

# Impact of Fiscal Policy on Economic Growth in Pakistan

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**Abstract**— This study investigated the impact of fiscal policy on economic growth by using time series data period from 1980 to 2014. The key variables used in this analysis are gross domestic product (GDP), distortionary taxation (DT), non-distortionary taxation (NDT), labor force participation rate (LFP), interest rate (IR), defense expenditures (DFEXP) and trade openness (TOP). For unit root an Augmented Ducky Fuller (ADF) used, all variables are stationary at level when linear trend and intercept are included. Johansen Co-integration test is used to check the long run relationship between the variables by using the Johansen maximum likelihood method and VECM are used for short run relationship. The co-integration result declared there is two co-integration equations in short run and VECM revealed that there is positive relation between GDP, DT and NDT in short run. The causality test found that GDP does not cause by defense expenditure and DFEXP is granger cause by interest rate. The study suggested that Government should regulate a comprehensive fiscal policy for effective outcome in Pakistan and for economic stability.

**Keywords**— Gross Domestic Product, Defense Expenditures, Distortionary Tax, Non distortionary Tax, Labor Force, Trade, Interest Rate

## 1 INTRODUCTION

The economy of Pakistan, in terms of (PPP)purchasing power parity is the 25th largest in the World, and in terms of nominal gross domestic product(GDP) is 38th largest. Population of Pakistan is over 190 million (the 6th-largest), and its nominal GDP per capita of \$1,550 (World Bank). Pakistan is an agricultural based country, from few decades the agricultural growth is not satisfactory to facilitate the economic growth because due to lack of proper agricultural policy. In the previous history of Pakistan, the government faced the deficit in budget, to fulfill their expenditure from other sources like foreign and domestic borrowings.

In public finance fiscal policy is the management tool by the government of the any country to regulate the economy to desired direction. It depends on the government expenditure and revenue decisions which are made to achieve the economic growth and stability in the economy.

"Govt. revenue raising and Govt. revenue spending activities are called Fiscal policy" Lipsey.

"Fiscal policy considers (i) imposition of taxes, (ii) Govt. expenditures, (iii) Public debt, (iv) Management of public debt" M.W.Lee.

Concept of economic growth is getting tremendous importance for researchers and policy makers because of the fact that economic progress plays a vibrant role in the development of social, economic and political welfare of any nations. Fiscal and monetary policies are key determinants to boost the level of economic growth. The role of economic growth has been debated by economists for decades in Pakistan. The consideration of Sustainable economic growth is crucial for improving the living standards of the people. It is even more

important for developing countries like Pakistan which are suffering from many social economic problems.

Fiscal policy uses to control the government spending and taxes to stimulate economic growth.

Theoretically fiscal policy can be employed to affect inflation, collective demand (aggregate demand), and level of economic activity, allocation and distribution of resources and to avoid economic depression. Fiscal policy consist of two sets of actions, first is discretionary action in which government sets tax rate, tax base and the size of the government expenditure. On the other hand are the automatic stabilizers in which the variables change due to change in the economic environment like during economic boom tax revenues will increase automatically and spending on social benefits decline and vice versa in times of economic downfall.

The Objectives of fiscal instruments are separated into micro and macro objectives. A distribution of resources, increased investment in public goods, income and social services and fulfilling the basic necessities of the poor are micro economic objectives and evolution of the economy decision as a whole is the macroeconomic perspective (Shoukat et al, 2013).

