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Impact of Government Spending in Social Sectors on Economic Growth: A Case Study of Pakistan

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Abstract

This study intends to observe empirically the effect of government spending in social sectors on economic growth during the period 1974-2008 in Pakistan. The results of the study reveal the existence of positive relationship between government expenditure on human capital and economic and community services and economic growth. The government expenditure on law and order and subsidies appear to be negatively related to economic growth. This study may help the policy makers in formulating and implementing policies consistent with the prevailing economic conditions of the country. The study suggests that government expenditure on subsidies should be gradually reduced and expenditure on law and order needs to be re-allocated for providing educational and training facilities to the concerned employees responsible for maintaining law and order in the country.

Keywords: Government spending, social sectors, economic growth, human capital

1. Introduction

In recent years, the impact of government spending on economic growth has gained marked attention of the researchers and policy makers. Both

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Keynesian and Endogenous growth theories have pointed out that fiscal policy plays an important role in raising the pace of economic development. Most of the existing literature available on the relationship between government spending and economic growth has concluded that government spending can influence economic growth positively through various channels. Government spending can increase economic growth by supplying public goods that are an important component of aggregate demand. Furthermore, it may have an impact on economic growth through the process of taxes and transfer payments by providing equitable distribution of income. Government spending helps in maintaining law and order in the country necessary for sustainable economic growth. Furthermore, government spending on productive projects like physical and human infrastructure can be growth enhancing and government spending through its interaction with private sector can directly or indirectly increase output.

The theory available on the subject matter is still ambiguous. According to the earliest view presented by Hobbes (1651), government's role in the development process of the economy is vital by providing law and order services including provision of property rights and effective court system for justice. Furthermore, government spending on infrastructure helps in facilitating the market economy and providing necessary public goods (for example, defense, roads and bridges) that the private sector is hesitant to provide. But if government spending continues to grow over time, its marginal impact may become growth retarding as excessive government spending may lead to higher taxes that discourage private investment.

Later on, Wagner's law (1883) and Keynesian approach (1936) have pointed out the existence of the crucial relationship between government spending and economic growth. Wagner's law states that national income causes public expenditures. While, the Keynesian approach stresses that government spending can enhance economic growth and bring economic stability in the economy. But at the same time, very high government expenditures can crowd out private investment that may hamper the process of economic growth.

A lot of literature is available on this issue but the nature and the strength of the relationship between government spending and economic growth is not clear. Barro and Sala-i-Martin (1995) analyze the endogenous growth theory and point out that the government expenditures should be regarded either productive or non-productive and consider it a debatable issue that cannot be defined as *a priori*.

In the context of Pakistan economy, the relationship between the two variables has not been much analyzed empirically. Economic growth in Pakistan remained volatile and had shown an unstable trend due to various factors such as poor governance, inflation, energy crisis, corruption, controversial development policies, law and order, tension in political scenario and terrorism. Growth performance of commodity producing sector, agriculture and social services sectors have remained highly volatile over the period of 1980 and onwards. As far as growth performance of Pakistan is concerned, it was quite satisfactory during 1961-89. However, the era of macroeconomic instability coupled with low economic growth started in 1990s. During the first half of the past decade, the economy grew at a good pace. Kemal (2003) stated that Pakistan economy experienced both sluggish growth and strong upswing during 1961-2003 but the economy grew on average at the rate of 5 percent. During 2006-10 the economy experienced on average a low economic growth due to many economic and political factors. However, during the past decade Pakistan economy grew at a rate of around 6 percent per annum on average. Investment as a percentage of GDP was 18.7 percent in 1980s and 18.3 percent in 1990s. In the past decade, it was almost 19 percent on average. Health expenditure as a percentage of GDP remained less than 1 percent since 1980s. Education expenditure as a percentage of GDP had shown fluctuating trend and remained almost 2 percent since 1980s. A summary of the performance of key economic indicators is presented in Table 1.

The main objective of the study is to analyze the impact of government spending in social sectors on economic growth in the context of Pakistan economy. The results of this study may indicate the areas where government

spending is much needed for achieving sustainable economic growth. This study is particularly important for Pakistan at a time when the economy is facing many political and economic challenges such as energy crises, inflation, worst law and order situation, terrorism, corruption and poor governance at national and international levels. Furthermore, there is a lot of pressure from international financial institutions and donor countries on the government for curtailing its non-development expenditures. This study is highly important for Pakistan as it is struggling to find appropriate development strategy for overcoming the economic, political and social problems that are responsible for low economic growth. The results of this study may provide a guideline to the policy makers so that appropriate policies can be formulated and implemented which may be helpful for overcoming economic, political and social problems faced by Pakistan.

