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IMPACT OF GOVERNMENT EXPENDITURES ON ECONOMIC GROWTH IN PAKISTAN

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Abstract

This study focused on the impact of government expenditures on economic growth by using the ARDL technique for the period of 1990-2020. Results show that government expenditures will positively affect economic growth across a variety of channels. Government investment can boost economic activity by providing public goods, which are a key component of aggregate demand. Furthermore, ensuring fair income allocation may have an effect on economic development by the mechanism of taxation and transfer payments. Government spending aids in the maintenance of law and order in the region, which is needed for long-term economic development. Furthermore, government expenditures on constructive projects such as physical and human infrastructure can increase productivity, and government spending through its relationship with the private sector can increase production directly or indirectly (Asghar et al 2012).

Keywords. *government expenditures, ARDL technique, Government investment, aggregate demand, economic development.*

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INTRODUCTION

Government involvement in the market by making things imperfect which results in contract economic growth (James Buchanan). Government spending in the health and on education sectors brings positive change in human capital which stimulates economic growth in the country by reducing poverty and upgrading equity. (Razmi et.al 2012) explain that improvement in the health of people will result in increasing labor productivity and increased economic growth. Keynes (1936) postulates that economic growth increases government spending but proponents of this hypothesis argue that efficient utilization of public resources will bring positive changes in productive capacity which increases the economic growth of the country. Uncertainties in government revenues resulted in financial crises and suppressed the economic growth of the mining sector by 3.4% between 2009 -2016 and it forced the government to reduce its role in the economy and allow private sectors to increase economic growth by playing its role.

Before the 20th century, according to classical economist's government followed laissez-faire economic policy and limited its role. In this way public expenditures and revenues are small. Increasing government activities increases public expenditures on one side, and on the other side forces the government to generate resources to continue these activities and this results in increasing public revenues and expenditures. The growth in public expenditures and revenues is caused by social, economic, and demographic factors, these factors are analyzed by different researchers. An increase in government spending may be an effective tool in stimulating aggregate demand and this can increase economic growth in the short term. If government expenditures on social welfare services like pensions it will reduce the inequality in the country but crowd out more productive private sector investment.

The main problem is that as government spending increases it slows down the economic growth of the country because a large part of government expenditures are used for defense and budget purposes and it harms economic growth. When there is increasing in financial revenues like taxes, economic growth is affected badly. While government expenditures on education and health have a positive impact on economic growth. Education has a significant impact on the growth of the economy, but education impacts are different because it depends on the quality of education of people in the country. The main problem associated is that increases in government spending or increases in taxes may lead to a decrease economic growth of the country. As the government spends more money economy contracts. A coefficient of -0.526% indicates that if government expenditures increase by 1% gross domestic product (GDP) will reduce by o.526%. But if the government makes expenses on people's

education and health, hospitals, and roads then it has a positive impact on the economic growth of the country.

The government provides subsidies like free education and healthcare facilities for poor people. Therefore government expenditures are used as a powerful fiscal instrument to bring about equitable distribution of income. It plays a role in reducing poverty. According to the Keynesian approach, public spending may increase aggregate demand which further increases employment and economic growth of the country. Development is important for the country's economic growth in which the health and education level of people may be improved by investing in different services provided by the government. It has a significant impact on economic growth because of more productive labor force participation due to increased health and education levels. In this way, poverty in that country reduced to some extent but not to the limit at which economic growth is resulted in providing jobs to well-qualified people.

PURPOSE OF THE STUDY

The main purposes of government spending are:-

- *Supply of goods and services to the public sectors like schools, hospitals, and bridges although these services are not provided by any private sector.*
- *Spending on education and health in this way supply- side of macro economy improved.*
- *When the health level of people improves it leads to increased labor productivity in the country which stimulates economic growth.*
- *Government spending involves in redistribution of income and promoting the social welfare of the country.*

OBJECTIVES OF THE STUDY

- *The main objective of this study is to see the impacts of government expenditures on economic growth.*
- *To see whether there is a long-run or short-run relationship between government expenditures and economic growth.*
- *There arise different questions and giving the solutions to these problems or questions is also the objective of this study.*
- *To investigate whether government expenditures affect economic growth positively or whether government expenditures harm the economic growth of the country.*
- *To give policy recommendations for public expenditures and economic growth.*

LITERATURE REVIEW

Jawad et al. (2013) studied the relationship between government expenditures, economic growth, and inflation by using time series data from the period 1980-2010 The variables taken were economic growth which was a dependent variable and government expenditures and inflation as an independent variable Data

collected for this study from state bank of Pakistan (SBP) and economy of Pakistan statistics (2010). The result shows that inflation in the short run does not affect economic growth but in the long run government expenditures have positive impacts on economic growth.