### 1.1 Distortionary taxes

"A distortion is a departure from the allocation of economic resources from the state in which each agent maximizes his/her own welfare. A proportional wage-income tax, for instance, is distortionary. Tax on income, profits, capital gains, taxes on payroll and workforce, taxes on property including taxes on inheritance capital and financial transaction reduce incentive for investing in physical / human capital and thus deter growth." Bleany et al. (2001)

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## 1.2 Non-distortionary Taxes

Non-distortionary is a lump-sum tax which is a fixed amount, no matter the change in circumstance of the taxed entity. In economic theory, a lump-sum tax is considered to be pareto-efficient because it does not interfere with optimal market mechanisms and will only reduce people's available income and therefore increase their budget constraint, but leave the relative price of goods unchanged. Lump sum taxes or non-distortionary taxes include indirect taxes including custom, sales tax, federal excise taxes and do not discourage investing in physical/ human capital and thus have neutral impact on economic growth. Bleany et al. (2000) also support zero effect on economic growth.

## 1.3 The Specific Objectives of the Study

- 1) To investigate the impact of defense expenditure on economic growth.
- 2) To empirically investigate the relationship between distortionary and non-distortionary taxes and economic growth.
- 3) To check how some of the supportive variables ( ) help to better explain the variation in growth model while fiscal policy is of main concern.
- 4) To recommend some policy measure, based on further research.

## 2 REVIEW OF LITERATURE

Shatti (2014) explored fiscal policy effect on economic development and targeted country was Jordan. The researcher used time series data for the period of 1989-2013 to show the impact of fiscal policy on economic development using multiple regression method. This study found direct significant impact of the present expenditure and yearly tax collection on economic development in the economy of Jordan. There is inverse relation between capital expenditure and economic growth.

Shahid (2014) examined the long run relationship between economic growth, labor force participation and gross fixed capital formation. The study used the time series data for the period of 1980-2012 of the Pakistan. Johanson co-integration technique results showed that there was a long run relationship between the variables. The researcher used ECM which showed that in short run economic growth and labor force participation are negatively insignificant and Gross fixed capital formation is positively significant.

Ismail et al (2014) explored the impact of government expenditure on economic growth by using time series data from 1970 to 2010. The study found that there exist a significant and positive relationship between government expenditure and economic growth in long run and negative relationship in short run. The study also disclosed that Wagnerian hypothesis valid for Ghana. The researcher suggested that the government expenditure takes long time to gain benefits for the economy.

Ahmad and Wajid (2013) explored the impact of fiscal instruments on growth as mentioned in Baro model by using time series data period from 1979 to 2009. The outcome of the study is that there is a long run relationship between economic

growth and fiscal instruments. The study further revealed that the productive expenditure positively and significantly affect economic growth.

Butt et al. (2013) investigated the impact of fiscal deficit on economic growth of Pakistan. The researchers used time series data from 1980 to 2010 and used Pearson Correlation test to check the correlation among regressors. The study found that there is a non-linear relationship between dependent variable GDP and independent variables investment and inflation. A Linear relationship exists between GDP, budget deficit and domestic credit.

Chude et al. (2013) explored the relationship between government spending in education and economic growth in Nigerian economy. The study used time series data for the period 1977-2012. The empirical results explained that all variables in the model have influence on economic growth in Nigeria. The regression results disclosed that total expenditure on education is statistically significant and positively related with economic growth in long run for Nigeria.

Sheikh and Chaudhry (2013) explored the determinants of defense expenditure for India and Pakistan. Demand for the defense expenditure in both countries is determined by economic, strategic and political factors. The results of this study explains that strategic factor such as internal threats; atomic threats and wars have positive impact on the defense expenditure in both countries.

Sheikh (2013) investigated that economy of Pakistan has shown flexibility to sustain economic growth in recent years even with obvious macroeconomic imbalances and structural difficulties. This study showed that there is a low rate of taxes to GDP ratio combined with rising fiscal deficit.

Zaman et al. (2012) found a bilateral relationship between fiscal variables and economic growth using time series data from 1980 to 2010. The study also found a positive relation between tax revenue and growth rate of Pakistan.

Anwar et al. (2012) examined the relationship between defense expenditures and economic growth in economy of Pakistan. The researcher used time series data for the period 1980 to 2010. The study revealed a long run relationship between defense spending and economic growth

Joiya et al. (2012) explored the relationship between defense expenditure and economic growth of Pakistan for the period 1980-2010 using time series data. The study founded that defense spending and economic growth co-integrated but the relation is flowing from economic growth to defense spending.