Table 1
Key Economic Indicators Related to Pakistan Economy

Period	Growth Rate (%)							
	Real GDP	Invest-ment (% of GDP)	Health Expenditure(% of GDP)	Education Expenditure (% of GDP)	Unemp-loyment Rate	Literacy Rate	CPI Infla-tion	Per capita income ($)
1980s	6.5	18.7	0.8	0.8	1.4	29.5	7.2	–
1990s	4.6	18.3	0.7	2.3	5.7	40.7	9.7	–
2001	2.0	17.2	0.7	1.6	6.0	49.0	4.4	507
2002	3.1	16.8	0.7	1.9	7.8	50.5	3.5	509
2003	4.7	16.9	0.7	1.7	7.8	51.6	3.1	586
2004	7.5	16.6	0.6	2.1	8.3	53.0	4.6	669
2005	9.0	19.1	0.6	1.0	7.7	53.0	9.3	733
2006	5.8	22.1	0.5	1.9	7.6	54.0	7.9	836
2007	6.8	22.5	0.6	2.4	6.2	56.0	7.8	926
2008	3.7	22.1	0.6	2.3	5.2	57.0	12.0	1038
2009	1.2	19.0	0.6	2.1	5.2	57.0	20.8	1018
2010	4.4	16.6	0.5	2.0	5.5	58.0	11.7	1013

Source: Pakistan Economic Survey (various issues)

2. Literature Review

For the formulation of a successful growth strategy, it is considered to be essential that the existence of the relationship between the variables must

be clear. Although economic theory unambiguously predicts that the relationship between government spending and economic growth should be positive. There are, however, variations within empirical studies. Several studies in the existing literature have shown the existence of positive relationship between government spending and economic growth but a few of them end up with mixed results.

Komendi and Meguire (1985) use 20 years post World War data of 47 countries but fail to find a significant relationship between the average growth rate of real GDP and government expenditures. Barro (1990) provides useful implications regarding the choices about government policies. The study concludes that an increase in government spending on development activities is growth enhancing and is helpful in raising the saving rate upto a limit and then reduces it beyond that level. Furthermore, the results of the study also reveal that non-productive government spending retards the process of economic growth and saving rates.

Baffes and Shah (1993) try to observe the relationship between different types of government spending and economic growth. The authors conclude that the elasticity with respect to human resource capital and infrastructure are highest and lowest respectively. They show negative elasticity with respect to military expenditures. The study concludes that high economic growth in the world economy can be achieved through investing more in human resource development and less in military and other non-development activities.

Henrikson (1994) concludes that government transfer payments and government consumption expenditures are both negatively related to total factor productivity and economic growth, while government investment expenditure does not have any impact on total factor productivity.

Lin (1994) analyzes the impact of government spending on economic growth through the provision of public goods, infrastructure facilities, social services and export subsidies. The study concludes that government spending

on productive and non-productive activities has different impact on economic growth. The study points out that government spending on productive activities is helpful in raising economic growth while government consumption expenditure beyond certain level hampers the process of economic growth.

Knack and Keefer (1995) and Keefer and Knack (1997) are of the opinion that government spending on a strong legal system for the protection of rights, enforcement of contracts and dispute settlements are helpful in raising economic growth. They point out that provision of public goods like roads, national defense also help in accelerating the economic growth. Kneller et al. (1998) pointed out that the relationship between government spending and economic growth has gained much importance in developing countries as these countries face increasing fiscal deficit due to excessive increase in government spending over time that has affected the process of economic growth adversely.

Kweka and Morrissey (2000) point out those unfavourable macroeconomic conditions are responsible for low economic growth in Tanzania. The study concludes that an increase in investment expenditure is related to low growth level in Tanzania and public consumption expenditures are positively related to economic growth.

Fan and Rao (2003) show that the effects of different types of government spending on economic growth in different continents are mixed. In Africa government expenditure on health and agriculture are found significantly affecting economic growth. In Asia investment in education, agriculture and defense have strong effect on economic growth. However, in Latin America all types of government investment except health have contributed to economic growth.

Rehman et al. (2010) examine the direction of causality between national income and public expenditure along with various aspects of government spending for Pakistan for the period of 1971-06. The results of their study

support the existence of Wagner's law in Pakistan.