Zuhdi and Prasetyo (2013) studied the link between government expenditure efficiency towards human development by using data development analysis (DEA) during 2006-2010. Variables used in the study were HDI, Government expenditures, data envelopment analysis, and the Malmquist index. Sources of the data were from the World Bank from 2006-2010. According to many authors, Government expenditures have a positive impact on education and health and these are important indicators of economic growth. When the level of education increases it reduces the poverty level in the economy and expenditures on health improve the health of people and it will bring positive change in the economy.

Sadeghieh et al.(2015) studied the impact of military expenditures on economic growth in the case of Turkey by using time series data from the period 1988-2013. Economic growth was the dependent variable while military expenditures were the independent variable. The Granger causality test in this study was used. Augmented dicky fuller (ADF) and Phillips Parron (PP) tests were used in this study to check stationarity. Co-integration and Granger causality tests were used to analyze the relationship between economic growth and government expenditures. Sources of this study World Bank in

According to Cohen (1996), military expenditures have positive impacts on economic growth because of an increase in investment. But Heo (1999) says that military spending reduces investment and also exports therefore harming the economy.

Rosoiu (2015) studied the impact of government expenditures and government revenues on economic growth in Romania throughout 1998-2014. The vector autoregressive model (VAR) is used to find whether government expenditures and revenues affect economic growth or not. The state used economy-controlling instruments in fiscal policy. Variables used in the study of economic growth as dependent variable, fiscal policy. The positive relation between government expenditures and economic growth was observed.

Ahmad et al. (2022) examined the relationship between government expenditures and economic growth in the MENA region during 1990-2016. Variables used in this study were government expenditures and economic growth. Panel data from 1990-2016 were used in this study. Co-integration test was used to find the link between government expenditures and economic growth. The sources of the data were (WDI) data from Syria from 1990 to 2016 obtained from the central bank and central

bureau of statistics. The result shows that positive effect on government expenditures and economic growth. In the long run, government expenditures on economic growth are positive in MENA region oil and non-oil countries. In the short run, the coefficient of government expenditures is significant in oil but insignificant in no-oil countries.

Oyinlola and Amusa(2019) studied the effectiveness of government expenditures on economic growth in Botswana. Economic growth is taken as the dependent variable while government expenditures as the independent variable. ARDL bounding test approach was used to study the relationship between 1985-2016. Sources of the data were the World Bank (1986) and Bank of Botswana annual statistics from 2000, 2015, and 2016. The result shows that government expenditures has negative impact on economic growth in short run. In the long run positive impact in both recurrent and development expenditures on economic growth. Significant impact only for recurrent expenditures in the long run.

Alexiou (2009) studied the impact of government spending on economic growth in SEE by using time series data from 1975-1995.Variables used in the study of economic growth as dependent variable while government spending is taken as an independent variable. The sources of data were the World Bank and the central bank. Results show that four out of five variables used in the estimation of government spending on capital formation, development assistance, private investment, and trade openness all these variables have positive impacts on economic growth.

Younis et al.(2008) studied the association between government expenditures and economic growth by using US government time series data from 1947-2002. Granger causality test was used and four different models were performed in this paper.

1. *First linear regression model relation between GDP and federal total outlays*
2. *The second relationship between GDP and all other five sub categories of expenditures.*
3. *Third and fourth relation between GDP and all other five categories. There were two propositions Wagner states GDP grows, public sector tends to grow. According to Keynesian law public expenditures cause GDP to grow. The result shows that total government expenditures were more stable with Keynesian theory.*

Gifari(2015) studied the effect of government expenditures on economic growth in case of Malaysia by using time series data 1970-2014. The ordinary least square method (OLS) was used to analyze this relationship. Variables used in this study were economic growth, government expenditures. According to Keynesian government expenditures increase economic growth BARRO (1989) that the growth of GDP has negative impact on government consumption expenditures. The OLS

method is used to find the independent effect of the independent variable on the dependent Variable. Sources of the data World Bank and Ministry of finance Malaysia database. The result shows that there was a negative relationship between government expenditures and economic growth during last 45 years.