Bhunia (2011) explored the effect of government expenditure on economic growth in Indian economy. The researcher used time series data of economic growth and governmental expenditure from 1991 to 2010. The researcher found negative relation between economic growth and the expenditure on agriculture and education. There is a positive relation of expenditure on health, national security, transportation and communication with economic growth.

Ahmed (2011) investigated the role of fiscal policy in managing economic growth in the frame of Pakistan by taking the annual time series data from the period from 1982 to 2010. The results showed that federal tax revenue and provincial tax

revenue were negatively contributed to economic growth. The non-development expenditure was not significant for the reason that the government not appropriately spends money on this side.

Akcoraoglu and Acikgoz (2011) investigated the relationship between trade openness, foreign direct investment and employment using quarterly time series data for the period 1990 to 2010. The impact of the exports on the employment of Turkey is positive and statistically significant. The ECM result indicate an unexpected positive and significant impact on employment and statistically insignificant.

Dandan (2011) analyzed the relationship between government expenditure and economic growth using time series data from 1990 to 2006 in Jordan, a developing country. This study found positive relation between government expenditure and economic growth using regression analysis. In a descriptive analysis this study explained that the fiscal policy was regarded a helping tool for government.

Foul (2010) investigated a long run relationship between real gross domestic saving and real gross domestic product for Tunis for the period 1961 to 2007 and for Morocco for the period from 1965 to 2007. The ARDL result showed that co-integration exists in Gross Domestic Product and Gross Domestic Saving. The Granger causality result showed that there was uni-direction causality between the variables

Ali and Ahmad (2010) explored the relationship between economic growth and fiscal policy in Pakistan for the period of 1972-2008. The finding of the study was that there was a long run relationship between economic growth and fiscal deficit.

Subhani and Ali (2010) analyzed a link among tax rates, inflation rate and balance of trade in Pakistan. The researcher used the data for the period from 1979 to 2009 and used 2-SLS to check impact of tax rate on balance of trade. Study revealed a positive relation between inflation and tax rate, and a negative relation with BOT. This study regressed inflation on tax rates.

Jarunyakul (2007) explored the relationship between economic growth and government expenditure by using quarterly data period from 1993-2004 in Thailand. The study results revealed that the total government spending influence economic growth, whereas economic growth don't have impact on public spending

Enache (2009) analyzed the relation between fiscal policy and economic growth using time series data. The researcher used the OLS (ordinary least square) to estimate the relationship. First regression revealed that there is inverse relationship between real GDP and growth rate. The second result shows a negative and significant impact of public sector size and economic growth. The third regression results show a negative and a significant impact between a public revenue and economic growth in Romania. The fourth regression result shows that there has a significant impact of budgetary balance on real GDP growth rate.

#### 1.4 Significance of the Study

It is very important to evaluate the consequences of fiscal policy actions because otherwise it is very difficult for the government to adopt best policy to achieve its objectives. There are two tools of fiscal policy: taxes and government

spending. Government aims to increase consumption and decrease budget deficit by giving debt financed tax cut to consumers but this purpose does not fulfilled because consumers are forward looking. Consumers save this extra tax cut for future tax obligations and do not increase consumption. Hence fiscal policy remains ineffective in this case. While in Keynesian case fiscal policy is effective because consumers do not care about their future generations and consume this extra tax cut. As a result private consumption increases (aggregate demand increases) and reduce budget deficit. So that government achieved their objectives. Therefore it is very important to evaluate the impact of fiscal policy actions so that government should adopt best policy to achieve its specific objectives.

#### 1.6 Theoretical Framework

This study will test the theoretical hypothesis of Barro (1990) model that productive expenditures spur economic growth and distortionary taxes deter economic growth. Moreover, non-productive expenditures and non-distortionary taxes have neutral impact on economic growth. We do not find any study that investigated these hypotheses in case of Pakistan.