Asghar et al. (2011) point out that the resources allocated to education and health sectors contribute to economic growth and government should introduce policies for encouraging private sector to invest more in education and health. This study concludes that the government should allocate more resources to the social sectors for raising productivity.

From the review of empirical literature, it can be observed that the relationship between government spending in social sectors and economic growth in Pakistan calls for further analysis by using recent advances in dynamic modeling.

3. Data Description and Model Specification

For analyzing the relationship between government spending in social sectors and economic growth, the study uses annual time series data for the period 1974-2009. Data has been collected from the publications of Pakistan Economic Survey (various issues) and Federal Bureau of Statistics.

For the study the following log linear form of the model is specified:

$$\ln EG_t = \beta_0 + \beta_1 \ln HC_{1t} + \beta_2 \ln LAW_{2t} + \beta_3 \ln SUB_{3t} + \beta_4 \ln ECS_{4t} + \varepsilon_t$$

Where

$\ln EG_t$ = Log of economic growth measured by per capita income (in million Pak rupees)

$\ln HC_t$ = Log of human capital (in million Pak rupees) that includes expenditure on both education and health

$\ln LAW_t$ = Log of government spending on law and order (in million Pak rupees)

$\ln SUB_t$ = Log of government expenditure on subsidies (in million Pak rupees)

$\ln ECS_t$ = Log of government expenditure on economic and community

services (in million Pak rupees)

3.1 Description of the Variables

3.1.1 Human Capital and Economic Growth

Expenditure on health and education are regarded as expenditure on human capital that indirectly influences economic growth. Educated and healthy workers may have more opportunities for better employment that increase their earnings and help them in raising their living standards.

Education is considered to be the most important way of building human capital.[1] In order to upgrade the human intellect and skills for increasing employment opportunities, market relevant education and training is considered to be inevitable. Government expenditure on education may have positive impact on public health, reduction in crimes, increasing participation in political and community affairs and raises female participation in economic activities.

Health is another major form of human capital. Many studies have shown the existence of positive relationship between health and economic growth. Improvement in health status leads to an increase in life expectancy that means more opportunities for workers to work more and earn more income. Equal and proper delivery of health care services is considered to be highly important in achieving health related objectives of government spending.[2] Expenditures on human capital may have positive impact on economic growth.

[1]Education not only provides opportunities to workers to become mature and competent but also helps them in getting knowledge, skills and proficiencies to participate in economic growth and well being of the society. Furthermore, education improves the quality of governance that significantly affects national income, proper distribution of resources and quality of public service delivery.

[2]McKinlay (1992) is of opinion that developing countries not only spend a small proportion of their government budget on health care but also direct majority of benefits of health spending towards hospitals and expensive medical care that benefits more the upper income group.

3.1.2 Law and Order and Economic Growth

Law and order situation in a country strongly affects the living conditions of the people. Sound law and order situation protects individual and property rights, attracts FDI and provides strong incentives to the domestic investors to invest. This boosts economic activity and generates employment opportunities for the people. While, on the other hand, deteriorating law and order situation discourages domestic and foreign investment, forces flight of capital and spreads sense of insecurity. All these factors have adversely affected the process of economic growth. Government spending on law and order and economic growth may be positively or negatively related to each other.

3.1.3 Subsidies and Economic Growth

In most of the developing countries subsidies are considered to be an important tool of government policy for raising the pace of economic development. Subsidies are financial assistance given by the government to the business sector. Development subsidies are aimed to promote economic growth and also help in generating revenue for the government. While, on the other hand, non-development subsidies do not generate any revenue to the government. Many studies have shown that subsidies are inflationary and result in crowding out that hampers the economic growth. Even many studies have rejected this view that subsidies are primarily aimed to enhance social welfare.[3] The expected sign of the coefficient of subsidies may be positive or negative.

3.1.4 Economic and Community Services and Economic Growth

Government expenditure on community services include the sum of government spending on broadcasting and television, basic research, town planning and development. As far as community services are concerned,

[3]According to Becker (1984), different types of government subsidies are not consistent with social welfare functions.

publically funded research and economic growth are related to each other. Martin *et al.* (1996) highlight the ways in which basic research can affect economic growth and well being of the people.[4] The researchers and policy makers have recognized the significance and role of broadcasting and television for the last two decades.[5] It is observed that the Media through the provision of proper broadcasting services accelerates economic growth.

