Impact of Public Sector Expenditures on Economic Growth of Pakistan: Some Evidence from Autocratic Regime

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Abstract

This study shows empirical relevance between public sector expenditures like investment in agriculture sector, investment in education sector, investment in transport and communication and Pakistan's economy only in autocratic regime(1999Q4-2008Q1). Econometric tests indicate the positive and significant impact of all taken variables on economic growth. Study also considered the impact of inflation (negative but significant) and political stability (positive but not significant) on economy since these two factors can't be ignored in any case.

Keywords: Pakistan, Agriculture, Transport & communication, Education, Inflation, Gross Domestic Product

Introduction

Economic growth is an essential tool for sustainable growth. Sustainable development is possible only by economic growth. Economic growth can be achieved by improving health and education services, development of infrastructure and by providing food and security to lots. These sectors are very important in stimulating the economy by fulfilling the country's basic needs, and as a result sustainable development is possible (Loto 2011).

Economic growth usually refers to rise in that country potential gross domestic product. To break vicious cycle of poverty economic growth must be accelerated. Public expenditures include all sorts of consumptions, investments and transfer payments done by the government. In order to satisfy public's individual and collective needs government buy goods and services it is called government final consumption expenditures. These expenditures are financed by taxes collected from general public, institutions and government borrowing. Purpose of public expenditures to

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improve infrastructure by making improvement in housing, sanitation, energy, transport and communication system, health, agriculture sectors etc. This improvement ultimate put positive effect on human (Wendensen 2013).

In Pakistan and Bangladesh democratic and non-democratic political systems always affect financial as well as economic performance of the country. There is a series of debate on the relationship between growth and democracy/autocracy. World financial crisis of 2008-09 has created a series of questions on capability of financial markets and government's responsibility. Now it is proved that democracy or free markets are not suitable for improved economic performance. On other hand better results were seen in autocratic periods [Subhani et al. (2011)].

The reign of government in Pakistan hold by both democratic and authoritarian type of governments. Pakistan's six decades history is equally divided between these two types of governments i.e. democratic and autocratic. For longer period Pakistan has remained under authoritarian rule. The last 60 years of Pakistan's history has seen twenty seven civilian and five military governments. It is noted that democratic governments worked for an average of one year and only 3 Prime Ministers' tenure exceeded from more than four years. [Naseem(2008)].

In Pakistan, the political regimes played a main role in the provision of facilities like education, health, transport and communication, power improving on the economic growth of the country. Pakistan's economy has worked significantly better during military rule. Economic growth in autocratic periods averaged 6.1 per cent as compared to 4.0 per cent in democratic periods. Although three major sectors of the economy i.e. services, agriculture and industry performed much better during autocratic regime, however the industrial sector has been proved the larger beneficiary of the autocratic government and has recorded twice as much growth compared to that achieved under civilian rule. Likewise, the current account balance has also been better during military regimes. Pakistan has seen military rule for more than 33 years and two vibrant period of its economy is observed during that authoritarian regime, when per capita actual growth

persistently more than 2% per year & that period remained for 10 year and 12 years in 1960 and 1977 respectively. During autocratic regimes in 1960s, 1980s and 2000s Pakistan had seen incredible economic growth with an average annual growth rate more than 6% while 1950s, 1970s and 1990s democratic periods were marked by declined growth rate trend i.e.4%. The reason for shaking economy is unstable political process in Pakistan. With the change of any government the new government curtails the development projects started by previous government [Hussain (2005)].

The debate on how autocratic and democratic political systems effects the process of economic growth is ongoing. Since times of Adam Smith the influence of political systems on the economic growth of any country is a matter of attention. However, the generally accepted fact is that the economic performance has informal influence on the business, institutional and political environment of any country. The political economists are still discovering the inter-link between democracy and economic performance [Plümper & Martin(2003)].

Table 1 Sectorial Shares in GDP during autocratic regime 1999-2008.

