p-ISSN-2415-5284 | e-ISSN-2522-3291

(1-12)

Volume 5 | No. 1| 2019

SALU-Commerce & Economics Review
www.cer.salu.edu.pk

Impact of Government Size Threshold on Economic Growth of Pakistan (1980-2015)

Ms Hina Kanwal
MS Student, Department of Commerce,
Shah Abdul Latif University, Khairpur
Ikhtiar Ali Ghumro, PhD
Professor at Institute of Commerce,
Shah Abdul Latif University, Khairpur
Asad Raza Abidi, PhD
Professor Department of Economics,
Shah Abdul Latif University, Khairpur
Ashiq Ali Lashari
Lecturer, Department of Economics,
Shah Abdul Latif University, Khairpur

ABSTRACT

The purpose of this research study is to investigate the existence of Armey curve in case of Pakistan. OLS regression model was applied for this purpose. The observed results show that Govt Expenditure, Investment, population growth and unemployment rate positively and significantly affect Pakistan's economic growth. Whereas, consumption and Trade openness show positive but insignificant impact on economic growth. The main objective of this research was to find out reverse U curve to explain relationship among govt expenditures and economic growth for the period of 1980 to 2015. We found that the optimal size of Pakistani government spending is 18.2 percent but the actual spending is 20.4 percent. Our result suggests that govt expenditure all the way through increase. Therefore, this research recommends the Pakistani govt to decrease its spending up to the maximum level, to achieve efficient utilization of public sector expenditures and promote economic growth.

Key Words: Armey Curve, Govt Expenditure, Economic Growth, GDP Growth Rate.

1- Introduction of the study

The size of the government ever since the time of Adam Smith published book "The Wealth of Nations 1776" where he suggested minimum involvement and the size of the govt remain topic of discussion among the economists and policy makers. It has been defined as total govt or public spending, calculated as the ratio of gross domestic product (GDP) (Gerhard, 1997). The literature related to the impact of government spending on

economic growth (EG), suggested that in absence of public spending, almost all the goods and services are provided by private sector. This decreases the growth rate to low level. On the other hand increase in public spending generates economic growth, only up to a certain level: but if spending public increase above that optimal level it will affect economic growth negatively. So, we therefore talk about an "inverted U" link among the public sector spending and economic growth rate (Faruk, 2013). The small government expenditure enhances economic output of an economy up to a certain level; however, increased public spending reduced the GDP growth rate. Government can raise economic growth by increasing its expenditures to a specific optimum level; this imply that at maximum point link considered as positive whereas above that stage the relationship becomes opposite which suggests that government spending beyond that level must be avoided (Armey, 1995). The positive may be due to provision of public goods and the negative effect might be due to the crowding-out cause of government monopolistic actions.

This study will try to investigate the presence of Armey curve "the anatropous U shape association between public activity and economic output", and then check the optimal size of govt; impact of govt spending on GDP growth rate.

The past economic history of Pakistan shows the imbalance of revenues and expenditures of government (M. A. Chaudhary and G. Shabbir, 2005). This scenario has always encouraged creditors like international monetary fund (IMF) to criticize govt's deficit policies. Although, developing countries require to finance various investment projects in order to improve infrastructure conditions. But literature suggests that it should be kept under threshold level of deficit at 5.57 percentage of GDP, beyond this it affects negatively to growth (Nasir Iqbal et al. 2017). So, it is very important for the government to know the exact size of its expenditure in order to avoid deficit and achieve positive economic growth. This research study has tried to resolve optimal level of govt spending suitable for the achieving maximum economic growth in Pakistan economy for the period of 1980 to 2015.

P-ISSN-2415-5284 e-ISSN-2522-3291

The primary objectives of this research are:

- To examine the relationship among consumption expenditure and economic growth in Pakistan.
- To find out the impact of government investment spending on GDP growth of Pakistan.
- To investigate the influence of govt expenditure on the GDP growth rate.
- To discover the threshold value of govt size in Pakistan.

2- Literature Review

Although many studies were conducted on this very important area but the debate is still alive about the exact optimal level of govt size. Some researchers have found positive but insignificant impact of public spending size on the economic performance of a country and others found negative impact. Some researcher concluded positive and significant impact of govt size on GDP growth. Also presence of Armey cure also discussed in literature. This section gives the review of different studies published from time to time about the relationship of govt expenditure and economic growth.

