THE ROLE OF FISCAL POLICY IN HUMAN DEVELOPMENT: THE PAKISTAN'S PERSPECTIVE

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ABSTRACT

Economic and human development is the ultimate goal of every government. The objective of this study is to investigate the role of fiscal policy in the human development of the country. The novelty of this study is that here we directly measure the effect of government expenditures on Human development by using Human Development Index. This study employs the autoregressive distributed lags (ARDL) bounds testing approach of cointergration on different macroeconomic variables for Pakistan from 1972 to 2010 to explore the impact of government expenditure and the political regime on the welfare of the people in the country. The results show that increase in per capita income and education expenditure have positive effect and current expenditure has negative impact on the human development. The political regime of the democratic governments has a negative effect on human development. The alarming condition of negative relation of current expenditure needs attention of the policy makers for reducing corruption in the public spending to gain the maximum benefits for the human welfare in Pakistan..

INTRODUCTION

The role of the government can be categorized in to economic, non economic and social responsibilities. The chief functions of the government include defense, diplomacy and foreign relations with fair and responsible monitoring of fiscal and monetary policies. The provision of the public goods and services is mandatory for the overall human welfare and wellbeing. Infrastructure, productive business environment, satisfaction of basic necessities and public utilities improve the standard of living of the community. The structure of the public expenditure and tax collection in the fiscal policy, vary from country to country depending on the current position of development stages. In the Keynesian school of thought, role of government is very important to regulate and stabilize the overall economic conditions of the country. No society can achieve economic growth and development (both physical and human) without the active and vital role of the government. All the economies can achieve their development targets with the mix of public and private investment in the human capital formation because they are necessary for the prolong growth. A limited role of government must be needed for the allocative efficiency in the economy.

Human development is considered as the engine of the economic growth as it improves the economy's strength and widens the standard of living of the people, increases the choices and maximizes the welfare of the society which is

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the prime objective of any government. The development of the human capabilities is also necessary for the sustainable growth, as there are many channels through which human development foster the economic growth. It increases the labor productivity, labor demand; employment and output. On the other hand, human capital also attracts physical capital[4]. Empirically, it is very difficult to have an exact measure of human development and social welfare. Several proxies are used to measure human development e.g. GNI per capita as a measure of standard of living, purchasing power parity (PPP) criterion to measure the cost of living and to measure the welfare, average year of schooling, school enrolment rate and health expenditures as a percentage of GDP to capture this composite welfare and development indicator. A fair index of Human Development Index (HDI) was developed by United Nations Development Programme in 1990. This index was based on the standard of living (natural logarithm of GDP PPP per capita), access to knowledge (adult literacy rate with two-third weighting and the remaining is the gross enrolment ratio) and a healthy life (life expectancy at birth). The value of index varies from 0 to 1, lower the HDI, lesser would be the human development and welfare in the country or vice versa.

The value of HDI for Pakistan is 0.504, the country of the low human development category. Its ranking is 145 out of 187 countries (HDR, 2011). The data analysis based on new variables shows an improving trend in all the variables of Pakistan's HDI which include GNI PPP per capita (from US$ 1288 to US$ 2550) to measure the standard of living, life expectancy at birth (from 57.9 years to 65.4 years) for a healthy life while expected years of schooling (from 5.7 to 6.9 years) and the mean years of schooling (1.8 to 4.9 years) are used to measure the access to knowledge. The improvement in all the components has improved the overall HDI from 0.359 to 0.504 in the period of 31 years. Table A1 in the appendix shows the comparative static analysis of Pakistan relative to South Asia and World from 1980 to 2011. The overall improvement in HDI in all the countries and regions of the world is being experienced in this duration. Table A2 demonstrates the values and rank of HDI in Pakistan relative to selected countries (India and Bangladesh) and groups (South Asia and Low HDI) in the year 2011.