Government spending in town planning and proper use of land is supposed to affect economic growth positively. According to Rydin (1995) positive impact of town planning and proper use of land on economic growth depends upon the quality of service delivery and interest of the planners.

Economic services include government spending on agriculture and irrigation, rural development, transport and communication. Government spending on economic services plays an important role in economic growth. Government expenditure on rural development, transportation and communication are regarded as indispensable for achieving higher economic growth in developing countries. Infrastructure, especially transport and communication, helps in raising the pace of economic growth. Hanmer *et al.* (2000) argue that road construction and maintenance have led to employment which provides immediate and direct source of income to the people.

In developing countries agriculture is considered to be one of the major sectors of the economy that provides food, raw material, foreign exchange, employment and helps in expanding market for non-agricultural sector. Government spending in agriculture may lead to an increase in economic growth.[6]

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[4]Basic research helps in raising the stock of useful knowledge, formation of new scientific instruments and methodology, creation of new ways for social interaction, enhancing the productivity of the masses through the innovation of new technology, provision of training facilities and creation of new firms that provide more job opportunities.

[5]Lee (1994) analyzes the growth and development of mass media and its role in the development process of China. The author points out that TV and entertainment help in achieving social stability and consensus building that promotes economic growth.

[6]Jhonston (1970) discusses the process in which agriculture can actively take part in the development process. He maintains that strong industrial growth is backed by agriculture sector in developing countries

Communication sector includes postal services, television, radio, telecommunication and information technology. Duton (1999) states that more advanced and developed information and communication technology helps in raising economic growth through global connectivity, democracy, economic prosperity and social development. The expected sign of the coefficient of economic and community services is positive.

4. Econometric Methodology

4.1 Unit Root Tests

This study uses ADF, PP, KPSS and Ng-Perron tests for observing the order of integration of the variables included in the model. The results reported in Tables 2 and 3 show that all the variables used in the analysis are I(1).

Table 2
The Results of Unit Root Tests

Variables	ADF Test Statistics H_0: Variable is non-stationary		PP Test Statistics H_0: Variable is non-stationary		KPSS Statistics H_0: Variable is stationary		Order of Integration
	Constant	Constant and Trend	Constant	Constant and Trend	Constant	Constant and Trend	
ln EG_t	-1.17	-2.36	-1.17	-2.71	1.56	0.22	I(1)
ΔEG_t	-4.67*	-4.61*	-7.01*	-6.91*	0.05*	0.05*	
ln HC_t	-1.03	-1.60	-1.88	-2.63	1.84	0.35	I(1)
ΔHC_t	-3.78*	-3.93*	-6.76*	-6.75*	0.33*	0.10*	
ln LAW_t	-2.27	-2.27	-3.08	-3.18	0.55	0.22	I(1)
ΔLAW_t	-5.50*	-5.43*	-6.93*	-6.83*	0.06*	0.04*	
ln SUB_t	1.02	-1.68	-0.78	-2.01	1.52	0.32	I(1)
ΔSUB_t	-4.47*	-5.30*	-7.31*	-8.06*	0.27*	0.04*	
ln ECS_t	-0.83	-2.21	-0.67	-2.54	1.67	0.28	I(1)
ΔECS_t	-4.29*	-4.26*	-7.74*	-7.62*	0.07	0.07	

Note: *, ** and *** represents the significance at 5% level

In order to check the white noise and well behaved property of residuals the LM and ARCH tests are employed. These results are presented in Table 4.

Table 3
Ng-Perron Test Statistic Results (1974-2009)

Variables	MZ_a		MZ_t		MSB		MPT		Order of Integ-ration
	Deterministic Terms		Deterministic Terms		Deterministic Terms		Deterministic Terms		
	C	C, T	C	C, T	C	C, T	C	C, T	
ln EG_t	-1.01	-10.28	0.55	-2.27	0.55	0.22	21.40	8.87	I(1)
ΔEG_t	-16.79*	-16.68*	2.90*	-2.89***	0.17**	0.17*	1.46	5.47*	
ln HC_t	-1.46	-2.94	1.43	-1.18	0.98	0.40	72.94	30.16	I(1)
ΔHC_t	-7.75*	-17.47*	-1.84***	-2.95*	0.24*	0.17*	3.61*	5.22**	
ln LAW_t	-6.84	-19.58	-1.76	-3.13	0.26	0.16	3.88	4.66	I(1)
ΔLAW_t	-15.55*	-16.53***	-2.79	-2.87***	0.18**	0.17*	1.58	5.54*	
ln SUB_t	1.66	-3.91	0.97	-1.19	0.58	0.31	31.07	20.83	I(1)
ΔSUB_t	-14.50*	-20.34*	-2.69*	-3.19	0.19*	0.16*	1.69*	4.50*	
ln ECS_t	1.48	-7.39	1.08	-1.90	0.73	0.26	43.80	12.36	I(1)
ΔECS_t	-12.25*	-15.08	-2.47*	-2.74***	0.20**	0.18*	2.01*	6.10*	