Zareen & Qayyum (2014) recommended that in case of Pakistan the suitable optimal level of govt size is 17percentage GDP for achieving maximum level of GDP growth. Rati Ram (1986) signifies the importance of size of public sector spending economic growth. That larger govt size work as powerful tool for economic development. Bairam E. (1988) contradicted the Ram's approach and held that it cannot approximate the correlation of govt expenditure with economic growth. Erkin found that govt consumption spending negatively affects GDP growth. On the basis of free market approach recommended that with increase of govt spending economic output of a country can decline. Further, explained that although increase in government size enhances private sector investment and also consumption but it troubles the economic growth. Similar results were also found by the study of (Robert, 1990) that consumption spending affects negatively to economic growth and investment. Armey (1995) with the help of Laffer curve tried to find out the relationship among govt size and economic output. He found multi-dimensional relationship among economic growth and govt size. Others also supported that govt size negatively affects economic growth of a country (Sheehey, 1993;

P-ISSN-2415-5284 e-ISSN-2522-3291

Chen. 2005; (Vedder, 1998) According to the study of Floster & Henrekson (2001) negative relation exists among govt spending and the economic growth in developed countries. The co-integration results of (Adeyemi A, 2013), found negative but insignificant impact of public sector expenditure on economic growth (except education and health). To find the optimal level of govt size with the help of Armey curve a study was conducted by (Varna, 2004) to check the optimal size of govt in case of Bulgaria found it above the suitable rate and recommended for reduction of its size if they want to achieve maximum economic growth. Vitali Kromarenko (2008) results about the impact of govt consumption & investment expenditure on Azerbaijani economy suggest that large govt spending can negatively affect growth of economic output due to unproductive expenditures by the govts. Junko failed to determine the direction of impact due to confusing results because initially govt size benefited the economic growth but latter on no any impact found. Hakro (2009) investigated the relation of public expenditure and tax rate on the economic growth of twenty one Asian developing countries. He found that govt expenditure positively affect per capita income and negative impact of taxation when tested for all countries. He further, said that larger govt size always create job opportunities which ultimately increase per capita. He added that low tax rate and non tax resources mobilization surely encourages economic growth. Clamidreza Vaziri, et al., (2011) study used Hansen regression model especially to calculate threshold value and evaluate that whether or not Armey curve valid for Iran and Iran. They found theory related results and concluded that Armey curve is present in both countries. Kari Grenade & Allan (2012) have empirically tested and concluded that Wagner's law is valid in case of Caribbean economies. Govt expenditure positively and significantly affects relationship among public expenditure and economical development. The study of (Taner Turan, 2014) conducted the research to examine the relationship among size of govt and growth of Turkish economy for sixty years time period (1950-2012). According to Taner results Armey curve is also applicable for Turkey. Due to use of many years data Taner also found variations in results and added further that to achieve preferred economic growth, public sector expenditure necessary to fall down. The study of (Helder Ferreira and Thiago, 2015) conducted research about the validity of Armey curve in Brazil economy. According to their results found public sector spending optimal if it is equal to

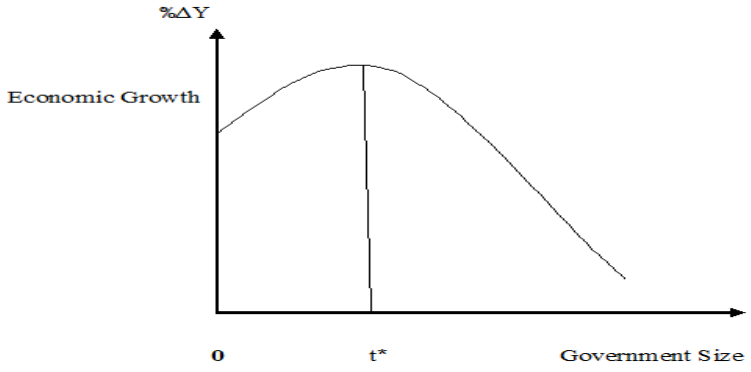
P-ISSN-2415-5284 e-ISSN-2522-3291

22 percent of GDP. They further clarified that govt spending positively affects economic growth rate. The long run analysis results of a study conducted that enhancement of public sector spending does not affect economic growth in Pakistan (Faqeer Muhammad, T R. Karim, 2015). D. Balaj, L Lani (2017) with the help of econometric model found no any linear relation of govt expenditure on Kosovo economic growth. Further added that in most of the developing countries govt's nonproductive investments negatively affects economic growth. The study conducted by Mahnaz, Tasnim K (2017) attempted to investigate govt size role on economic growth of developing countries of South Asia. They found nonlinear correlation among govt size and GDP growth rate and confirmed the presence of Armey curve in their chosen panel.