The effectiveness of fiscal policy in Pakistan has been examined in many studies. Some studies discussed the relative importance of monetary and fiscal policy, some examined the crowding out effect while other examined the debt sustainability [Masood and Ahmad (1980), Saqib and Yasmin (1987), Mahmood et. al. (2009), Hassan (1999), Chaudhary and Anwar (2000), Siddiqui and Malik (2001), Jafri (2008) and Hyder (2001)]. In most of these studies, growth effect was measured. The objective of this study is to analyze the role of fiscal policy in human development and social welfare which is an ultimate goal of any public policy. Despite of having much importance, very rare efforts have been made to empirically examine the public expenditure and revenue effectiveness in human development of Pakistan. This study also examined the effect of government type on human development in Pakistan. The study period consists of 1972 to 2010. Furthermore, the unit root test is applied to check the stationary

[4] Several studies exist related to human capital and economic growth where different growth channels are defined e.g. [Mankiw et. al.(1992), Barro (2001), Bergheim(2005) ,Benhabib and Spiegel (1994), Bils and Klenow(2000), Temple (2001) and Abbas (2001)]

of the data series. Finally, the autoregressive distributed lags (ARDL) bond testing approach of cointergration is applied to find the long run and short run relationship.

The remaining study consists of section 2 based on reviews of previous studies, section 3 based on methodological framework and data sources, section 4 illustrates empirical results, and finally section 5 demonstrates conclusion and policy implication.

2. REVIEW OF LITERATURE

The increasing literature, theoretical as well as empirical, on the impact of the role of the public expenditure on the welfare and wellbeing of the people is not representing the comprehensible picture and the results are ambiguous. Some researchers found positive impact of public expenditure and role of the size of the government on the welfare but some show negative. Davies (2009) analyzed the contact between the optimal government size and the HDI, a proxy used widely for the human development. The important factors used by the UNDP to measure the social welfare other than HDI such as the Gender-Related Development Index (GDI), the Human Poverty Index (HPI) and the Gender Empowerment Measure (GEM) etc. which may be used to analyze the relationship with the size of the government as having varying effects on the societal welfare. Iganiga (2012) empirically investigated the welfare of the Nigerian economy with the increasing cost of governance from 1990 to 2009 by using quarterly data and concluded that the government having the minimum administrative cost conditional with the reliable people and self-motivated policies can be helpful to reduce poverty on one side and might improve health and productivity that would directly or indirectly improve the living standard of the Nigerian people.

Devereux et al. (2000) searched the channel of government spending on the consumption and welfare. The effect on the total productivity of the economy showed that private consumption and welfare were inversely related with government spending in the case of constant returns while positively related in the case of increasing returns to specialization. Armey (1995) portrays the relationship between the government size (federal spending as percentage of GDP) and the economic growth (the real GDP) of the economy as the inverted U- shaped Armey curve. The empirical study of Smith and Wahba (1995) analyzed the impact of role of public revenues and expenditure of the government on the economic development of 56 countries of the developing world. They concluded that the financing by the government had positive impact on the economic development.

The normal expenditures by the federal government on basic public goods like law and order and other social aspects have a positive impact on the economic growth till a certain limit that vary from country to country depending upon the political and structural organization while additional and non productive increase in the public expenditures have a negative effect on the economic growth and other social indicators. Vedder and Gallaway (1998) analyzed the optimal size of the government for the US economy from 1947 to 1997. Kefela and Rena (2007) examined human capital as the engine of economic growth in North East African States as a result of investment in human capital which was the result of increase in the GDP per capita. Yavas (1998) analyzed the link between the government size per capita output and the growth rate for LDCs and the developed countries. The increase in the

government size for the developing countries would boost the steady state output level when there is low steady state of the economy but for the developed countries, it would decrease the steady state output level at a high steady state.

