

Impact of Fiscal Policy on GDP Growth Rate: a Case of Pakistan

Sabira Dilawar¹

Women University Multan, Punjab Province, Pakistan

Afifa Sadar Ud Din

Women University Multan, Punjab Province, Pakistan

Aiman Javaid

Women University Multan, Punjab Province, Pakistan

Sadam Hussain

Center for Industrial and Business Organization, Dongbei University of Finance and Economics, Dalian, Liaoning Province, China

Ayesha Ambreen

Women University Multan, Punjab Province, Pakistan

Abstract

Fiscal policy plays a key role in the economic growth of every country. In this article, we investigate the impact of fiscal policy on economic growth in case of Pakistan by using time series data from 1981-2016. For analysis, we built a model of gross national expenditure and applied autoregressive distributed lag model for empirical analysis this study on the base of bound test value. The result indicates that gross national expenditure had a positive relationship with the growth rate. Moreover, industry value added had a positive and significant relation with growth rate because since countries with reliable industrial sector results in more development and growth.

Keywords: Fiscal policy, Economic Growth Rate, Error Correction Model, Pakistan.

JEL Classification: E62; F40; J0

Cite this article: Dilawar, S., Sadar Ud Din, A., Javaid, A., Hussain, S., & Ambreen, A. (2020). Impact of Fiscal Policy on GDP Growth Rate: a Case of Pakistan. *International Journal of Management, Accounting and Economics*, 7(4), 213-229.

¹ Corresponding author's email: sabirawumeco@gmail.com

Introduction

In economic growth, the role of government is a subject of debate since the time of Adam Smith. The new gesture of privatization in most of developing and under developing is built on the observation that “for justifiable development and effective output the role of the government in economic policies should be minimized”. In Pakistan, government payout comprises a large portion of total expenditures, and it can indirectly affect the fiscal deficits. In the 1970s, nationalization policy contributes to huge government expenditures. In the early 1990s, remittance and foreign aid were the primary sources of the financing in the country. Lack of political harmony on advancing the tax base has interrupted any nominal growth in revenues as a percentage of GDP, and deficits leftover high because of political and administrative failure to either increase or decrease in revenues (Kakar 2011). Fiscal policy attributed to approaching and retaining of the budget by government and frequently was about pay off, expenditures and profits fundamentally achievable by the government for wellbeing of the public. So, encouraging country and expanding votes without rising or keeping tax constant and it caused high debt and budget deficit. The budget had determined by the government were fiscal policy lead two elements: income and expenditures (Subhani 2010).

In the short term, governments pay attention to macroeconomic stabilization to stimulate the feasible economy, combating increased inflation, or helping decrease external vulnerabilities. In the longer term, the objective may be to promote sustainable growth or minimize poverty with actions on the *supply side* to upgrade infrastructure or education (Horton and El-Ganainy 2009). The macroeconomic effects of fiscal policy have to be measured in two ways: firstly, with lessened expenditure and the other with lessened taxes. Consequences of decrease in expenditure had a normally minor effect on GDP and did not affect private consumption outstandingly. Even though it had a negative result on private investment and miscellaneous result on housing prices, lead to a rapid collapse in stock prices and devaluation of the real effective exchange rate. Minimization of taxes have opposite results as having positive effects on GDP and private investment; have a constructive effect on housing and stock prices, and lead to acknowledgement of the real effective exchange rate. (Afonso and Sousa 2011).

The effectiveness and role of fiscal policy had concerned by economist and policymakers for a long time, and the irruption of global financial disaster reopened the argument about the position of fiscal policy. It had been seen that in many countries' governments could energize their economies by used of fiscal expenditure. It is complicated to visualize a more appropriate time for a size on the macroeconomics of fiscal policy, since the previous last few years it has noticed that government expenditure, taxes and deficit funding move to the lead to the policy debates internationally (Wierzbowska and Shibamoto 2018). The effect of the economic growth on the lives of people partially matter of distribution of income but also much rely on the use that is made by public revenues that are generated by the expansion of the economy.

Pakistan did not mobilize enough tax revenues needed to finance essential public services, involving education and health, on which the poor depend most. Accordingly, these services remain inaccurate, handicap efforts to fall poverty and address significant inequalities. The present tax system of Pakistan is unequal and unbalanced. Two third of

the tax revenue is gathered through indirect taxes, which have an unreasonable burden on the poor and have regressive nature. It has come into know the affect that increasing income and wealth inequalities in Pakistan are causing many social and economic issues including political instability, social demoralization and violence. The experts also recognize that in our country, fiscal policy is not redistributive (Ahmed et al. 2015). Revenue collected by the public sectors was near to 9.8 per cent of gross domestic product in the year 2014, which is the least in the economies.