Years/Sectors	Agricultural Sector (%)	Transport & Communication Sector (%)	Education Sector (%)
1999-2000	24.14	10.48	1.93
2000-2001	22.45	12.18	1.58
2001-2002	21.74	12.19	1.91
2002-2003	21.72	12.51	1.63
2003-2004	20.64	11.98	2.00
2004-2005	20.21	11.68	2.00
2005-2006	18.13	12.44	2.00
2006-2007	23.22	12.45	2.32
2007-2008	23.37	10.40	2.37

Source: Economic Survey of Pakistan (2005-06, 2013-14).

The main objective of this paper is to empirically investigate the impact of public sector expenditures like agriculture, education, transport and communication on the economy of Pakistan during autocratic regimes.

LITERATURE REVIEW

Let we take review of few important related studies:

Adelman & Morris (1967) conducted a time series data study on 74 under developed economies including communist countries for a period from 1950 to 1964. Their results proved that autocracy is highly suitable for under and less developed countries as it is more supportive for the growth of economy.

Bardhan (1999) searched out political and social hindrances existed in the way of Indian's economy development. He found from the analysis of past history that a lot of authoritarian regimes proved more successful than democratic periods at delivering better results.

Chani et al. (2008) studied impact of democracy and autocracy on macroeconomic performance in Pakistan. They divided the sixty years of Pakistan from 1947 to 2008 into six periods according to the type of government. Three periods represented democratic government and three represented autocratic regime in Pakistan. Growth rate was overall satisfactory irrespective of frequent changes in political system in the country. The relationship between democracy and economic growth in Pakistan was confusing and unclear. During periods of autocracy the economic growth was high as compare to democratic periods. Autocratic periods were characterized by high GDP, per capital income, financial sector and trade openness. However they were incapable to conclude that which style of government is feasible for Pakistan's economic growth.

Subhani et al. (2011) studied the Pakistan's economy's structure and performance in democratic as well as in authoritarian periods. They took time series annual data from 1980 to 2010 to evaluate economic performance. Independent sample t-test was applied to evaluate the economic performance during both regimes. Their study considered GDP market price, GDP per capita, direct and

indirect taxes, exchange rate, inflation and unemployment rate, import export and net exports. The empirical analysis concluded that Pakistan's economy performed well in autocratic periods. Furthermore in the long term good governance is the prominent factor that affects the economic performance than the type of government prevailing in the country. An efficient market and favorable work environment is the major supporter towards healthier economy.

Alshahrani & Alsaddiq (2014) empirically examined the impact of government expenditures on the economic growth of Saudi Arabia. They took seven sectors i.e. education, defense, domestic and private investment, expenditures on health sector and spending on housing for analysis and time series data for the period from 1969 to 2010. Vector error correction model and vector auto regression techniques were used to evaluate short run and long run impact of government expenditures on economic growth. Data stationarity was measured by Augmented Dicky Fuller test and Phillips Perron test. According to their study, healthcare which was measured by investment in human capital, private domestic and public investment stimulated growth in long run whereas spending on housing and trade openness affected positively in short run.

Mudaki & Masaviru (2012) conducted a study to find the effect of public expenditures on the economic growth. They took time series data of six different sectors from 1972 to 2008. The model that was specified in their study is mentioned as under:

$$lnRGDPt=Ln\beta o+\beta 1lnEXPEAt+\beta 2lnEXPEDt+\beta 3lnEXPHt+\beta 4lnEXPDEFt+ \beta 5lnEXPAGRI+\beta 6lnEXPTRPT+\beta 7lnEXPMANt+\varepsilon t$$

Where:

RGDP-Real Growth Domestic Product
EXPDEF-Expenditure on Defense
EXPEA-Expenditure on Economic Affairs
EXPH- Expenditure on Health
EXPE- Expenditure on Education
EXPTRPT-Expenditure on Transport & Communication
EXPAGRI-Expenditure on Agriculture
EXPMAN-Expenditure on manufacturing

Their analysis showed that a unit percentage increase in expenditures on education resulted in increase in real GDP by about 95% which meant that expenditures on education were highly significant. Similarly expenditures on economic affairs, transport & communication sector have significant effect on economic growth. While in contrast, expenditures on agriculture were found to have a significant but negative impact on economic growth.