There are studies which show inverse relationship between the federal expenditure and the welfare of the people. The foundation of the economic growth is human development but it's not necessary for all the countries to get benefits of this economic growth in the form of the human development because the accumulation of the productive knowledge and expertise is the real development for the country. The educated and productive general public is the goal of development which will also result in the eradication of poverty. Heitger (2001) examined 21 OECD countries and found negative link between the government expenditure and the economic growth from 1960 to 2000. Amakom (2010) suggested that expenditure in the improvement of literacy rate and providing better health facilities can help to eradicate poverty in the economy by using the welfare dominance test. He concluded that primary education was progressive for male and female in Nigeria. By employing quantile regressions, Gomanee et al. (2003) studied the effect of the aid on the welfare in terms of HDI. The negative link between poverty alleviation and aid, depend upon the higher HDI. Suescún (2007) investigated the case for 15 Latin American economies. In his dynamic intertemporal general equilibrium model, diverse public expenditures were used. The investment in the infrastructure took over education, health, government consumption and transfers which are the other sources of public spending to have positive impact on the human development and welfare of the people. Machicado et al (2008) employed Dynamic Stochastic General Equilibrium Model to analyze the link between investment in infrastructure, health and education with respect to the welfare of the Bolivian economy. Forte and Magazzino (2010) examined the shape of the BARS curve to find out the relationship between the size of the government and the economic growth. The panel data set used for the 27 EU countries ranging from 1970 to 2009 showed that for EU-27, the crest of the BARS curve is at 37% but its actual level is about 47%.

3. Methodological Framework and Data Sources

3.1 Data Sources

This study employs time series data of different macroeconomic variables for Pakistan having the span from 1972 to 2010 which are available from different secondary sources. The publications of the World Bank (World Development Indicators; WDI), United Nation Reports and several issues of the Economic Survey of Pakistan are employed for the quantitative data of Human Development Index (HDI), log of real per capita income (LRPCI), log of real current expenditure (LRCUREXP)[5], log of real development expenditures (LRDEVEXP)[6], log of real tax revenue (LRTR), log of real expenditure on education(LREDU) and a dummy for political regime in Pakistan (PR): 1for democracy and 0 for dictatorship.

[5] Current expenditure consists on federal government revenue, budget's non-development expenditure i.e. general administration, defense, law and order, community services, social services and economics services.

[6] Development expenditure is the capital and revenue budgets' development expenditures.

3.2 Econometric Model and Technique:

For measuring the role of fiscal policy in human development a linear regression model is formulated which has the following functional form:

$$HDI_t = \alpha_0 + \alpha_1 LRPCI_t + \alpha_2 LRCUREXP_t + \alpha_3 LRDEVEXP_t + \alpha_4 LRTR_t + \alpha_5 LREDU_t + \alpha_6 PR_t + \varepsilon_t .$$

Equation (1)

Unit Root Analysis

Stationarity is a vital issue in time series data and Augmented Dickey-Fuller (ADF)[7] test is applied to find the order of integration among the variables under the null hypothesis of unit root.

Cointegration Analysis

There are many econometric approaches exist to find the long run relationship among the variables. The pioneer work of Engle-Granger (1987), some other famous studies are based on maximum likelihood procedure Johansen (1991, 1992), and Johansen and Juselius (1990). Another techniques introduced by Pesaran and Shin (1995, 1999), Pesaran et al. (1996) and Pesaran (1997) which is autoregressive distributed lags (ARDL) Model. This procedure has many advantages over the old methods, such as, the order of integration does not matter here similarly old methods were better for large sample while it's also effective for small sample even different variables have different lags. Due to these superiorities, we applied an ARDL bond testing approach to cointegration which is better suited to small samples (Haug, 2002). An ARDL representation of equation (1) can be formulated as

$$\Delta HDI_t = \kappa_0 + \pi PR_t + \sum_{i=0}^{K1} \delta_i \Delta LRPCI_{t-i} + \sum_{i=0}^{K2} \beta_i \Delta LRCUREXP_{t-i} + \sum_{i=0}^{K3} \omega_i \Delta LRDEVEXP_{t-i} + \sum_{i=0}^{K4} \eta_i \Delta LRTR_{t-i} +$$
$$\sum_{i=0}^{K5} \theta_i \Delta LREDU_{t-i} + \sum_{i=1}^{K6} \phi_i \Delta HDI_{t-i} + \lambda_0 LRPCI_{t-1} + \lambda_1 LRCUREXP_{t-1} + \lambda_2 LRDEVEXP_{t-1} + \lambda_3 LRTR_{t-1} +$$
$$\lambda_4 LREDU_{t-1} + \lambda_5 HDI_{t-1} + \nu_t$$

Equation (2)