### 3 METHODOLOGY OF RESEARCH

In case of time series data, It is very essential to verify the Long and short run relationship between variables before estimation. Researchers used many uni-variate and multi-variate procedures to find out the Co-integration between variables. Time series data is non-stationary in nature which provides spurious results (Asteriou and Hall, 2011). Therefore it is necessary to check the stationarity of variables before application of Co-integration techniques.

Trended time series may contain unit root and are non-stationary. Hence OLS estimates give spurious results in that case. One way to solve this problem is to difference that series and utilize this stationary series for estimation. But this method has some limitations. Firstly problem is that due to differencing the variables, error process also differenced and it produces a non-invertible moving average process. Second problem is that after differencing, model can't give a unique long run solution

#### 3.1 Variables and Data Sources

In this study time series data will be used from 1995 to 2015. The data about distortionary taxation is taken from economic survey of Pakistan 2014. The data about Gross Domestic Product, defense expenditure and is obtained from World development indicator (World Bank database 2015). Labor force percentage of total population, Trade openness and Interest rate is obtained from world development indicator. Distortionary tax, non-distortionary tax data obtained from Economic Surveys of Pakistan.

#### 3.2 Model

$$GDP = \alpha + \beta_1 DFEXPt + \beta_2 TOPt + \beta_3 DTt + \beta_4 NDTt + \beta_5 Lft + \beta_6 IRt + \mu t$$

GDP= Gross Domestic Product ( in US Million dollars)

DFEXP= Defense Expenditures ( in US million Dollars)

DT= Distortionary Tax

NDT= Non-distortionary Tax  
LF= Labour Force  
TRD= Trade  
INT= Interest Rate  
Data Description and sources

## 4 RESULT AND DISCUSSION

This study analyses the effect of fiscal policy on economic growth in Pakistan by using time series analysis the data used from 1980 to 2014. The summary statistics of the following variables are given as Table

TABLE 1  
SUMMARY STATISTICS OF THE DATA

	DEF	DT	GDP	IR	LFP	NDT	TOP
Mean	3.000702	11.28802	1.435189	3.031836	3.742811	12.46947	6.085255
Median	3.119865	11.60511	1.576825	3.074875	3.769290	12.58337	5.932287
Maximum	3.299534	13.70273	2.069488	3.610918	3.839452	14.68080	7.547657
Minimum	2.415914	8.613230	0.014293	2.174752	2.884801	10.20370	5.430579
Std. Dev.	0.276855	1.607450	0.521750	0.355437	0.157776	1.258820	0.536225
Skewness	-0.747135	-0.124014	-0.907809	-0.673028	-4.910493	-0.112304	1.084522
Kurtosis	2.177024	1.678144	3.180850	3.136056	27.32685	1.954507	3.475575
Jarque-Bera	4.122692	2.562495	4.716328	2.593812	975.0173	1.619964	6.939573
Probability	0.127283	0.277691	0.094594	0.273376	0.000000	0.444866	0.030355
Sum	102.0239	383.7925	48.79643	103.0524	127.2556	423.9618	206.8987
Sum Sq. Dev.	2.529415	85.26560	5.983345	4.169070	0.821473	52.29270	9.539643
Observations	34	34	34	34	34	34	34