Material and Methods

The econometric growth model is used in this study which is based on the work of Mudaki & Masaviru (2012). For estimation purpose following equation is used:

$$LGDP= \alpha 0 + \alpha 1LEdu+ \alpha 2LAg+ \alpha 3LTC+\alpha 4Linf +\alpha 5PS +Q1+Q2+Q3+\mu t$$

GDP=Gross Domestic Product, is dependent variable of research study. Economic growth of country is measured by it. It is shows the total market value of goods and services produced with in an economy in a specific year. Education sector (Edu), Agriculture sector (Ag), Transport and Communication sector (TC), Inflation (Inf) (measured by consumer price index) are independent variables of the study. Political stability (PS) is dummy variable of the study. Since political and Law and order situation in Pakistan is really disturbed and frequent changes have been seen in political scenario. Quarters with smooth political situation will be assigned with value '1' and with severe political disturbance will be assigned with value '0'.This study uses secondary data from 1999Q4 to 2008Q1.Data for all variables (except political stability)) is collected from various issues (1997-98, 2005-06, 2008-09) of Economic Survey of Pakistan.

Following are the alternate hypothesis of the study:

1. $H_{1=}\ \alpha LGDP/\ \alpha LAg>0$
2. $H_{1=}\ \alpha LGDP/\ \alpha LTC>0$
3. $H_{1=}\ \alpha LGDP/\ \alpha LEdu>0$
4. $H_{1=}\ \alpha LGDP/\ \alpha Linf<0$
5. $H_{1=}\ \alpha LGDP/\ \alpha LPol.st>0$

Results and Discussion

Descriptive statistics and correlation were calculated. To measure the effect of independent variables on dependent variable, one of the most common and simple method of regression analysis i.e. ordinary least square was employed. Finally ANOVA and model fitness test (chi-square test) were also considered.

Table 2 Descriptive Statistics (Sample period: 1999 Q4 to 2008Q1)

Variable(s)	LGDP	LAG	LTC	LEDU	LINF
Mean	14.1843	12.6662	12.0681	10.2523	3.1089
Std. Deviation	.33363	.31131	.31607	.44967	.14043
Skewness	.25158	.88932	-.024302	.26684	.51193
Kurtosis- 3	-1.2799	-.47451	-1.1025	-1.2587	-1.0293
Co-ef of Variation	.023521	.024578	.026190	.043861	.045172

All variables have shown high average growth rates. LGDP has highest growth rate which is 14.1843 and LINF has lowest growth rate at level 3.1089. The calculated values for standard deviation for LGDP, LAG, LTC, LEDU and LINF are .33363, .31131, .31607, .44967 and .14043 respectively. As less dispersion is observed in the data hence, the data is more inclined toward the average values of variables. All variables were positively skewed except LTC. The variables i.e. LAG and LEDU are positively skewed while LINF is negatively skewed. The low and negative values are obtained from measurement of kurtosis which indicate that distribution of data of the LGDP, LAG, LTC, LEDU and LINF are platykurtic.

The graph given below gives a clear picture of association exists between dependent and independent variables. A strong positive association is found among all variables. The bond between LINF and LGDP is negative. Inflation have a negative association with all other variables while but all other variables are positive correlation with each other at very high degrees.