The equation (2) is used to find cointegration among the variables defined in equation (1), here K1,K2…K6 are the showing the optimal lag length determined by information criterion and Δ is the first-difference operator. A bond testing approach of Pesaran et al (2001) is applied to find the long run relationship. This methodology is based on F or Wald-statistics, a joint significance test under the null hypothesis of no cointegration H_0: $\lambda_0 = \lambda_1 = \lambda_2 = \lambda_3 = \lambda_4 = \lambda_5 = 0$ against the alternative hypothesis $H_1 : \lambda_0 \neq \lambda_1 \neq \lambda_2 \neq \lambda_3 \neq \lambda_4 \neq \lambda_5 \neq 0$ is tested. This F-test has a non-standard distribution and two sets of critical values: one is lower bond for I (0) and other is upper bond for I (1). The decision of cointegration based on these values; if the calculated F-Test value exceeds the upper bond then H_0 is rejected. If the F-Test statistics are lower than the lower limit, H_0 cannot be rejected and if the F-Test statistics lie between the lower and upper bond limits the test is inconclusive.

[7] For detail see Dickey and Fuller (1979).

After the confirmation of cointegration among the variables an error correction model is formulated from the equation (2)

$$\Delta HDI_t = \kappa_0 + \pi PR_t + \sum_{i=0}^{K1} \delta_i \Delta LRPCI_{t-i} + \sum_{i=0}^{K2} \beta_i \Delta LRCUREXP_{t-i} + \sum_{i=0}^{K3} \omega_i \Delta LRDEVEXP_{t-i} + \sum_{i=0}^{K4} \eta_i \Delta LRTR_{t-i} + \sum_{i=0}^{K5} \theta_i \Delta LREDU_{t-i} + \sum_{i=1}^{K6} \phi_i \Delta HDI_{t-i} + \lambda_5 ECM_{t-1} + \nu_t$$

Equation (3)

Where ECM is the error correction term and λ is the speed of adjustment. All the equations are analyzed through econometric analysis package Microfit.

4. Empirical Results:

Table 1 depicts that HDI is positively correlated with per capita income, current expenditure, development expenditures, education expenditures and total tax revenue with a high level of significance. Per capital income is positively correlated with current expenditures, development expenditures, education expenditures and tax revenue with high significance. Current expenditure is positively correlated with development expenditure, education expenditure and tax revenue. Development expenditure, education expenditure and tax revenue are also significant and positively correlated.

Table 1: The Correlation Matrix

Variables	HDI	LRPCI	LRCUREXP	LRDEVEXP	LREDU	LRTR
HDI	1					

LRPCI	0.975566	1				
	(27.0092)	-----				
LRCUREXP	0.968517	0.948209	1			
	(23.66473)	(18.15763)	-----			
LRDEVEXP	0.577087	0.560418	0.629158	1		
	(4.298223)	(4.115969)	(4.923624)	-----		
LREDU	0.981888	0.96736	0.982216	0.675877	1	
	(31.52392)	(23.22051)	(31.82095)	(5.578173)	-----	
LRTR	0.973898	0.960114	0.989148	0.651343	0.986552	1
	(26.09867)	(20.88688)	(40.95244)	(5.221469)	(36.71524)	-----

Note: values in () are t-statistics

Table 2: Unit Root Analysis

	Level		1st difference	
Variable	Intercept and trend	p-value	Intercept and trend	p-value
LRPCI	-1.776795	0.6962	-6.756862	0.0000
HDI	-2.655583	0.2598	-4.458132	0.0056
LRCUREXP	-1.61445	0.7684	-6.128381	0.0001
LRDEVEXP	-2.772251	0.2159	-4.98654	0.0014
LREDU	-2.502616	0.3252	-7.276849	0.0000
LRTR	-1.878251	0.646	-7.09075	0.0000

In ARDL model, no pre-testing is required to determine the order of integration but any higher order of integration may cause unreliable results (Ouattara, 2004). To make sure that the order of integration is lower than the I(2) ADF test is applied. The results of unit root test are shown in Table 2, where all the series are non-stationary at level but stationary at first-difference, that is, the series are I (1) stationary.