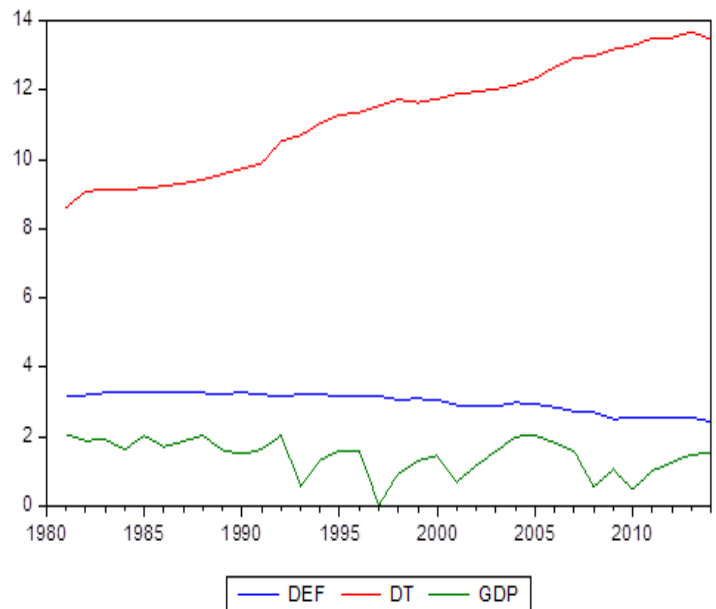
In above table the mean values for all variables is positive the minimum mean value for GDP variable which is 1.435189 and the maximum mean value is for NDT which is 12.46947. This table shows Positive values of median for all variables, and minimum value of median is .939670 for POPU and maximum median value is 12.58337 for NDT. All values of Maxima are positive for all variables and 1.228753 is minimum value of Maxima for POPU, and maximum value is 14.68080 for NDT. All variables have positive minimum values with 0.014293 lowest minima value of GDP and 10.20370 maximum value of minima. Standard deviation results for all variables shows that all variables have positive values of standard deviation. And the minimum value of standard deviation is for LFP which is .157776 and maximum value of standard deviation is for DT which is 1.607450.

The skewness or the deviation from the mean value of the variables shows that all the variables except POPU and TOP all variables have negative Skewness values. The maximum skewness value is for TOP variable which is 1.084822 and the minimum value of skewness is for the LFP variable which is -4.910493.

Kurtosis shows normal distribution and other data normality test Jarque-Bera shows all variables are positively distributed. Total number of observations used in this analysis is 34.

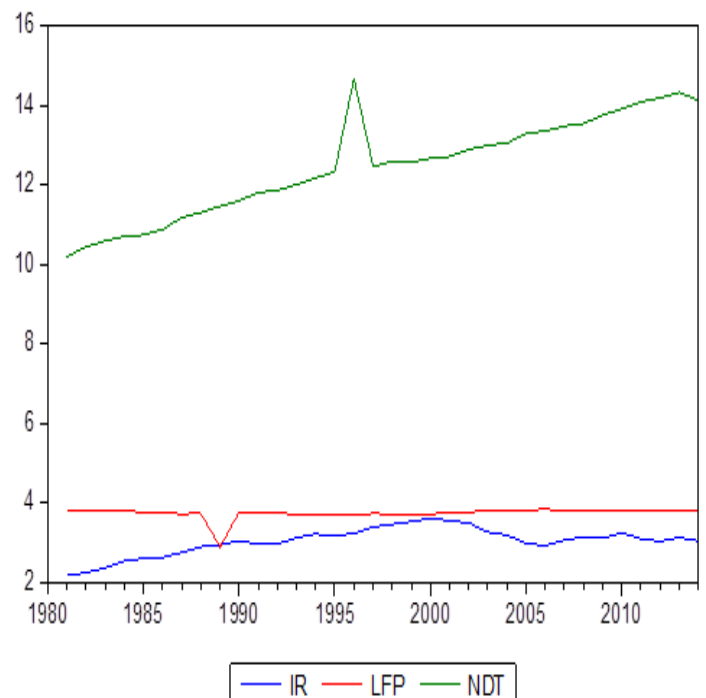
## 4.1 Graphical Analyses of the Variables

FIGURE 1  
GRAPHICAL DISPLAY DEF, DT AND GDP



The graph shows the DEF, DT and GDP graphically. The GDP cyclical fluctuate in the period. An increasing trend in DT from 1980 to 1998 and decreasing trend from 1998 to 1999 is shown. DT has again an increasing trend from 1999 to 2007 and a decreasing trend in 2007 to 2014. And a continuous decreasing trend in DEF.