Low level of domestic resource mobilization has three observable implications;

- a. Firstly, essential public services, a poor section of the society rely upon it are underfinanced.
- b. Second, the rise in public debt, which results that the government can borrow from both internal and external sources to meet the necessary expenditures.
- c. Third, the government initiates loans from banks, which left little for the private sector to borrow.

A considerable wealth portfolio involving real estate leftover as untaxed, while the objective of progressive tax structure is weakening by current tax exemptions, high compliance costs and related tax avoidance and overall tax framework that allow various agricultural and services sector to lapse through the tax net. According to the survey of Federal Board of Revenues (FBR), the tax gap exhibiting those transactions not being taxed stands 79 per cent. Provincial governments also worked to increment their tax revenues in Pakistan (Jawaid et al. 2010).

The government inherited as a weak economy in the fiscal year 2013 with the low level of investments, GDP growth rate, taxes, foreign exchange and high rate of inflation, fiscal deficit and also rise in like problems of the energy crisis. After accepting their responsibilities, the government projected a homegrown program of economic reforms for over four years and obtained extraordinary economic turnaround, which is accepted by the international community. In 2016-17 GDP growth was at level 5.3 per cent, which was considered than the last ten years. Fiscal deficit was declined from 8.2 per cent in 2012-13 to 5.8 per cent in that year. Pakistan's real economic growth remained increased amid supportive internal and external environment (Fiscal policy statement 2017-18).

Literature Review

“Fiscal policy acknowledged as public debt and its management, government spending and imposition of taxes (Lee)”.

“Fiscal policy is related to all those measures which are adopted by the government to collect revenues and to make expenditures so economic stability could be obtained without inflation or deflation (Samuelson)”.

A literature review is a concise form of previous research on the topic. It contains books, journals and articles. It also gives the historical background for research, defines

problems, theories and debates, concepts and associated research in the field and also indicates how our research will enlarge.

Hayat et al. (2017) examined how microeconomic variables reacted against fiscal shocks from 2002 to 2014 for a sample size of ten economies based on leading and lagging economies. Effects of fiscal shocks had been analyzed by use of structural SAVR method. The behaviour of private investment, public debt, household consumption and export had been affected by fiscal shocks. The traditional measure of fiscal shocks was not accurate. Dynamics of fiscal policy changed among countries due to the nature of financial and economic policies.

Gechert (2015) applied Meta-regression analysis on data of 104 studies which had included 1069 observations of multipliers values from the year of 1992 to 2012—finding ways that, public spending Multiplier was near to one and about 0.3 to 0.4 units higher than tax and transfer multiplier. Public investment appeared as an essential fiscal incentive.

Auerbach and Gale (2009) postulated policy interventions had increased in the last decade, and abundant availability of literature on that topic, theory and evidence was not “shovel ready”. After a sharp decline in economic condition, U.S. gov. And gov. Of all around the world made corporality economic momentum. A direct result of tax or expenditure on output was beneficial, and SAVR literature suggested that change in taxes and spending had a significant influence on the economy.

Riaz and Munir (2016) investigated the relationship between fiscal policy and macroeconomic stability in South Asian countries by used of POLS (pooled ordinary least square) and IVLS (instrumental variable least square) and data had been used from 1990 to 2014. The objective of the study was to find the pathway which fiscal policy guided towards macroeconomic stability. Automatic stabilizers and discretionary fiscal policy had disrupted impact on the economy, which caused to decrease in the economic growth of UDCs. In less developed countries, Country size, financial development and trade had a positive and significant connection with output volatility while changed in terms of trade had an insignificant and negative impact.

Kakar (2011) interpreted the impact of fiscal variables on Pakistan economic growth by taken time-series data from 1980 till 2009 and applied Johnson Co integration test for testing long-run behaviour of fiscal policy and Vector Error connection technique used to check out the existence of error in the model and also used Granger Causality test to mould the causality. Fiscal policy was significant for the economic development of Pakistan. The result indicated that fiscal policy expedient more of long-run phenomena instead of short-run. In the short run, economic development can be energized by managing of interest rate and government spending at the cost of inflation, but such policy affects the process of economic growth.

Jawaid et al. (2010) analyzed comparative effects of fiscal and monetary policy in Pakistan by application of co-integration test and taken time-series data from 1981-2009. Monetary and fiscal policy had a positive and significant effect on the economic growth of Pakistan and indicated monetary policy had more concerned with economic growth

(Hussain et al. 2019) rather than fiscal policy. The long-run relationship between fiscal and monetary policy on growth was confirmed through the application of the co-integration test. The main objective of that, policymakers made more attention to monetary policy for stable economic growth. By reduction in corruption and proper use of all resources made fiscal policy more effective.