Young Jei et al.(2019) studied the relationship between government expenditures an economic growth for China and Korea by using quantile regression model (QRM). An economic system was systematic way of distribution of resources in economy. Positive relationship between government expenditures and economic growth according to advanced research. Hwang and Lee by using ordinary least square method fixed and random effect models to study government expenditures of Korea and its impacts on economic growth. There was correlation between functional classification of government expenditures and economic growth. Investment expenditures such as education have positive impacts on economic growth and consumer expenditures has negative impact on economic growth of economy. Quantile regression model based on conditional median specification.

Saad and Kalakeeh(2009) studied the nature of government expenditures and their impact on sustainable economic growth by using time series data from period 1962-2007 focus on sectoral expenditure variables used in this study were government expenditures, economic growth, sectoral spending, defense spending, education, agriculture, and health expenditures. Augmented dicky fuller (ADF) and Phillips Parron (PP) techniques were used to check stationarity. Sources of data united Nations, Central bank, Lebanese ministry of finance. The result shows that government spending on education has positive impacts in the short run. Government spending on defense has negative effects on economic growth in the long run and insignificant impact in the short run.

MODEL SPECIFICATION

This study determines an economic model to repeat the research phenomenon and to apply tests on this model. In this model, GDP is a dependent variable while government expenditures, inflation rate, health expenditures and military expenditures are independent variables in this analysis.

$GDP = f(\beta 0 + \beta 1GGCEX + \beta 2HEXP + \beta 3INF + \beta 4MEXP + €)$

GDP = Gross domestic product

GGCEX = General Government current expenditures

HEXP = Health expenditures public

INF = Inflation rate

MEXP = Military expenditures public

€ = Error term

Table 1: List of the independent variables and their expected sign in the GDP

model

Variables	Unit of measure	Data source	Expected sign
GGCEX	Constant(LCU)	WDI	+
INF	Annual %	WDI	-
HEXP	% total	WDI	+
MEXP	%	WDI	_

Sources: Author's own calculations using E-view 9

DESCRIPTIVE ANALYSIS

Descriptive analysis is used to estimate the quantitative description and to summarize the characteristics of broad money and deposit for the period 1990-2020. The following table shows the average values, standard deviation, skewness, and kurtosis of the data set. This study working data of gross domestic product (GDP), General government consumption expenditures (GGCEX), inflation (INF), Health expenditure public(HEP) and Military expenditure public (MEXP) are under consideration variables.

Table 2: Descriptive Analysis:

	Mean	Medi	Maxi	Mini	Std. Dev	Kurt
GDPPC	747.2	26.71		10.8	3.24	51 . 2.20
HEXP	550.1	26.18		8.13	3.26	630 2.09
INF	1434	636.90		24.8	3.61	.26 3.21
MEXP	371.8	19.58		2.46	2.91	5.91 0.90

Source: Author's calculations using E-views 9

ESTIMATION PROCESS

The process of estimation contains different steps. The time series data has been used to verify the uniqueness of the data. E-views have been used to test the fixed data. Stationary is useful for the result of the best possible method to be used for analysis. After that, we will utilize the boundaries test to check the subsistence of long-run participation among appropriate variables. Short-term and long-term coefficients of this model will be estimated.

BOUND TEST (F-STATISTICS)

Bound test will used to examine the long-run relationship among the relevant variables. The bound test will be applied to the values of variables that have

lags with them and then we will calculate F-statistics. Then comparison will be made between this computed value and the tabulated or critical value regarding F-statistics. The basic merits of the Bound Test are as follows: In this model, the variables are assumed to be endogenous. Whether the variables are stationer at level I (0) or at first difference I (1), this test will be applicable. The bound test is helpful in the measurement of short-run and long-run coefficients of variables. The tabulated value of F-Statistics has 2 critical limits or boundaries such as lower limit or lower bound I (0) & upper limit or upper bound I (1).

- *If F-Statistics > upper limit => long run relationship between the variables exists.*
- *If F-Statistics < lower limit => long run relationship between the variables does not exists.*
- *If upper limit < F-Statistics < lower limit => the result are uncertain.*

Table 3: Bound test apply

Test Statistic	*Value*	*k*	
F-statistic	*4.416272*	*5*	
Critical Value Bounds			
Significance	*I0 Bound*	*I1 Bound*	
10%	*2.26*	*3.35*	
5%	*2.62*	*3.79*	
2.5%	*2.96*	*4.18*	
1%	*3.41*	*4.68*	

Sources: Author's own calculations using E-view 9

In this bound test table level of significance is 5%. If the number of lower bound (I_0) and upper bound (I_1) is greater than the F-statistics value then there is long-run relationship exists among variables. The lower bound number is 2.62 and the upper bound number is 3.79 which is lower than the F-statistics value which is 4.41. This estimate shows that there is a long-run relation among variables.