3- The concept of Armey curve

Armey (1995) stressed that lower government spending increases economic growth as far as it reaches at a certain level; but, increased government spending decreases output growth. The inverse U shape relationship among public doings and economic output neither projected that "all govt is speculative", nor that "all govt is beneficial". Thus, an optimal range of govt would exist. The increasing movement of the slope shows the positive and vibrant cost of mild govt, similarly the sliding trend of diagram demonstrate the ineffective consequences of huge government Maximum point embodies the level where benefits of large government spending become zero.

Figure 1: The Armey Curve



4- Research Methodology and proposed model discussion:

The data about the variables included in this research study has been gathered from the World Development Indicator (WDI) database and the Economic Survey of Pakistan (different issues) and other published sources and examined for the period of 1980 to 2015. The subsequent variables have been used to study the Armey curve and govt size; which is articulated by total government spending as a percentage of GDP, and the growth of the country's economy is uttered by means of growth of total real GDP output. The data was analyzed by using OLS econometric technique applied to analyze with the help of annual time series data. This method has the capacity to offer true impartial study results of the likely variables; it is frequently used technique to approximate the influence of coefficients (Nworji, 2012). Variables used for the purpose of this research study includes (Govt Investment expenditures percentage of GDP, Govt consumption expenditures percentage of GDP, Total govt expenditure percentage GDP) for detection of Armey curve and govt expenditure. Few other variables were included in the model to verify their impact on economic growth, (population growth rate, labour force growth rate and unempolyemnt).

4.1- Proposed Research Model

To analyze and to find out the relationship among govt size and economic growth OLS Regression Model has been used which has been developed by (Folster, 2001; O. Faruk, 2013)

4.2- Econometric model:

$$Yt = \alpha 0 + \alpha 1\, CON + \alpha 2\, I + \alpha 3\, GE + \alpha 4\, UNEMP + \alpha 5\, POP + \alpha 6\, TOP + \varepsilon t$$

5- Empirical Results:

Dickey Fuller Test was applied to check the stationary of data. The calculated vales of T-Critical test and P values are above 0.05 (For ADF test results see table 1).

Table No 1: ADF Test at Levels with Trend and Constant (Unit Root Test)

Variables	Coefficients	t-Statistics	Probability
GDP	-0.6844	-3.0810	0.0948
CONS	-0.1644	-1.8412	0.6629
GE	-0.2177	-1.8412	0.6179
INVT	-0.3400	-2.7040	0.2412
POP	-0.0282	-1.6076	0.7675
TOP	-0.3640	-2.8131	0.2023
UNEMP	-0.2029	-1.8374	0.6648

The values of ADF test shown in table 1 are larger at all critical values.

The above calculated Augmented Dickey Fuller test-statistics values (1, 5 & 10percentage) therefore results fails to reject null hypothesis Ho. This explains the presence of unit root at all significance levels.

At first difference T-calculated values and P values are less than 0.05 which make all variables stationary.

Table No 2: ADF Test at 1st difference with Trend and Constant (Unit Root Test)

Variables	Coefficients	t-Statistics	Probability
GDP	-1.3433	-7.9733	0.0000
CONS	-0.8953	-5.0066	0.0015
GE	-1.1906	-6.7484	0.0000
INVT	-0.9768	-5.7107	0.0002
POP	-0.1594	-5.6568	0.0400
TOP	-1.1807	-6.5505	0.0000
UNEMP	-1.1568	-4.6582	0.0038

According to the results, all variables are stationary at their first difference.