Al-Masaeed and Tsaregorodtsev (2018) examined the impact of fiscal policy evaluated by (Government expenditure, Government revenues, internal public debt, external public debt) in adding to exports and inflation factors on Jordanian GDP growth for period 1990-2010. By using multiple linear regression and least-squares method (OLS) to examined hypotheses and detected that government expenditure, exports and government revenues had a positive and substantial impact, and adverse and significant impact on Jordanian GDP growth and external public debt had a negative and insignificant effect on Jordanian GDP growth (Hussain et al 2019).

Data And Methodology

Data

To achieve the objective of the research, data selection and collection, choosing the methodology which depends on the characteristics of the named variables, all these are very important. In this chapter, it includes the data source from which the data has been collected and econometric technique which is used in the analysis. To see the impacts of fiscal policy on GDP Growth rate in Pakistan, the secondary data on GDP Growth data, gross national expenditures, industry value-added, gross capital formation, gross saving, all these variables are in percentage of GDP. We used these time-series data from the period 1981 to 2016. The data is taken from WDI, Pakistan survey and books. The data has been collected from World Development Indicator report on Pakistan and economic surveys of Pakistan.

Tables 1. Variables Descriptive

Var Sign.	Variables	Descriptive
GNE	Gross National Expenditure	The sum of private consumption, general government consumption and gross domestic investment is known as a gross national expenditure
GS	Gross Saving	Gross saving is gross disposable income minus final consumption expenditure, and it is the total of the gross saving of the different institutional sectors.
INDVA	Industry Value Added	The value-added of an industry is also defined as GDP by industry, is the involvement of the private or government sector to net GDP. The sectors of value-added consist of payments of employees, taxes on production, imports minus subsidies and gross operating surplus.

Var Sign.	Variables	Descriptive
LFPR	Labour Force Participation	It can be as defined as the portion of working peoples in the age group of 16-64 in economy presently employed or searching for a job.
GCF	Gross Capital Formation	Gross capital formation is calculated by the total value of gross fixed capital formation, change in reserves, and obtaining less disposable of valuables for a unit.
GDGP	Gdp Growth Rate	Real economic growth rate or GDP Growth rate is that when the GDP of a country vary or rise from one to another year. While the market value of goods and services which is produced in a country at a specific period is known as GDP.

Model Specification

Model specification, data and methodology are the essential part of the research, and they play a crucial role in research. In the model specification, we check the impact of gross national expenditure on GDP growth rate.

Model

In this specification of the model, we look at the effects of gross national expenditure, industry value-added, interest rate, gross fixed capital formation and labour force participation rate on GDP growth rate.

$$GDGP=f(GNE, GS, INDVA, LFPR, GCF) \quad (1)$$

Econometrics Model

$$GDGP = \beta_0 + \beta_1(GNE) + \beta_2(GS) + \beta_3(INDVA) + \beta_4(LFPR) + \beta_5(GCF) + \mu_t \quad (2)$$

Estimation Process

The estimation process includes multiple steps. In this study, the whole estimation is done by the use of computer software E-views (9) and that computer software had been to check the stationary of the data. Time series data have been employed in order to check the quality of such type of data. Stationary is very useful for the decision of ideal technique which is used for analysis.

Data Stationarity

I mean, variance and covariance of time series data are unchanged over the period of time, at that time data is stationary (Gujrati 1995). On the time-series data, stationary that can be examined then the problem of arriving of false regression can be erased. While, if mean and variance are unvarying, then it means that stationary prevails in the data and if data is not stationary, then forecasting of the future trend of variables may not be feasible.

Unit Root Test

In order to investigate the stationary of the identified variables, unit root test has been applied. If the invalid regression occurs, then coefficients have no BLUE properties.

For this reason, two economists Dickey and Fuller in 1979 had developed the Augmented Dickey-Fuller test (ADF test). They assumed that the error term has an independent and equal proportion. This test helps to tells the order of adding and express what type of move towards should be utilized for analysis. Firstly, all data is checked on the level and expressed as $I(0)$. It shows the stationary of data and no need action for further process to attain stationary. And if it is not, then data is checked on first difference, and it is written as $I(1)$, and if it is not stationary, then we move to the 2nd difference to check the stationary of the data.

- a. In the Augmented Dickey-Fuller test, there are the two types of regression.
- b. First, there is an intercept and no trend.
- c. Secondly, there is intercept and trend.