Note: *, ** and *** represent the significance at 1%, 5% and 10% level

Table 4
The Results of LM and ARCH Tests at Level and First Difference

Variables	LM Test		ARCH Test	
	χ^2	Probability	χ^2	Probability
ln EG_t	1.217	0.270	0.071	0.789
ΔEG_t	0.327	0.567	0.187	0.666
ln HC_t	0.241	0.623	1.022	0.600
ΔHC_t	1.351	0.245	0.641	0.423
ln LAW_t	0.014	0.903	2.262	0.133
ΔLAW_t	1.748	1.186	8.569	0.128
ln SUB_t	3.908	0.142	0.189	0.664
ΔSUB_t	0.099	0.753	0.337	0.561
ln ECS_t	2.976	0.226	0.083	0.773
ΔECS_t	0.003	0.955	0.788	0.375

The results reveal that the residual terms are pure white noise. The insignificant values of χ^2 are an indication of the absence of autocorrelation and heteroskedasticity.

4.2 Cointegration Test

Since all the variables included in the model are integrated of the same

order, *i.e.* I(1), cointegration analysis is justified. In this study, Johansen and Juselius (1990) cointegration test has been used for observing the long-run relationship between the variables. Before applying this test the optimal lag length based on Akaike Information Criterion (AIC) or Shwartz Beysian Criterion (SBC) needs to be determined by using VAR model.[7] The optimal lag order based on AIC is determined as 1 for the model.[8] The results of Johansen and Juselius test are reported in Table 5.

Table 5
The Results of Johansen Cointegration Test

Hypothesized No. of CE(s)	Trace Statistic	Critical Value (5%)	Maximum eigen statistic	Critical Value (5%)
None	80.79*	69.82	39.06*	33.88
At most 1	41.73	47.86	17.54	27.58
At most 2	24.20	29.80	14.55	21.13
At most 3	9.65	15.49	9.65	14.26

Note: * denotes rejection of null hypothesis at 5% level of significance

Table 5 reports the results of both trace and eigen value tests. The results of both trace and maximal eigen value tests support the existence of one cointegrating vector at 5 percent level of significance. It means that the variables included in the model establish a long-run relationship.

Since the study aims at examining the relationship between government spending in social sectors and economic growth, the cointegrating vectors are normalized by economic growth. In the long-run, human capital and economic and community services are positively related to economic growth while the relationship between subsidies, law and order and economic growth appears to be negative and significant. It may be due to the reason that both subsidies and law and order are unproductive and inflationary that hampers the growth process.

[7]Hall (1991) points out that the choice of lag structure in the VAR system is vital because too few lags may lead to serial correlation problem, whereas too many lags may lead to the loss of degrees of freedom and small sample problem.
[8]Liew (2004) and Lutkephole (2005) found AIC performed better than any other information criterion available in the literature for small sample size (*e.g.* less than 60 observations).

Table 6
Normalized Cointegrating Coefficients

$\ln EG_t$	$\ln HC_t$	$\ln SUB_t$	$\ln LAW_t$	$\ln ECS_t$
1.00	0.54	–0.31	–0.71	0.74
t-value (5% level of significance)	3.16	–3.34	–9.53	5.33