FIGURE 2  
GRAPHICAL DISPLAY OF IR, LFP AND NDT



In above graph NDT has an increasing trend from 1980 to 1995, in 1995 there is a jerk and afterward again there is an



increasing trend. Here graph of LFP shows a decreasing trend from 1980 to 2014 including a jerk in 1988 to 1990. IR shows an increasing trend from 1980 2001 and decreasing trend from 2001 to 2006 and a again a slight increasing trend from 2006 to 2014.

In case of time series data, first step in to check the stationarity on the data that's why ADF used to check the stationarity.

#### 4.2 Results of ADF

Stationarity of the data is necessary in time series analysis, if this assumption is violated then the result of integration has no meaning or it is called spurious regression. The unit root result, if the ADF test statistics if greater than the critical value then we reject H0 and accept alternative Hypothesis.

TABLE 2

AUGMENTED DUCKEY FULLER TEST RESULT

Augmented Ducky Fuller (ADF) Test Result At Level.		
Variables	Test result with intercept	Test result with intercept and trend
GDP (Gross Domestic Product)	-3.646342	-4.054871**
DFEXP (Defense Expenditures)	-2.954021*	-3.552973**
DT (Distortionary Tax)	-2.954021*	-3.552973**
NDT (Non-distortionary Tax)	-2.957110	-3.552973**
LF (Labor Force)	-2.986225	-3.215267**
TOP (Trade)	-2.954021*	-2.552973**
IR (Interest Rate)	-2.615817*	

Note: \* shows the stationary with intercept, \*\* stationary with intercept and trend at 5% and 10%.

The ADF (Augmented Ducky Fuller) results shows all the variables are stationary at level when there is intercept and trend are included. ADF unit root test result for defense expenditure, trade openness, interest rate and distortionary taxes are stationary at level when only intercept included. The gross domestic product, non-distortionary taxes and labor force are non-stationary when intercept only included and become stationary when trend and intercept both are included at level.

TABLE 3

JOHANSEN CO-INTEGRATION TEST RESULTS

Null Hypothesis	Trace Statistic	0.05* Critical Value	Prob**	MaxEigen Statistic	0.05* Critical Value	Prob**
R = 0	133.6570*	107.3466	0.0003**	45.65301*	43.41977	0.0281**
R = 1	58.00399*	79.34145	0.0095**	37.46990*	37.16359	0.0461**
R = 2	50.53409	55.24578	0.1220	21.05726	30.81507	0.4676
R = 3	29.47683	35.01090	0.1731	17.88978	24.25202	0.2767
R = 4	11.58705	18.39771	0.3407	11.52389	17.14769	0.2725
R = 5	0.063167	3.841466	0.8015	0.063167	3.841466	0.8015
Trace test indicates 2 cointegrating eqn(s) at the 0.05 level						
Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level						
*denotes rejection of the hypothesis at the 0.05 level						
** MacKinnon-Haug-Michelis (1999) p-values						

Johansen Co-integration test is used to check the long run relationship between the variables by using the Johansen maximum likelihood method. This result shows the two statistical results, trace statistics and Eigen values statistics. If the value of trace statistics which is calculated on the base of likelihood ratio is greater than their critical value then we reject H0 (the null Hypothesis) means there is co-integration. If the value of R = 0 it shows there is no co-integration. If R=1 it shows there is one co-integration equation, if R=2 it shows there is two co-integration equations etc. If the value of Eigen statistics which is calculated on the base of likelihood ratio is greater than their critical value then we reject H0 (the null Hypothesis) means there is co-integration. If the value of R=0 it shows there is no co-integration equation. If R=1 it shows there is one co-integration equation, if R=2 it shows there is two co-integration equations.