Hypothesis

H_0 = non stationery of data and presence of unit root.

H_1 = stationary of data and absence of unit root

Co-Integration Analysis

Co-integration means their existence of the long-run association within the variables which are not stationary at the process to find out the co-integration among the variables like Engle-Granger two-way outstanding base method, ARDL approach and Johnson and Jeselius co-integration technique.

Auto Regressive Distributed Lag Approach

Autoregressive distributed lag model is the process of checking the short run and long run coordination between variables. This shift will be favourable to calculate the presently one equation. The recommendation of the ARDL can be justified via the following type;

ARDL hold the combination of both types of the variables which are stationary at the level and first difference.

It is the most supportive approach in case of the small size of the sample.

If the model used dummy variables in order to estimate the co-integration so that ARDL technique will be helpful. It does not give accurate results when variables are stationary at second difference.

There are two ways in the functions of the ARDL technique. Firstly, the bound test is used to examine the long-run relationship between the considered variable and secondly, coefficients of the long run and short-run association are calculated, and usage of the ARDL method can be closeout.

Bound Test (F-Statistics):

After achieving the ARDL equation for a model then we will apply the Bound test to check the long-run relation across the between variables. The bound test will be applied to the variables which have lag with them, and after that, we will figure out the value of F-Statistics. Next, we will make a comparison between the estimated and critical value regarding F-statistics.

The main properties of the bound test are as follows:

- a. All variables are supposed to be endogenous in model.
- b. This test is employed, if the variables are stationary at $I(0)$ or $I(1)$.
- c. It is useful in the measurement of long and short-run coefficient of variables.

Charted value of bound test has two critical values, i.e. upper bound and the lower bound. If the value of the bound test is more significant than the upper bound value, there exists a long-run association between the variables. If the value of the bound test is lower than the lower bound value, so that there is no long-term relationship exists in the variables. If upper bound is less than F-statistics less than the lower bound, then the results are uncertain.

Choice Of The Lag Length

Subsequently, the evaluation of the short and long run co-efficient of the model will be completed. However, before this procedure, it is compulsory to choose the lag length. There are the three measures under which lag length can be decisive i.e.

- Akaike Information Criterion (AIC)
- Schwartz Criterion (SC)
- Hannan and Quinn Criterion (HQC)

Process Of Estimation Of Short Run And Long Run Coefficients In The Model

When the estimation of stationery and progress of the relationship between the applicable variables is done then next, we will apply the autoregressive distributed lag technique for co-integration.

Error Correction Model

Error correction model (ECM) depicts the significance of the short-run and long-run value to obtain the equilibrium. If the value of ECM is negative and statistically significant, it means that variables are related to reaching others.

Test For Stability

To conclude the results most accurate, the stability of parameters should be checked. There are many tests for checking the strength of the coefficients. Here, we can exercise the Cumulative Sum of Residuals (CUSUM) and Cumulative Sum of Recursive Residuals of Square (CUSUM).

Empirical Analysis

Descriptive Statistics

Empirical analysis plays a lead role in research work, and it shows the level of connection between dependent and independent variables. The data has been taken from 1981 to 2016 and ARDL technique is used to evaluate the results.

This analysis also covers some other approaches for measuring the moments of distribution which shapes the probability distribution, and these are known as skewness and kurtosis. If the value of skewness is zero, it shows that the distribution is symmetric.

If the value of kurtosis is three or more than 3, then distribution is Leptokurtic, and the value of kurtosis is less than 3, then distribution is Platykurtic.

Table 2. Summary Statistics

	GDPG	GNE	GS	INDVA	LFPR	GCF
Mean	4.611934	105.6633	22.66842	23.26692	30.05059	17.79286
Median	4.772638	106.2752	21.63257	23.62451	29.48000	18.29535
Maximum	7.705898	112.3908	30.43149	27.10113	32.98000	20.81826
Minimum	1.014396	98.96633	16.88776	20.19748	27.46000	14.12063
Std. Dev.	1.920643	3.789325	3.136080	1.700647	1.771560	1.705533
Skewness	-0.021562	0.016635	0.520011	0.190370	0.495118	-0.548773
Kurtosis	2.142157	2.063115	2.628201	2.720652	1.835321	2.344943

Correlation Matrix:

Table 3. Correlation Matrix

	GDPG	GNE	GS	INDVA	LFPR	GCF
GDPG	1.000000	0.202589	0.585799	0.329763	-0.209208	0.283227
GNE	0.202589	1.000000	-0.037160	-0.378532	0.258496	0.230161
GS	0.585799	-0.037160	1.000000	0.144474	-0.151941	0.084669
INDVA	0.329763	-0.378532	0.144474	1.000000	-0.600225	0.571227
LFPR	-0.209208	0.258496	-0.151941	-0.600225	1.000000	-0.593230
GCF	0.283227	0.230161	0.084669	0.571227	-0.593230	1.000000

The above table shows the correlation between the variables of the model. The dependent variable GDP growth rate positively relates to all other explanatory variables except labour force participation. There is a positive correlation between GDPG and gross capital formation, industry value-added, gross national expenditure and gross saving. The diagonal of the correlation matrix of variables describes the correlation of variables that is one; if in two variables have more significant than 0.9 correlations, so there is a problem of multi-co-linearity. Here, all values are less than 0.9 so; there is no problem of multicollinearity.

Adf Test For Stationarity

In time-series data, using the Augmented Dickey-Fuller unit root test, we check the stationary of the data.

Table 4. ADF Test for Stationarity

Variable	Order of Integration	Probability
Gdpg	I (0)	0.0116
Gne	I (1)	0.0000
Gs	I (1)	0.0000
Indva	I (1)	0.0000
Lfpr	I (1)	0.0000
Gcf	I (1)	0.0000

In the regression analysis of the time series, the first step is to check the stationary of the variables, and it is mainly performed to check the order of the integration of variables. This table represents that the GDP Growth Rate is at a level while gross capital formation, gross saving, industry value-added, gross national expenditure and labour force participation rate are at first difference.

Bound Test For Cointegration (Expenditure):

After obtaining results of integration, now the second step is to test co-integration, and for this reason, we have employed the Bound test approach. This test examines the presence of co-integration via bound structure and is built upon the difference between F-statistics value and upper bound and lower bound value.

For model,

Null hypothesis= there is no co-integration

Alternative Hypothesis= there is co-integration

- If the estimated value of f-statistics is more than the upper bound value, then the null hypothesis is refused.

F-statistics analyze the long-run relationship between variables. The results of the bound test are below:

Table 5. T&F Statistics

Test Statistics	Value	Significance	I (0)	I (1)
F-Statistics	6.144345	10%	2.26	3.35
K	5	5%	2.62	3.79
		2.5%	2.96	4.18
		1	3.41	4.68

The results which are shown in the above table describe that value of upper bound value is lesser than the computed F-statistics value so that, we reject the null hypothesis of there is no co-integration.

Short-Run And Long Run Coefficients:

Short-Run Coefficients

Table 6. Short-Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GNE)	-0.053787	0.203744	-0.263992	0.7945
D(GNE (-1))	-0.450415	0.158055	-2.849740	0.0099
D(GS)	0.092868	0.125007	0.742904	0.4662
D(GS (-1))	-0.313397	0.147767	-2.120880	0.0466
D(INDVA)	0.553931	0.237875	2.328661	0.0305
D(LFPR)	0.202137	0.216290	0.934562	0.3612
D(GCF)	-0.034499	0.363185	-0.094990	0.9253
CointEq(-1)	-1.113208	0.230747	-4.824373	0.0001

$$\text{Cointeq} = \text{GDPG} - (0.2508 * \text{GNE} + 0.4433 * \text{GS} + 0.9022 * \text{INDVA} + 0.1816 * \text{LFPR} - 0.4675 * \text{GCF} - 50.1896)$$

Above table shows the short-run result of variables, and it also plays a vital role in an incomplete analysis. This is also helpful in establishing response mechanism for any disturbance and inconsistent change in time series t of any consideration variables. This estimation helps in indemnifying appeared errors by using the error correction term in

short-run and thus securing long term relationship of the variables. The lagged error correction term is used for modification and value of co-integration equation established the long-run correlation of variables.

Long Run Coefficients

Table 7. Long-Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GNE	0.250779	0.106169	2.362066	0.0284
GS	0.443273	0.113446	3.907354	0.0009
INDVA	0.902208	0.295891	3.049124	0.0063
LFPR	0.181580	0.200394	0.906117	0.3757
GCF	-0.467495	0.255839	-1.827306	0.0826
C	-50.189642	15.284662	-3.283661	0.0037