4.3 VECM

Long-run and short-run dynamics among variables are captured through VECM. The following system of equations is formulated under the specifications of VECM:

$$\begin{aligned}\Delta \ln EG_{1t} &= \alpha_{10} + \sum_{i=1}^{p} \alpha_{11,i} \Delta \ln EG_{1,t-i} + \sum_{i=1}^{p} \alpha_{12,i} \Delta \ln HC_{2,t-i} \\ &+ \sum_{i=1}^{p} \alpha_{13,i} \Delta \ln LAW_{3,t-i} + \sum_{i=1}^{p} \alpha_{14,i} \Delta \ln SUB_{4,t-i} \\ &+ \sum_{i=1}^{p} \alpha_{15,i} \Delta \ln ECS_{5,t-i} + \lambda_1 ECT_{t-1} + \varepsilon_{1t}\end{aligned} \tag{1}$$

$$\begin{aligned}\Delta \ln HC_{2t} &= \alpha_{20} + \sum_{i=1}^{p} \alpha_{21,i} \Delta \ln EG_{1,t-i} + \sum_{i=1}^{p} \alpha_{22,i} \Delta \ln HC_{2,t-i} \\ &+ \sum_{i=1}^{p} \alpha_{23,i} \Delta \ln LAW_{3,t-i} + \sum_{i=1}^{p} \alpha_{24,i} \Delta \ln SUB_{4,t-i} \\ &+ \sum_{i=1}^{p} \alpha_{25,i} \Delta \ln ECS_{5,t-i} + \lambda_2 ECT_{t-1} + \varepsilon_{2t}\end{aligned} \tag{2}$$

$$\begin{aligned}\Delta \ln LAW_{3t} &= \alpha_{30} + \sum_{i=1}^{p} \alpha_{31,i} \Delta \ln EG_{1,t-i} + \sum_{i=1}^{p} \alpha_{32,i} \Delta \ln HC_{2,t-i} \\ &+ \sum_{i=1}^{p} \alpha_{33,i} \Delta \ln LAW_{3,t-i} + \sum_{i=1}^{p} \alpha_{34,i} \Delta \ln SUB_{4,t-i} \\ &+ \sum_{i=1}^{p} \alpha_{35,i} \Delta \ln ECS_{5,t-i} + \lambda_3 ECT_{t-1} + \varepsilon_{3t}\end{aligned} \tag{3}$$

$$\Delta \ln SUB_{4t} = \alpha_{40} + \sum_{i=1}^{p} \alpha_{41,i} \Delta \ln EG_{1,t-i} + \sum_{i=1}^{p} \alpha_{42,i} \Delta \ln HC_{2,t-i} + \sum_{i=1}^{p} \alpha_{43,i} \Delta \ln LAW_{3,t-i} + \sum_{i=1}^{p} \alpha_{44,i} \Delta \ln SUB_{4,t-i} + \sum_{i=1}^{p} \alpha_{45,i} \Delta \ln ECS_{5,t-i} + \lambda_4 ECT_{t-1} + \varepsilon_{4t} \quad (4)$$

$$\Delta \ln ECS_{5t} = \alpha_{50} + \sum_{i=1}^{p} \alpha_{51,i} \Delta \ln EG_{1,t-i} + \sum_{i=1}^{p} \alpha_{52,i} \Delta \ln HC_{2,t-i} + \sum_{i=1}^{p} \alpha_{53,i} \Delta \ln LAW_{3,t-i} + \sum_{i=1}^{p} \alpha_{54,i} \Delta \ln SUB_{4,t-i} + \sum_{i=1}^{p} \alpha_{55,i} \Delta \ln ECS_{5,t-i} + \lambda_5 ECT_{t-1} + \varepsilon_{5t} \quad (5)$$

Where Δ is the difference operator, p is the optimal lag length, ECT_{t-1} is the

Table 7
VECM Estimates (1974-2009)

Variables	Eq. 1 $\Delta \ln EG_t$	Eq. 2 $\Delta \ln HC_t$	Eq. 3 $\Delta \ln LAW_t$	Eq. 4 $\Delta \ln SUB_t$	Eq. 5 $\Delta \ln ECS_t$
Constant	0.302*	0.16*	0.04	0.07	0.19
	(1.95)	(5.76)	(0.25)	(0.27)	(1.39)
$\Delta \ln EG_{t-1}$	0.111	0.02	-0.36	0.38	-0.14
	(0.48)	(0.51)	(-1.46)	(1.07)	(-0.70)
$\Delta \ln HC_{t-1}$	-1.18	-0.12	1.01	0.15	0.42
	(-1.26)	(-0.73)	(0.99)	(0.10)	(0.52)
$\Delta \ln LAW_{t-1}$	0.15	0.03	-0.22*	0.22	0.02
	(1.36)	(1.29)	(-1.83)	(1.29)	(0.21)
$\Delta \ln SUB_{t-1}$	0.10	0.02	-0.39*	0.25	-0.06
	(0.53)	(0.47)	(-2.03)	(0.91)	(-0.36)
$\Delta \ln ECS_{t-1}$	-0.27	-0.08	0.33	-0.69	-0.32
	(-1.03)	(-1.69)	(1.19)	(-1.73)	(-1.44)
EC_{t-1}	-0.45*	-0.10*	-0.38	-1.608*	-0.06
	(-2.04)	(-2.45)	(-1.61)	(-4.77)	(-0.30)