UNIT ROOT TEST

To analyze the immobile of allied variables, a unit root test has been decided. If inaccurate warnings appear then the coefficient does not have the BLUE properties. For this estimation, the Augmented Dickey-Fuller (ADF) test was developed in 1979

by two economists Dickey and Fuller. They thought that the interruption term has independent and equal distribution. Unit root test helps out to tell the sort of absorption and indicates what type of approach should be adopted for the analysis. First of all, data is checked on a level that may be articulated as I (0). It shows the stationary of data and there is no necessity for further process to attain stationary, but if this is not so then the data is checked at first difference or I (1), and if data is not stationer here then we go on for checking data at second difference or I (2).

In the Augmented Dickey-Fuller test, there are three types of regression. First, there is an intercept and no trend. In the second type, there is intercept and trend. There is no intercept and no trend in the third type of regression. For the decision of the lag length there are three criteria, Akaka information criterion (AIC), Hannan Quinn Criterion (HQC) and Schwartz Criterion (SC).

Null Hypothesis *H_0 = Data is no stationary and unit root is present*

Alternative Hypothesis *H_1 = Data is stationary and unit root is absent*

If F (calculated value) > F (critical value) then the null hypothesis H_0 will be rejected and accept H_1. If all variables are at level 1(0) in the unit root test than straight forward Ordinary Least Square method will be useful. Johnson Co-integration procedure will be theoretical if all the variables at on first divergence, but some variables are at level and some of them are at first difference then we would use Auto Regressive Distributed Lag (ARDL) model.

CORRELATION MATRIX

Correlation matrix explains the relationship between the variables. The value range from (-1.00 to + 1.00). Numeric values tell the force of association and the sign of the value communicate the course of the affiliation. +1.00 implies ideal positive association and -1.00 implies ideal negative relationship.

Table 4: Correlation matrix

	GDPPC	GGCEX	HEXP	INF	MEXP
GDPPC	129137				
	1.000000				
GGCEX	2.75	5.87			
		.			
	0.998329	000			
HEXP	39263.11	8.39	1304.768		
	0.956	0.958	1.000		
INF	2319.575	4.73	68.135	30.885	
	0.367	0.350	0.339	1.000	
MEXP	9483.111	2.020	335.383	21.611	134.126
	0.720	0.7185	0.801	0.335	1.000

Sources: Author's own calculations using E-view 9

This table shows the relationship between the variables of the model. The dependent variable gross domestic product (GDP) is positively related to all other explanatory variables. This is a positive correlation between Government expenditures with GDP. Final health expenditures, inflation and military expenditures are also positively correlated with GDP.

AUTO REGRESSIVE DISTRIBUTED LAG APPROACH

ARDL method is useful to see the short-run and long-run involvement between variables. This approach will be helpful to estimate just one equation. Moreover, this manner is beneficial for a reasonably undersized section degree. ARDL involves the combination of both types of variables which are stationer at level I (0) & individuals which are at first difference. ARDL is the best possible advance in case of an undersized sample size, so we worn out this advance in this study. If the model used dummy variables to measure co-integration then the ARDL technique will be useful. ARDL will not give reliable results when the variables are stationary at the 2nd difference I (2).

There are two steps in the function of ARDL practice. 1st is F-statistic which is used to study the long-run involvement between related variables in the model. 2nd, the coefficients if both short-run and long run relationships are estimated and the application of the ARDL method is concluded. In this segment, the Auto Regressive Distributed Lag Model (ARDL) is used to estimate the short-run and long-run association among variables.

Table 5: Estimation of Short-run Coefficient of the model ARDL:

Variable	Coefficient	t-Statistic	Prob.
HEXP	26.544073	2.241495	0.0431
INF	-5.201164	1.696274	0.1136
MEXP	-1191.126753	-4.008499	0.0015
MEX	39.721572	3.867904	0.0019
CointEq()	-0.910495	-8.727847	0.0000

Sources: Author's own calculations using E-views 9

The above table describes the Short-run estimation of the model. In this table health expenditures show a positive impact on economic growth, it means that if healthy people utilize their energy in an effective way and for productive purposes, in this way economic growth of the country increases but if people do not utilize their energy properly, it harms economic growth. This variable has a statistically significant relationship. Military expenditures show a negative impact on the economic growth of the country, because when the government increases its military

expenditures, then spending on productive activities such as education and healthcare has been reduced. These results also discussed in some previous studies (Luca Pieroni).