5.1- OLS Results:

Table No 3: Estimations of OLS Test

Variable	Coefficient	Std.Error	t-Statistic
C	-35.63391	16.46638	-2.164041
CON01	0.033563	0.297303	0.112890

GE	0.059924	0.181246	0.330625
INVT	0.411349	0.238701	1.723281
POP	7.136928	2.488807	2.867610
TOP	-0.180027	0.106203	1.695117
UNEMP	0.710526	0.532641	1.897200
R-squared	0.606977	Mean Dependent Var	4.854722
Adjusted R-squared	0.332558	S.D. dependent var	2.150210
S.E. of regression	1.756660	Akaike info criterion	4.137371
Sum squared resid	89.48974	Schwarz criterion	4.445277
Long liklihood	-67.47268	Hannan-Quinn criter	4.244839
F-statistic	3.906503	Durban-Whatson stat	1.580291
Prob (F-Statistic)	0.05571	--	--

OLS results imply that government size 0.059924, government investment 0.411349, population growth 7.136928 & unemployment rate positively and significantly affect GDP growth rate in Pakistan. While the positive sign of coefficient result 0.033563 of consumption expenditure show its relation with economic growth. This explains that if consumption expenditure increase it will increases GDP growth but insignificant due to p-value. Trade openness -0.180027 has positive impact on Pakistani GDP growth rate but p-value shows that relation is insignificant. Result of unemployment 0.710526 proves its positive and significant relation with GDP growth rate.

Threshold regression results specify the validity of Armey curve for Pakistan Economy. This suggests that GE positively and significantly affect growth rate to a certain level.

The present size of GE is at 20.4percentage while the proposed most favorable govt size as of the above OLS estimation is 18.2 percentage. This is a remarkable result which suggests that present Pakistani government size is high than the optimal level. Our results are consistent with Friedman (1997); who has suggested the optimum size 15 to 50 percentages. But, these results are different from Zareen and Qayyum (2014).

6- Conclusion & Policy Recommendation

This study was conducted to find out the presence of Armey Curve in Pakistan economy and to suggest the suitable size of the government to policy makers. The time series data for selected years (1980-2015) and variables used for this study. The data was analyzed with the help of OLS Regression model. Our results found the strength and confirmation of Armey curve; accepted spending of govt and its impact on economic growth of Pakistan. The results suggest that optimal level of threshold of public sector spending for Pakistan is at 18.2percentage while present rate of govt spending is 20.4 percent which is higher than optimal size. Thus, this research recommended the govt of Pakistan to reduce its spending to achieve efficiency and better performance of economy which ultimately enhance GDP growth. The results about other variables like govt spending, investment spending, Population and unemployment shown statistically significant effect on GDP growth of Pakistan. While consumption and trade openness shown insignificant impact on the economic growth rate. Hence, this research recommends govt to decrease its entire expenditure for maximum economic growth. This can be achieved by reducing the unnecessary govt spending and diverting its unnecessary expenditures towards productive investments. This will enhance the ability of govt expenditure and economic growth.

References

Bairam, E.I. (1988) "Government expenditure and economic growth: reflections on Professor Ram's approach, a new framework and some evidence from New Zealand time series data". *Keio Economic Studies* Volume 25(1), pp-59-65.

Chen, S. T., LEE (2005) "Govt size and Economic growth in Taiwan: A threshold regression approach". *Journal of Policy Modeling*, volume 27, issue 9, pp-1051-1066

D Balaj, L Lani (2017) "The Impact of Public Expenditure on Economic Growth of Kosovo". *Acta Universitatis Danubius, AUDCE* Vol. 13, no.5, pp. 401-412.

Dick Armey (1995) *"The Freedom Revolution: The New Republican House Majority Leader Tells Why Big Government Failed, Why Freedom Works, and How We Will Rebuild America"* Hardcover – Publisher: Regnery Publishing Washington; First Edition

Edmund J. Sheehey (1993) "The Effect of Government Size on Economic Growth". *Eastern Economic Journal*., Volume 19, No. 3, pp. 321-328. Published by: Palgrave Macmillan Journals. https://www.jstor.org/stable/40325856

Faqeer Muhammad, T. R. Karim (2015) "Impact of Expenditure on Economic growth in Pakistan". *International journal of Academic Research in Business and Social Sciences* February, 2015 Volume 5, No. 2 . URL: http://dx.doi.org/10.6007/IJARBSS/v5-i2/1480

Folster S, Henrekson M, (2001) "Growth Effects of Government Expenditure and Taxation in Rich Countries". *European Economic Review*, Volume 45, No. 8, pp 1501-1520.

Gerhard Glomm (1997) "Productive govt expenditures and long-run growth". *Journal of Economic Dynamics and control*, Volume 21, pp-183-204.