Vector Auto Regressive (VAR) method is used to check the optimum lag length. The Akaike information criteria (AIC) and Schwartz information criteria (SC) indicates the three optimal lags.

TABLE 4

VAR LAG ORDER SELECTION CRITERIA

Endogenous variables: DEF DT GDP IR LFP NDT TOP						
Sample: 1981 2014						
Included observations: 31						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	6.573878	NA	2.42e-09	0.027492	0.351295	0.133044
1	152.5766	216.6492	5.05e-12	-6.230750	-3.640321	-5.386334
2	202.6817	51.72134	8.02e-12	-6.302043	-1.444989	-4.718764
3	327.8727	72.69156*	3.77e-13*	-11.21759*	-4.093914*	-8.895450*
* indicates lag order selected by the criterion						
LR: sequential modified LR test statistic (each test at 5% level)						
FPE: Final prediction error						
AIC: Akaike information criterion						
SC: Schwarz information criterion						
HQ: Hannan-Quinn information criterion						

The error correction model represents short-run and long-run impact of the lagged explanatory variables.

The error correction estimation given in bellow table

TABLE 5

VECTOR ERROR CORRECTION ESTIMATES

Vector Error Correction Estimates in short run							
GDP(-1)	C	DEF(-1)	DT(-1)	IR(-1)	LFP(-1)	NDT(-1)	TOP(-1)
1	-6.84119	-0.09912	-0.07044	0.318121	-0.04756	-0.08088	1.10399
		0.02881	0.00996	0.01363	0.02439	0.01036	0.01108
		[-3.440]	[-7.073]	[23.33]	[-1.950]	[-7.809]	[99.67]
Vector Error Correction Estimates in long run							
Error Correction:	D(GDP)	D(DEF)	D(DT)	D(IR)	D(LFP)	D(NDT)	D(TOP)
CointEq1	0.0772	0.5339	0.8634	1.4150	0.7751	1.0130	-0.6642
	(1.497)	(0.287)	(0.528)	(0.285)	(0.916)	(2.144)	(1.574)
	[ 0.051]	[ 1.859]	[ 1.634]	[ 4.953]	[ 0.845]	[ 0.472]	[-0.421]

The vector error correction estimates in short run shows that there is a negative relationship of defense expenditures, distortionary taxes, labor force participation and non-

distortionary taxes with GDP and a positive relation with trade openness and Interest rate. It shows that if there is one unit increase in defense expenditures, GDP will be decreased by 9 percent. Distortionary tax (DT) will decrease GDP by 7 percent and labor force Participation (LFP) will reduce GDP by 4 Percent in short run. Non-distortionary taxes in short run will decrease GDP by 8 percent. Whereas there is a positive relation between GDP, 31 percent GDP change due to Interest rate (IR) and 113 percent due to trade openness (TOP). In the long run the GDP shows the .077248 percent adjustment towards equilibrium.

Granger Causality Tests is used to determine the nature of causality between the variables. Table 6 indicates the results of Granger Causality test.