Table 6: Estimation of Long Run Coefficient of the Model

	Coefficient	*Std. Error*	*t-Statistic*	*Prob.*
HEXP	*35.174*	*11.653*	*3.018*	*0.009*
MEXP	*-1201.977*	*274.093*	*-4.385*	*0.000*
GDPPC	*670.982*	*41.475*	*16.177*	*0.000*
HEXP	*-689.470*	*326.927*	*-2.108*	*0.054*
INF	*-65.005*	*35.172*	*-1.848*	*0.087*

Sources: Author's own calculations using E-views 9

In this table shows that the long run relationship of Auto regressive distributed lag model. The value of HEXP is 35.174748 and there is positive and statistical significant relationship. 1% increase in HEXP that will increase in Value of GDP by 35.174%. The coefficient value of INF is -65.005 it is negative. It means that increase inflation in the country will suppress the economic growth. Coefficient value of military expenditures is -1201.977 and it is also negative effect on economic growth of country, it means if military expenditures are increases then it will contract the economic growth of the country. Coefficient value of GDPPC is positive and significant. In this lag general government consumption expenditures shows positive effects with economic growth while health expenditures also shows positive effects. Barro (1989) that growth of GDP has negative impact on government consumption expenditures. Military expenditures shows negative effects with economic growth. According to Cohen (1996) military expenditures has positive impacts on economic growth because of increasing in investment. But Heo (1999) says that military spending reduce investment and also exports therefore have negative impact on the economy.

PROCESS OF ESTIMATION OF SHORT RUN AND LONG RUN COEFFICIENTS IN THE MODEL

When the evaluation of stationary and evaluation of the association among the relevant variables is completed then later on we apply ARDL approach for co-integration. To estimate the power of all explanatory variables on GDP we compute the model by ARDL method (Bound test to co-integration) and later on the results would be normal.

BREUSH-GODFREY CORRELATION

In this section, Breush-Godfrey correlation estimate the serial correlation and heteroscedasticity of model. Different methods are applied to check the heteroscedasticity and auto-correlation in the model; most widely used methods are Breush-Godfrey correlation LM test and heteroscedasticity diagnostic test.

Table 7: LM test

Name of test	*F-statistics value*	*Probability*
Breush-Godfrey LM test	*3.7424*	*0.576*

Sources: Author's own calculations using E-views 9

The above table is the diagnostic test of the model. In this table serial correlation test and Breush test is used, the value of F- statistics is 3.7424 and it is insignificant. There is no serial correlation.

Table 8: Heteroscedasticity Test

Name of test	*F- statistic value*	*Probability*
Heteroscedasticity test	*2.259*	*0.805*

Sources: Author's own calculations using E-views 9

The heteroscedasticity the F value is 2.259 and the probability is 0.805 and statistically, it is not significant.

TESTS OF STABILITY

This study used CUSUM test in auto regressive distributed lags technique (ARDL) to illustrate the reliability of the data. The data this study is stable because the cumulative sum of recursive residuals CUSUM graph is within the limits of 5% significant level and cumulative sum of square of recursive residuals CUSUM SQ graph is also within the confidence of 5% which is significant

Stability Test for Model: [GDP, GGCEX, HEXP, INF, MEXP]

Figure 1: Plot of Cumulative Sum of Recursive Residuals.