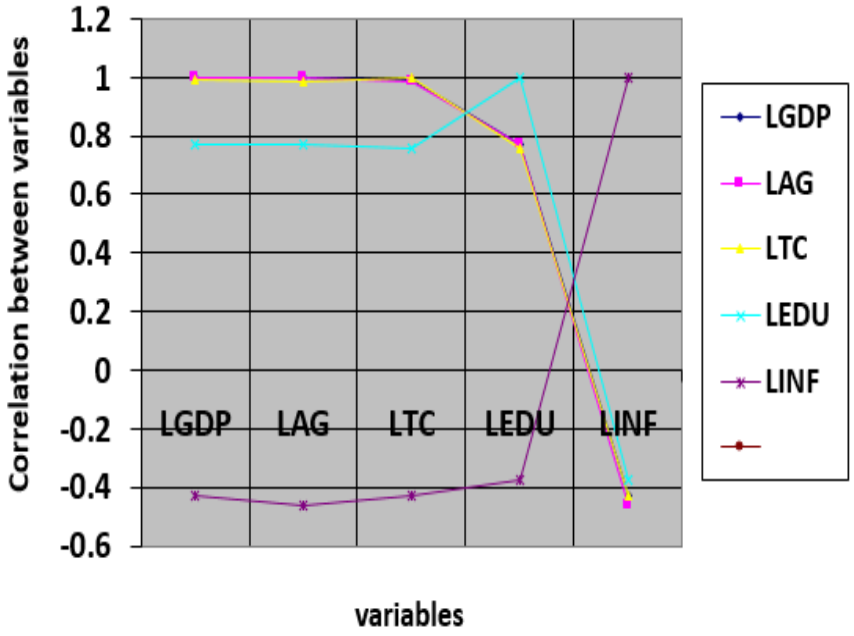

Figure 1 Estimated Correlation Matrixes of Variables

Ordinary Least Squares Estimation

OLS estimation for autocratic regime is given below:

Dependent variable is LGDP and 34 observations used for estimation from 1999Q4 to 2008Q1

LGDP = 2.0546 +.28892 LAG + .18776 LTC + .14469 LEDU - 1.1228 LINF +

(.95484) (.096195) (.082542) (.052780) (.46908)

.001727PS + .4957E-3 Q1 -.1102E-3 Q2 - .881E-32Q3

(.017966) (.0076595) (.0080593) (.0080988)

R^2 0.99552 $\bar{R}^2$ .99384 DW-statistic 1.85893

That dependent variable was GDP while independent variables were expenditures on agriculture sector (AG), expenditures on transport and communication sector (TC),

inflation (INF), expenditures on education sector (EDU), and political stability (PS). The empirical results of these estimations showed existence of a positive linkage between dependent and independent variables i.e. GDP is positively related with expenditures of government in agriculture, education, transports and communication sectors and political stability. While inflation was not statistically significant but have negative impact on economic growth. However the joint outcome of all variables is positive and significant. Hopeful results were obtained from OLS estimation. The test results showed that the agriculture sector has positive and significant impact on GDP. One percent increase in expenditures in agriculture sector boosts up economy by twenty eight percent. The OLS also showed a positive and significant relationship between transport and communication sector and economic growth during autocratic regime. Affirmative impact is seen in transport and communication sector as it can boost up economic growth up to 18% when expenditures in this sector are increase 1%. Education sector has shown a significant positive effect on GDP. When expenditure on education sector is raised by 1% then the suppleness of GDP is improve up to14%.Standard error of regression was very low so no heteroscedasticity is found. Goodness of fit of model was proved from high values of R^2 (.99552) and adjusted $\bar{R}^2$(.99384).The value of R^2affirms that about 0.99 % variation of GDP was able to explain through total variation in independent variables. The calculated value of DW by OLS is 1.85893 which was in accepted range.

Table 3 ANOVA Results

Value	df	Probability
592.7507	(9,24)	0.000

(Calculated vs tabulated) of ANOVA/F-test indicates that overall effects ofindependent variables on dependent variable were significant but different.

Table 4 Model Fitting Test

Value	df	Probability
245.667	6	0.000

It is evaluated from the table 3 that chi-square (test for model fitness) calculated value is 245.667. Result having p-value <0.005 which shows that model fits significantly as a whole. The relationship between dependent and independent variables is supported.

Conclusion

This research study gives an overview of government expenditures on economic growth during autocratic regimes of Pakistan. Time series quarterly data were taken for the study. Statistical tests were employed on the data and proved the positive and significant effect of agriculture sector, education sector and transport and communication sector, while effect of inflation was negative. Political stability's empirically proved positive effect with no significant level.

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