Equation (2) is used for cointegration by using initially 4 lags as suggested by AIC and BIC. The ARDL method run a total $(4+1)^6 = 15625$ regressions and finally on the basis of AIC criterion an ARDL(2,1,4,4,3,4) is selected. A variable deletion test is applied to calculate the F-statistics. Table 3 shows the calculated value with Pesaran critical bond values; in both cases with restricted intercept and with unrestricted intercept calculated F value exceed the upper bond limit and indicate the existence of cointegration.

Table 3: F-statistics for co-integration relationship

	Value	Bound Critical Values* (Restricted intercept and no trend)			Bound Critical Values* (Unrestricted intercept and no trend)	
			I (0)	**I (1)**	**I (0)**	**I (1)**
F-statistics	8.68	1%	3.06	4.15	3.41	4.68
		5%	2.39	3.38	2.26	3.35
		10%	2.08	3	3.008	4.15

Note: Based on Pesaran et. al.(2001) Table C1.ii and C1.iii

After the confirmation of cointegration, the long run impact of fiscal policy on human development is reported in Table 4. The results show that real per capita income has a significant positive effect on human development and it is the highest determinant of human development as the economic theory suggests; the coefficient of real per capital income shows that a one percent increase in per capita income will increase human development by 0.1 units.

Table 4: Estimated Long Run Coefficients

Dependent variable is HDI			
Regressor	Coefficient	Standard Error	T-Ratio[Prob]
LRPCI	0.10071	0.037679	2.6730[.025]
LRCUREXP	-0.0080325	0.019865	-.40436[.695]
LRDEVEXP	0.060067	0.028349	2.1188[.063]
LRTR	-0.029408	0.036764	-.79991[.444]
LREDU	0.064194	0.032724	1.9617[.081]
INPT	-1.4492	0.4063	-3.5667[.006]
PR	-0.0079539	0.003765	-2.1126[.064]
Diagnostic Test			
R-Squared	0.99992	R-Bar-Squared	0.99969
F-stat. F(25, 9)	4331.3[.000]		
A:Serial Correlation		F(1, 8)= 2.4712[.155]	
B:Functional Form		F(1, 8)= 1.6758[.232]	
C:Normality		CHSQ(2)= .97944[.613]	
D:Heteroscedasticity		F(1, 33)= .053433[.819]	

Note: A: Lagrange multiplier test of residual serial correlation
B:Ramsey's RESET test using the square of the fitted values
C:Based on a test of skewness and kurtosis of residuals
D:Based on the regression of squared residuals on squared fitted values

Government current expenditures are insignificant but have a negative effect on human development; government development expenditure have a significant positive effect on human development and the coefficient suggests that an increase of one percent in development expenditure will increase human development by 0.06 unit. Taxes have a negative though insignificant effect on human development, the plausible reason of this negativity is, in Pakistan the distribution of taxes are very uneven and tax policy has a heavy reliance on indirect taxes which usually create distortion and hit the consumer badly. Education expenditure has significantly positive effect on human development. The coefficient of education expenditures shows that a one percent increase in education expenditure will increase the human development by 0.06 unit. More interestingly, the type of government based on a dummy variable, PR is significant and showing that democratic governments have a negative effect on human development while the dictatorship increases the human development.

The results of error correction model or short run behavior of human development with respect to fiscal policy are generated from equation (3) and presented in Table 5. The variable ECM is showing the short run adjustment in the human development due to change in exogenous variables, the coefficient of ECM (-1) is –0.2838 which is highly significant also confirming the existence of cointegration and it shows that a deviation from equilibrium during the current year will be corrected by 28.38% in the next period.