Hakro, A. N. (2009) "Size of Government and Growth Rate of Per Capita Income in Selected Asian Developing Economics" *International Research Journal of Finance and Economics* Issue 28, pp. 53 – 65.

Hamidreza Vaziri, Y. N., (2011) "Does Armey Curve Exist in Pakistan and Iran Economies?" J*ournal of Applied Science Research*, Volume 7(5), pp-562-565.

Helder Ferreira and Thiago (2015) "Size of govt and economic growth in the largest Latin American country". *Applied Economics Letters*, Volume 22(11), pp-904-910, http://dx.doi.org/10.1080/13504851.2014.987909

Junko Koeda and Vitali Kramarenko (2008) "Impact of Government Expenditure on Growth: The Case of Azerbaijan". *International Monetary Fund* WP/08/115.

Kari Grenade and Allan Wright (2012) "The relationship between public spending and economic growth in selected Caribbean Countries: A Re-Examination". Retrieved from: https://pdfs.semanticscholar.org/5cfe/7fb06ef27c6cb9ca51dec546ab7fd4a81913.pdf

Mahnaz M. A., Tasnim K. (2017) "Armey Curve Analysis for the Panel of Selected South Asian Economies. *IJSSHE-International Journal of Social Sciences, Humanities and Education*, Volume 1, Number 2, ISSN 2521-0041.

Milton Friedman, "If Only the U.S. Were as Free as Hong Kong". *Wall Street Journal*, 2 July 8, 1997, p. A14.

Nasir Iqbal, Musleh ud Din and Ejaz Ghani (2017) "The Fiscal Deficit and Economic Growth in Pakistan: New Evidence". *The Lahore Journal of Economics*, Volume 22, pp. 53–72.

O. Faruk Altunca, Celil Aydin (2013) "The Relationship between Optimal Size of Government and Economic Growth: Empirical Evidence from Turkey, Romania and Bulgaria". *Procedia - Social and Behavioral Sciences, Volume* 92, pp- 66 – 75. Available online at www.sciencedirect.com

Ogundipe, Adeyemi A. and Oluwatobi, Stephen (2013) "Government Spending and Economic Growth in Nigeria: Evidence from Disaggregated Analysis". Journal of Business Management and Applied Economics, Volume II, Issue (4). Retrieved from: http://eprints.covenantuniversity.edu.ng/12358/1/Ogundipe_Oluwatobi.pdf

Okwu, Andy Titus, Obiwuru Timothy C. & Nworji, Lucy Odiche (2012) "Effects of Public Expenditure on Economic Growth in Nigeria: A Disaggregated Time Series Analysis". *International Journal of Management Sciences and Business Research*, 2012, Volume 1, Issue 7. (ISSN: 2226-8235).

Ram, Rati. (1986) "Government Size and Economic Growth: A New Framework and Some Evidence from Cross-Section and Time-Series Data." *The American Economic Review*, Volume 76(1), pp-191– 203.

Robert J. Barro, (1991) *"A Cross-Country Study of Growth, Saving, and Government,"* NBER Chapters, in: National Saving and Economic Performance, pages 271-304 National Bureau of Economic Research, Inc.

Shumaila Zareen and Abdul Qayyum (2014) "An Analysis of the impact of govt size on Economic Growth of Pakistan: An E endogenous growth". *MAPRA paper No.56239, posted* 22.May 2014 14:36 UTC MPRA is a RePEc service hosted by the Munich University Library in Germany. http://mpra.ub.uni-muenchen.de/56139/

Published in Research Journal Social Science, Volume 4, No. 1 (2015): pp. 61-80.

Stefan Fölster Magnus Henrekson (2005) "Growth Effects of Government Expenditure and Taxation in Rich Countries: A Reply". *European Economic Review* 50(1): pp-219-221.

Taner Turan. (2014) "Optimal size of Govt in Turkey". *International journal of Economics and Financial Issues*, Volume 4, No. 2, 2014, pp.286-294. www.econjournals.com

Varna, Knaiz (2004) "The size of Govt Expenditure and the rate of economic growth in Bulgaria". *Economic Alternatives*, issue 1, pp-53-63.

Vedder, R. (2001) *"Taxes and Economic Growth".* Published by Ohio University. Retrieved from:
http://www.taxpayersnetwork.org/_Rainbow/Documents/Taxespercentage20&percentage20Economicpercentage20Growth,percentage20Dr.percentage20Vedder.pdf