Note: t-values are in parentheses. * represents significant at 5% level

lagged residual term, $\Delta \ln EG_t$, $\Delta \ln HC_t$, $\Delta \ln LAW_t$, $\Delta \ln SUB_t$ and $\Delta \ln ECS_t$ are short-run parameters which measure the immediate impact of independent variables on the dependent variable. VECM results are reported in Table 7.

Table 7 shows the short-run dynamic adjustment of all the variables. The presence of long-run relationship between the variables is confirmed from the negative and statistically significant coefficient of the lagged error correction term (EC_{t-1}) except the coefficient of EC_{t-1} of equation (5). This shows the non-existence of the relationship between economic and community services and economic growth.[9]

4.5 Stability Test

The study uses CUSUM and CUSUMSQ test proposed by Brown *et al.* (1975) for testing the temporal stability of the model under consideration. This test is considered to be better and quite appropriate for time series data as it can be used even if we are uncertain about the structural change that might have happened. The plot of CUSUMSQ crosses the critical value line which reflects the presence of instability of the estimated parameters. The plot of CUSUMSQ crosses the critical value line. This is an indication of the instability of estimated parameters.

5. Conclusion and Suggestions

The study intends to investigate the impact of government spending in selected social sectors on economic growth. The variables included in the model appear to be I(1). Johansen and Juselius cointegration test confirms the existence of long-run relationship between the variables. Long-run and short-run dynamics among the variables are captured through VECM. The

[9]All the diagnostic tests results are satisfactory showing the absence of heteroskedasticity and serial correlation. Therefore, empirical estimates can be used for policy inferences. The results can be obtained from the authors upon request.

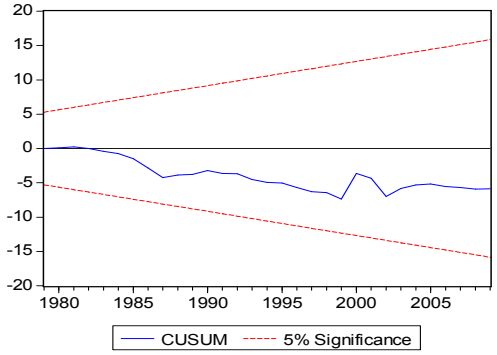
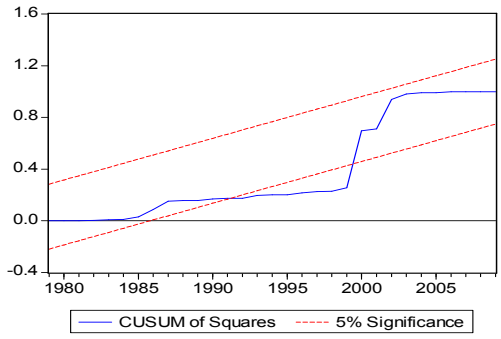


Figure 1 (a) CUSUM Test



(b) CUSUMSQ Test

study finds positive long-run relationship between government spending in human capital and economic and community services and economic growth while government expenditure on subsidies and law and order are negatively related to economic growth. This implies that government spending on human capital and economic and community services should be given much emphasis for promoting economic growth in Pakistan. For this purpose, effective policies are needed to formulate and implement for promoting human capital formation and economic and community services in Pakistan. The government should curtail its expenditure on subsidies as it is inflationary in nature and creates some other economic and social problems in the country which hamper the process of economic growth. The government should reallocate and prioritize its expenditure on law and order for achieving success in eliminating law and order situation faced by the

country that have affected the private and foreign investment in the country. For this purpose, there is a need to implement policies that may enhance the efficiency of personnel responsible for maintaining law and order situation in the country. To achieve this objective, education and training facilities need to be provided to the personnel responsible for maintaining law and order situation in the country. The government should try to control the corruption on war footing. The introduction of reforms in government institutions like Police, Judiciary, Civil Service for greater accountability and increase in transparency for pulling out the economy from the present drastic economic and political situation is needed.

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