As stated in the World Bank report, the economic growth of Pakistan raised from 5.4 per cent in 2017 to 5.8 per cent in the year 2018 (Economic survey 2017-2018). 5.3 per cent growth had noticed in GDP in 2016-17, which was excessive in the last ten year and 44 per cent expansion had been observed in development expenditure (Ministry of Finance 2017-18). Gross national expenditure has a positive effect on the growth rate of Pakistan. The government should pay more attention in the private sector to generate jobs in-country and also established fruit and vegetables processing factories near the big cities of Pakistan to bring more employment opportunities (Shaheen, Ali et al. 2013). The government should also follow modern methods in the agriculture sector to raise agriculture output and also expands their paying out will also accelerate economic growth and agriculture output (Chandio et al. 2016). Growth in development expenditure lived powerful at 23.4%, and current expenditures have grown by 13.5% (Economic survey 2017-18). Total development expenditure enlarged by more than 100% and stand at Rs. 1693.5 billion in the fiscal year 2017 and under Public Sector Development Program marked a significant increase and its rise from Rs.695.1 billion in years 2013 to Rs.1577.7 billion in the year 2017. In 2018, the total expenditure raised by 14 per cent in July-December. Development expenditure raised sharply and recorded at Rs. 613.8 billion as compared to Rs.497.4 in the year 2017 (Economic Survey 2017-18).

Industrial sector plays a vital role in the economic development of every nation, in Pakistan it is the second-largest sector which covers 25% of GDP, and it contains large, medium and small-scale industries. In 2010-11 large industries had 4.4 and small industries had 7.5 per cent contribution in the GDP. Countries who owned a robust industrial sector have more development and growth rate (Jaleel). 38.79 per cent growth had noticed in the Electronics industry, 30.85% in Iron and Steel, 0.47% in textile, and 9.44% in pharmaceuticals (Economic Survey 2017-18).

Physical capital expands via the reduction in wasted time, also granting quality of goods and services to be produced (Ongo and Vukenkeng 2014). Gross capital formation of Pakistan fallen by 1.74 % from 15.5 % in 2015 to 15.2 % in 2016. Since the 6.77 %

flow in 2012 and raised 0.89 % in 2016. Labour force participation has a positive and insignificant connection with GDP growth rate because of the migration of highly skilled, experts and technical labour towards foreign countries to get a better life, highly paid job. This is an alarming situation for Pakistan, and it directly influences our economy (Sajjad 2018). Pakistan has the largest and sanctified with an energetic workforce in the world, which are the productive asset of the country if correctly trained through skill-building programs. About 9 million peoples of Pakistan worked over the globe. According to the report of the central investigation agency world Factbook, the total labour force in Pakistan is 57.2 million, which made our country ninth largest country with an available workforce. In Pakistan, gross saving had positive outturn on GDP and also had a crucial role in attaining the targeted level of investment to gain the designed point of economic growth (Mehmood 2012).

Diagnostic Test

To check normal distribution of residuals Jarque Bera normality test is performed because calculation in the long run model (CLRM) has an assumption that residuals are normally distributed with zero mean and constant variance. Serial autocorrelation of the model is analyzed by Breusch – Godfrey LM test. Ramsey reset test is applied to check misspecification of model and Autoregressive Conditional heteroskedasticity is applied to test autocorrelation invariance of the error term. Our model fitted all these tests. The table following shows the results of the diagnostic test.

Table 10. Breusch Godfrey LM Test

F-statistics	Prob. F	Obs* R-Squared	Prob. Chi square	Result
0.880638	0.4316	2.941211	0.2298	There is no autocorrelation in this model.
Heteroskedasticity Test: white				
F-statistics	Prob. F	Obs* R-Squared	Prob. Chi-square	Result
1.026133	0.4631	12.57516	0.4007	There is no heteroscedasticity in the model.
Jarque-Bera Normality Test				
J-B	0.089350	Prob.	0.956308	Not applicable.

Source: Author's calculation using Eviews 9.

Stability Test (Expenditure)

Model's stability is investigated by evaluating the CUSUM stability test in autoregressive distributed lag (ARDL) method. Result of test exhibited that coefficients of current estimated model are stable because the CUSUM statistic graph is within the limits of critical bounds at 5% significance level.