TABLE 6  
GRANGER CAUSALITY TESTS

Null Hypothesis:	Obs	F-Statistic	Prob.
DT does not Granger Cause DEF	31	1.76191	0.1813
DEF does not Granger Cause DT		0.28326	0.8370
GDP does not Granger Cause DEF	31	1.18379	0.3368
DEF does not Granger Cause GDP		3.08001	0.0466
IR does not Granger Cause DEF	31	2.12363	0.1237
DEF does not Granger Cause IR		3.14191	0.0438
LFP does not Granger Cause DEF	31	0.42806	0.7347
DEF does not Granger Cause LFP		1.41050	0.2641
NDT does not Granger Cause DEF	31	1.24909	0.3140
DEF does not Granger Cause NDT		0.66569	0.5813
TOP does not Granger Cause DEF	31	1.17371	0.3405
DEF does not Granger Cause TOP		2.86441	0.0578
GDP does not Granger Cause DT	31	0.59502	0.6244
DT does not Granger Cause GDP		1.92934	0.1518
IR does not Granger Cause DT	31	1.44925	0.2533
DT does not Granger Cause IR		0.98178	0.4179
LFP does not Granger Cause DT	31	5.88723	0.0037
DT does not Granger Cause LFP		1.33308	0.2870
NDT does not Granger Cause DT	31	0.97160	0.4224
DT does not Granger Cause NDT		3.68639	0.0258
TOP does not Granger Cause DT	31	0.62372	0.6066
DT does not Granger Cause TOP		2.53371	0.0808
IR does not Granger Cause GDP	31	1.56692	0.2233
GDP does not Granger Cause IR		0.09073	0.9644
LFP does not Granger Cause GDP	31	0.33481	0.8003
GDP does not Granger Cause LFP		0.37949	0.7686
IR does not Granger Cause TOP		0.90916	0.4513
NDT does not Granger Cause LFP	31	0.91518	0.4484
LFP does not Granger Cause NDT		0.02642	0.9940
TOP does not Granger Cause LFP	31	0.46237	0.7112
LFP does not Granger Cause TOP		0.28717	0.8342
TOP does not Granger Cause NDT	31	1.57477	0.2214
NDT does not Granger Cause TOP		4.09492	0.0176

Defense expenditure is Granger cause of GDP but GDP does not caused by Defense expenditures. Defense expenditure is Granger cause of IR but IR does not caused by Defense expenditures. LFP is a Granger Cause of DT but DT does not caused by LFP. DT is a granger cause of NDT but NDT not dependent on distortionary taxation. NDT is a Granger cause of TOP but trade openness is not dependent on non-distortionary taxation. All other variables are not granger caused by each other.

## 5 CONCLUSION AND SUGGESTION

This study analyses the effect of fiscal policy on economic growth in Pakistan. This study investigated the impact of fiscal policy on economic growth by using time series data period from 1980 to 2014. The key variables used in this analysis are gross domestic product (GDP), distortionary taxation (DT), non-distortionary taxation (NDT), labor force participation rate (LFP), interest rate (IR), defense expenditures (DEF) and trade openness (TOP). For unit root an Augmented Ducky Fuller (ADF) used, all variables are stationary at level when linear trend and intercept are included. To check the relationship between variables a Johnson co-integration test is applied. The trace and Eigen value reveals there are two co-integration equations in the long run. To estimate the vector error correction model the lag length is required a VAR model estimate to determine the optimum lag length a VAR lag order selection criteria is used. This result revealed that there are three optimum lag according to Akaik information criteria (AIC) and Schwarz Information Criteria.

Vector Error correction reveals that there is positive and significant relationship in the long run between gross domestic product (GDP), distortionary taxation (DT), non-distortionary taxation (NDT), labor force participation rate (LFP), interest rate (IR), defense expenditures (DEF) and negative relationship with trade openness (TOP).

Defense expenditure is Granger cause of GDP but GDP does not caused by Defense expenditures. Defense expenditure is Granger cause of IR but IR does not caused by Defense expenditures. LFP is a Granger Cause of DT but DT does not caused by LFP. DT is a granger cause of NDT but NDT not dependent on distortionary taxation. NDT is a Granger cause of TOP but trade openness is not dependent on non-distortionary taxation. All other variables are not granger caused by each other.

A sound fiscal policy can be helpful in attaining the sustainable economic growth by facilitating research and development programs, maintaining law and order condition, promoting the incentive for investment and alleviating poverty. While inefficient fiscal policy leads to high inflation, high interest rate, and crowding out of private investment.

Standard of living of population can only be improved by such macroeconomic policies which can promote rapid and sustainable economic growth, alleviate poverty and bring stability in other macroeconomic indicators. In this regard, fiscal policy may be regarded as an essential determinant of sustainable economic growth.

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