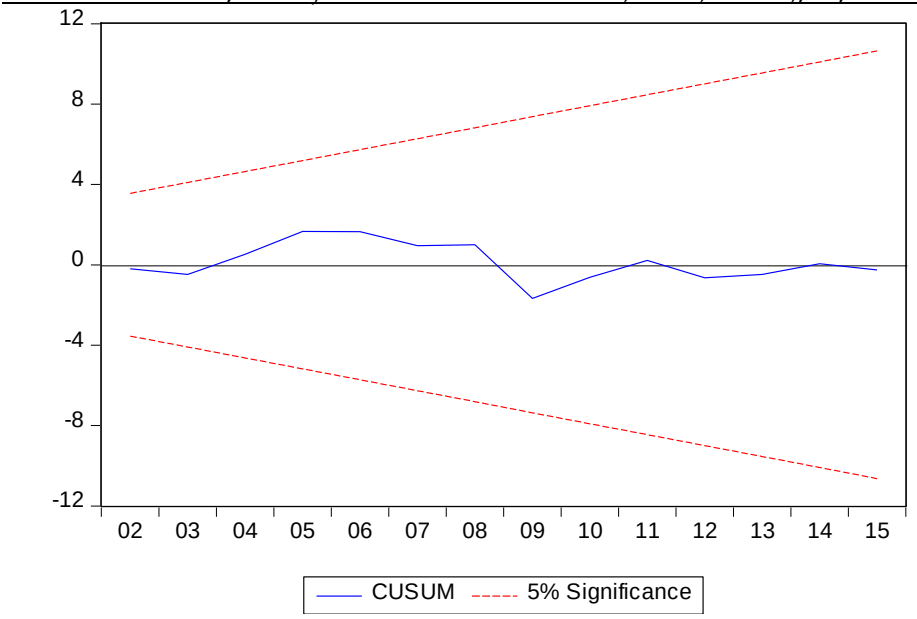
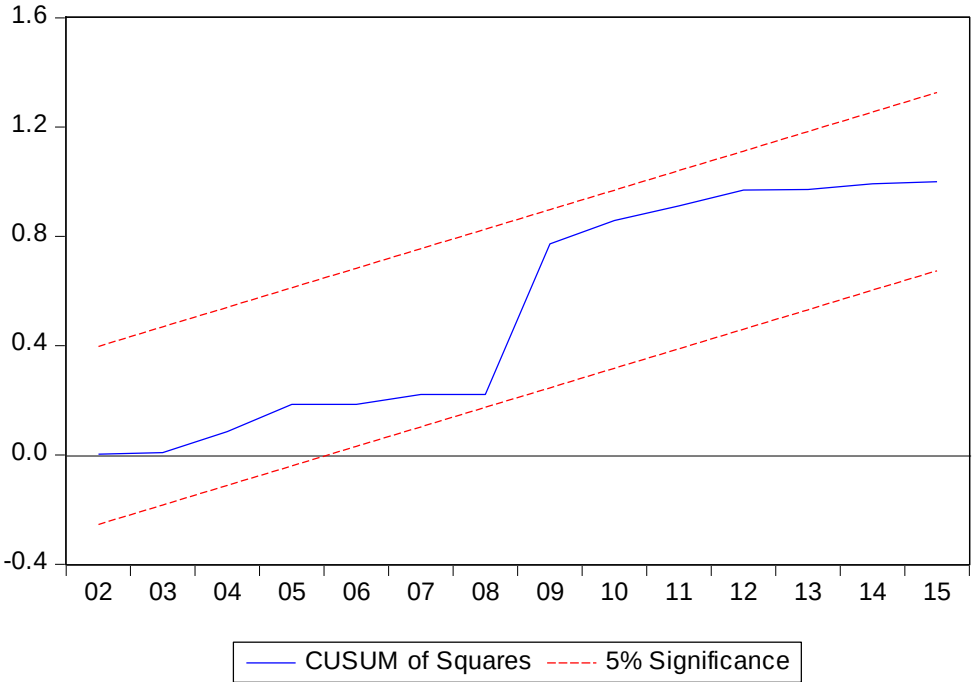


Figure 2: Plot of Cumulative Sum of Square Recursive Residuals



CONCLUSION

First part is conclusion of overall study exists and in second part the policy implications conformed. The central sector of economic growth in this study is government expenditures. The current studies clarify lot of work. In this study we have dependent variable is GDP or economic growth and independent variables are INF, GGCEX, HEXP and MEXP. Model mostly lied on the authentically and

truthfulness of the numbers and sources from where the data is collected. In this model we discuss the sources of records justification of variables and bound test to apply in order to verify long run organization, model capacity long run and short run stage variable investigation. ARDL technique used to find results and data collected from 1990-2020 from World development indicator (WDI). Current literature shows that government expenditures have positive impact on economic growth across a variety of channels.

POLICY IMPLICATION

GDP plays main role in economic growth. The study investigate causal bond between economic growth and government expenditures in case of Pakistan. According to this study there is no long run relationship among dependent and independent variables. Our study creates that in Pakistan the effect are significant presentation that is fundamental connection between government expenditures and economic growth.

In this regard following policies are suggested.

1. *The government should also put assess to ensure that economy growth is increasing more than previous time period.*
2. *Government should take actions and mostly reforms the higher education and makes as its useful tool in the services of economic growth.*
3. *It is suggested that reduction in large size families so the economic growth of country increase to certain limit.*
4. *The government should decrease the its expenditures so that increase economic development*
5. *Government should also boost the level of production of goods of goods and services.*

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