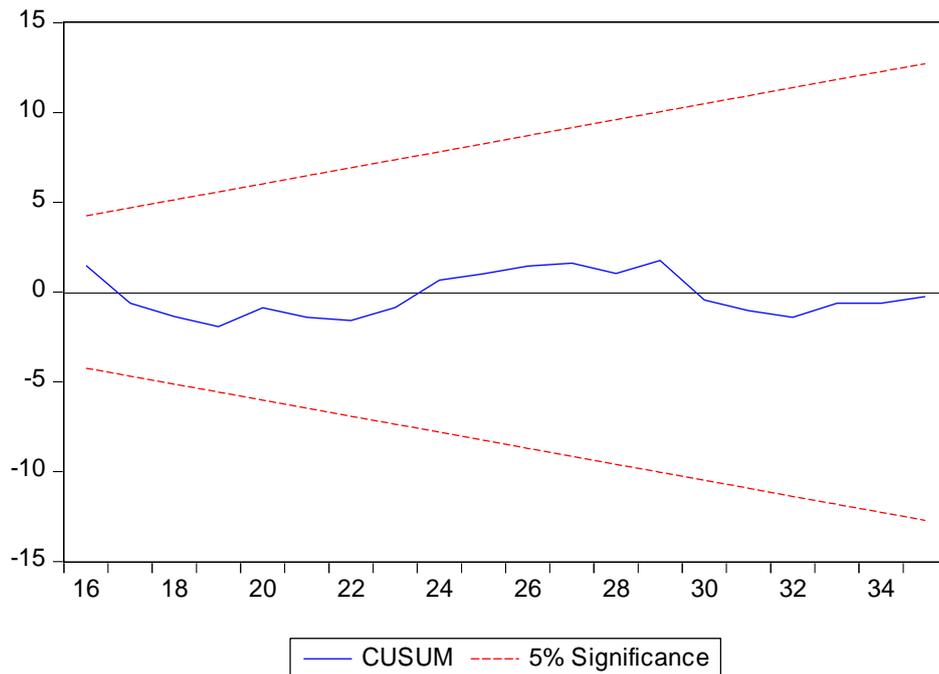


Figure 1. Results exhibit that blue line within the red line boundaries at 5% significance.

Conclusion

Fiscal policy plays a vital role in the economic growth of every country, and it is based on the revenues and spending of the country. This study shed light on govt expenditure on economic growth. Gross national expenditure and industry value added has a positive relationship with growth rate because the rise in productive expenditure results rise in economic growth and Industrial sector has a strong impact on the GDP growth rate since the sharp increase in industrial sector boost the economic development in the country. In Pakistan, gross saving had positive outturn on GDP and had a crucial role in attaining the targeted level of investment to gain the designed point of economic growth.

Policy Implications

The result of the study is useful for policy implication to improve the effectiveness of the fiscal policy in Pakistan. In this regard, the following policies are suggested:

- a. Higher industrial productivity leads to higher tax revenues.
- b. By starting, long-run productive plans like dams, etc., it will also help to enhance the economic growth of the country.
- c. The government should also promote and encourage foreign investors to increase the level of investment in the country, and it will also play an essential role for economic growth and provides job opportunities in the country.

References

- Ahmad, M. I., Rehman, R., & Raof, A. (2010). Do interest rate, exchange rate effect stock returns? A Pakistani perspective. *International Research Journal of Finance and Economics*, 50, 146-150.
- Afonso, A., & Sousa, R. M. (2011). The macroeconomic effects of fiscal policy in Portugal: a Bayesian SVAR analysis. *Portuguese Economic Journal*, 10(1), 61-82.
- Afonso, A., Agnello, L., & Furceri, D. (2010). Fiscal policy responsiveness, persistence, and discretion. *Public Choice*, 145(3-4), 503-530.
- Afonso, A., Grüner, H. P., & Kolerus, C. E. (2010). Fiscal policy and growth: Do financial crises make a difference?.
- Ahmed, V., Talpur, M., & Liaqat, S. (2015). *Towards a fair and just fiscal policy in Pakistan*. Oxfam GB for Oxfam International.
- Alesina, A., & Ardagna, S. (2010). Large changes in fiscal policy: taxes versus spending. *Tax policy and the economy*, 24(1), 35-68.
- Al-Masaeed, A. A., & Tsaregorodtsev, E. (2018). The Impact of Fiscal Policy on the Economic Growth of Jordan. *International Journal of Economics and Finance*, 10(10), 145-145.
- Aloy, M., Moreno-Dodson, B., & Nancy, G. (2002, January). Fiscal Policy and Growth: An Application to Sub Saharan Economies. In *Proceedings. Annual Conference on Taxation and Minutes of the Annual Meeting of the National Tax Association* (Vol. 95, pp. 300-307). National Tax Association.
- Auerbach, A. J., & Gale, W. G. (2009). *Activist fiscal policy to stabilize economic activity* (No. w15407). National Bureau of Economic Research.
- Auerbach, A. J., & Gorodnichenko, Y. (2012). Measuring the output responses to fiscal policy. *American Economic Journal: Economic Policy*, 4(2), 1-27.
- Chandio, A. A., Jiang, Y., Rehman, A., Jingdong, L., & Dean, D. (2016). Impact of government expenditure on agricultural sector and economic growth in Pakistan. *American-Eurasian J. Agric. & Environ. Sci*, 16(8), 1441-1448.
- Chandio, A. A., Jiang, Y., Rehman, A., Jingdong, L., & Dean, D. (2016). Impact of government expenditure on agricultural sector and economic growth in Pakistan. *American-Eurasian J. Agric. & Environ. Sci*, 16(8), 1441-1448.
- Fernández-Villaverde, J., Guerrón-Quintana, P., Kuester, K., & Rubio-Ramírez, J. (2015). Fiscal volatility shocks and economic activity. *American Economic Review*, 105(11), 3352-84.
- Fazzari, S. M., Morley, J., & Panovska, I. (2011). State-Dependent Effects of Fiscal Policy.

