on the dependent variable, maintaining the other independent variables constant (Sriyalatha & Torii, 2019).

4. Results and Discussion

Cointegration between time series depends on many factors. Before estimating, check for erroneous regression. Before implementing the ARDL model, the ADF (Augmented Dickey-Fuller) test shows how variables will behave.

ADF empirical results in Table 1 indicate that the dependent and independent variables are integrated at the first difference level. Thus, the ARDL estimate approach will yield definitive empirical data.

Table 1. Output of unit root.

Variables	Level	1 st difference
DP	-1.967 0.603	-5.578*
FCE	-3.044 0.137	-4.336*
GFCF	-2.359 0.395	-5.248*
Ind.Tax	-1.916 0.322	-6.937*
D.Tax	-4.978**	-8.251

Note: The stationary of variables at the level and first difference are * and **, respectively.

Table 2. Selection criteria of optimum lag.

Lag	LagL	LR	FPE	AIC	SC	HQ
0	145.752	NA	1.37E-11	-10.827	-10.585	-10.757
1	262.739	179.981	1.20E-14	-17.903	-16.451	-17.485
2	293.332	35.300	9.97E-15	-18.333	-15.672	-17.567
3	330.411	28.522	8.24E-15	-19.262	-15.391	-18.148
4	450.005	45.997*	4.68e-17*	-26.539	-21.458	-25.076
5	2558.522	0	NA	-186.809*	-180.519*	-184.998*

Note: *Optimal ARDL Bound test lag length.

Identification of static variables is only the initial stage in ARDL analysis. Due to its consistency, the Schwarz Information Criterion (SBC) is used more than the Akaike Information Criterion (AIC). The Akaike Information Criterion (AIC) and Hannan-Quinn Criterion (HQC) pick five lags for our investigation. The results are in Table 2.

Table 3. ARDL bound test, empirical results.

H ₀ : Long-run relationship occurs		
Statistics	Value	K
F-stat.	4.637	4
Critical value of bound		
Significance	I0 bound	I1 bound
10%	2.454	3.525
5%	2.867	4.01
2.50%	3.27	4.50
1%	3.76	5.07

Table 3 shows the Autoregressive Distributed Lagged (ARDL) Bound test predictions. The null hypothesis is rejected when the F-statistic exceeds the upper limit. The estimated value of F-Statistic is more significant than F-Calculated in this study except at 1%. According to these studies, "FP has no impact on economic development" is untrue. It is accepted that "Fiscal strategy has no impression on economic development". The empirical results show a long-term Co-integration relationship between variables.

Table 4. Long run relationship between proposed model.

Variables	Coefficient
GFCF	0.089 (0.044)**
FCE	0.164 (0.041)**
Ind.Tax	0.062 (0.009)*
D.Tax	0.249 (0.000)*

Note: *,** there is a "level of significance at 1%, 5%, and 10% respectively" for the values and. Logarithmic forms of explanatory variables are used when the original units of measurement for those variables are unavailable.

Table 4 presents the results of our analysis, highlighting significant factors influencing economic growth (EG). Our findings align with previous research studies, including Idris and Bakar (2017); Matallah (2017) and Sriyalatha and Torii (2019). Notably, we observe that gross fixed capital development exhibits a statistically significant positive effect on EG at a 5% significance level. The coefficient associated with gross limited capital formation is 0.088, indicating that a 1% increase in capital stock leads to an 8.85% improvement in EG. Furthermore, we find a direct and significant relationship between consumer spending and EG, consistent with the literature (Adegoriola, 2018; Akbar & Joseph, 2016; Jelilov & Musa, 2016; Mahmood & Sial, 2012; Musa & Asare, 2013; Sriyalatha & Torii, 2019). Specifically, the coefficient for final consumption expenditures is 0.164161, suggesting that a 1% increase in spending levels results in a substantial 16.4161 percentage point increase in EG.

Our analysis also reveals the positive impact of both direct and indirect taxes on EG. Indirect taxes are found to have a statistically significant effect on EG at a 1% significance level, with a coefficient of 0.061776. This implies that a 1% increase in indirect taxes corresponds to a 6.176% increase in EG, in line with prior research by Matallah (2017); Stoilova and Patonov (2020) and Ugwuanyi and Ugwunta (2017). Similarly, we observe a positive and significant effect of direct taxes on EG at the 1% significance threshold. Our findings are consistent with the work of Noman and Khudri (2015); Roşoiu (2015) and Ugwuanyi and Ugwunta (2017). Specifically, a 1% rise in direct taxes is associated with a substantial 24.9393% increase in EG, as indicated by a coefficient value of 0.249393.

5. Conclusion

The impact of FP on EG is the main focus of this empirical investigation. The study found that FP and its tools improve EG in Pakistan. The Keynesian school is reinforced by statistics that "GE is the key FP tool for EG". Also, direct and indirect taxes boost EG. Taxation benefits EG by increasing government revenue and reducing the deficit. The study uncovered more evidence that "Capital stock plays a positive and significant influence on EG". The long-term EG gains from capital stock growth.

5.1. Suggestions for Future Policy

The study made the following recommendations to policymakers and regulators in order to spur future EG:

- Capital investment is favourably correlated with EG, which is why governments should prioritize it.
- In addition, the tax collecting and the tax structure mechanism should be simple and straightforward so that everyone can participate. The tax system, both progressive and regressive, should be all-encompassing.
- The government should prioritise expenditure on vital services and infrastructure that directly benefit the economy and quality of life. To stabilise the economy.

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