- Fu, D., Taylor, L. L., Yücel, M. K., & Dallas, F. R. B. O. (2003). *Fiscal policy and growth* (Vol. 3, No. 1). Dallas, TX: Federal Reserve Bank of Dallas.
- Gechert, S. (2015). What fiscal policy is most effective? A meta-regression analysis. *Oxford Economic Papers*, 67(3), 553-580.
- Horton, M., & El-Ganainy, A. (2009). What Is Fiscal Policy?. *Finance & Development*, 46(2), 52-53.
- Hanif, M. N., & Arby, M. F. (2003). Monetary and fiscal policy coordination.
- Hayat, U., Mohammad, J., Rabbi, F., & Shah, T. (2017). Assessing the dynamic effects of fiscal policy shocks in selected leading and lagging economies.
- Hussain, S., Ahmad, W., Qamar, Y., & Akram, M. S. (2019). Impact of Inflation, CO2 Emissions and Foreign Investment on Economic Growth: A Case of Pakistan. *Asian Development Policy Review*, 7(4), 307-317.
- Hussain, S., Akram, M. S., Ghaffar, A., Qamar, Y., & Ahmad, W. (2019). Impact of Foreign Investment, Labor Force and Interest Rate on Economic Growth: A Case of Pakistan (Under CPEC Project Contribution Countries). *Asian Development Policy Review*, 7(4), 369-377.
- Ismail, M., & Husain, F. (2012). Fiscal discretion and its impact on Pakistan economy. *The Pakistan Development Review*, 339-362.
- Jawaid, S. T., Arif, I., & Naemullah, S. M. (2010). Comparative analysis of monetary and fiscal policy: A case study of Pakistan.
- Kakar, Z. K. (2011). Impact of fiscal variables on economic development of Pakistan. *Romanian Journal of Fiscal Policy (RJFP)*, 2(2), 1-10.
- Mubarik, Y. A., & Riazuddin, R. (2005). *Inflation and growth: An estimate of the threshold level of inflation in Pakistan*. Karachi: State Bank of Pakistan.
- Mehmood, S. (2012). Effect of different factors on gross domestic product: a comparative study of Pakistan and Bangladesh. *Academy of contemporary research journal*, 1(1), 18-35.
- Ongo, E. N., & Vukenkeng, A. W. (2014). Does gross capital formation matter for economic growth in the CEMAC sub-region?. *EuroEconomica*, 33(2).
- Popa, I., & Codreanu, D. (2010). Fiscal Policy and its role in ensuring economic stability.
- Riaz, N., & Munir, K. (2016). Fiscal Policy and Macroeconomic Stability in South Asian Countries.
- Sacchi, A., & Salotti, S. (2015). The impact of national fiscal rules on the stabilisation function of fiscal policy. *European Journal of Political Economy*, 37, 1-20.



Syed Ali Sajjad “Pakistan’s unfortunate issue of brain drain” January 22,2018

Shahid, M., Qayyum, A., & Shahid Malik, W. (2016). Fiscal and Monetary Policy Interactions in Pakistan Using a Dynamic Stochastic General Equilibrium Framework.

Swanson, R. A., & Chermack, T. J. (2013). *Theory building in applied disciplines*. Berrett-Koehler Publishers.

Shaheen, S., Ali, M. M., Kauser, A., & Ahmed, F. B. (2013). Impact of trade liberalization on economic growth in Pakistan. *Interdisciplinary Journal of Contemporary research in business*, 5(5), 228-240.

Subhani, M. I. (2010). Impact of Fiscal Policy on the Economy of Pakistan.

Tanzi, V., & Zee, H. H. (1997). Fiscal policy and long-run growth. *Staff Papers*, 44(2), 179-209.

Wierzbowska, A., & Shibamoto, M. (2018). Cross-country evidence on determinants of fiscal policy effectiveness: the role of trade and capital flows. *Applied Economics*, 50(32), 3493-3514.