Table **5:** Error Correction Representation of the Model

Dependent variable is dHDI			
Regressor	Coefficient	Standard Error	T-Ratio[Prob]
dHDI1	0.11611	0.11236	1.0333[.319]
dHDI2	-0.42336	0.13041	-3.2465[.006]
dLRPCI	0.014497	0.01313	1.1041[.288]
dLRCUREXP	-0.030104	0.0045111	-6.6733[.000]
dLRCUREXP1	0.0013295	0.0045795	.29032[.776]
dLRCUREXP2	-0.0053212	0.004101	-1.2976[.215]
dLRCUREXP3	-0.010087	0.0048508	-2.0794[.056]
dLRDEVEXP	0.015357	0.0053352	2.8784[.012]
dLRDEVEXP1	-0.010174	0.0031	-3.2820[.005]
dLRDEVEXP2	-3.18E-04	0.0047543	-.066963[.948]
dLRDEVEXP3	-0.01465	0.0041895	-3.4970[.004]
dLRTR	-0.030264	0.011034	-2.7429[.016]
dLRTR1	-0.026746	0.0064767	-4.1296[.001]
dLRTR2	-0.012739	0.0065213	-1.9535[.071]
dLREDU	0.020917	0.0075331	2.7767[.015]
dLREDU1	-1.84E-04	0.005419	-.033989[.973]
dLREDU2	-0.018212	0.0051583	-3.5307[.003]
dLREDU3	-0.012273	0.0045481	-2.6985[.017]
dINPT	-0.41128	0.063681	-6.4584[.000]
dPR	-0.0022573	0.001038	-2.1747[.047]
ecm(-1)	-0.2838	0.053121	-5.3426[.000]

Furthermore the lower part of Table 4 consists of diagnostic tests shows that model is well fitted a high R^2, while the LM test for serial correlation indicate no serial correlation. Ramsey's RESET shows that functional form is correct. Normality test also confirms the normal distribution and the heteroscedasticity test also in the favor shows no hetroscedasticity. Finally for parameter's stability, a cumulative sum and cumulative sum square tests have been applied as recommended by Pesaran and Shin (1999). The graph of both tests are presented in appendix B; Figure 1 and Figure 2. Both graphs depict that CUSUM and CUSUMSQ lie within 5% significance boundaries, which indicate that both short-run and long-run parameters are stable as proposed by Brown et al. (1975).

5. CONCLUSION AND POLICY IMPLICATIONS

Economic development is the ultimate goal of every government and a renowned criterion for measuring the development is HDI. Higher the value of HDI, higher is the human development level. In this study, we explore one of the major government policy i.e. fiscal policy role in human development, not only this, we also examined the role of government type (democratic/dictatorship) in human development.

The results show that per capita income level should be increased to increase the human development level as this is the major determinant of HDI. Current expenditure has insignificantly negative effect on human development. This negative effect raises the questions related to current expenditures because these expenditures mainly consist on general administration, defense, law and order, community services, social services and economics services; which are also necessary for economic development. But this negative sign emphasizes to increase the efficiency of government institutions, while development expenditures are showing a satisfactory situation empirically because they have significant positive effect. Tax revenue has a negative sign but statistically insignificant which is indicating that tax policy have no development effect, which is certainly not a good sign. Education expenditure has significantly positive effect on human development; as other studies also found and this finding also strongly recommends to the policy makers to increase the education expenditure share which is hardly 2% of GDP (including current education expenditures). Finally political regime concludes that democratic governments have a negative effect on human development.

6. REFERENCES

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APPENDIX A

Table A1: Snapshot of HDI in Pakistan relative to South Asia and World (1980-2011)

Year	Pakistan	South Asia	World
1980	0.359	0.356	0.558
1985	0.384	0.389	0.576
1990	0.399	0.418	0.594
1995	0.420	0.444	0.613
2000	0.436	0.468	0.634
2005	0.480	0.510	0.660
2010	0.503	0.545	0.679
2011	0.504	0.548	0.682

Source: HDR, 2011 (http://hdrstats.undp.org/en/countries/profiles/PAK.html)

Table: A2. Value and Rank of HDI in Pakistan relative to selected countries and groups (2011)

Country/Region	GNI per capita (PPP US$)	Life expectancy at birth	Expected years of schooling	Mean years of schooling	HDI value	HDI rank
India	3,468	65.4	10.3	4.4	0.547	134
Pakistan	2,550	65.4	6.9	4.9	0.504	145
Bangladesh	1,529	68.9	8.1	4.8	0.500	146
South Asia	3,435	65.9	9.8	4.6	0.548	--
Low HDI	1,585	58.7	8.3	4.2	0.456	--

Source: HDR (2011) http://hdrstats.undp.org/images/explanations/PAK.pdf

Appendix B

Figure 1.

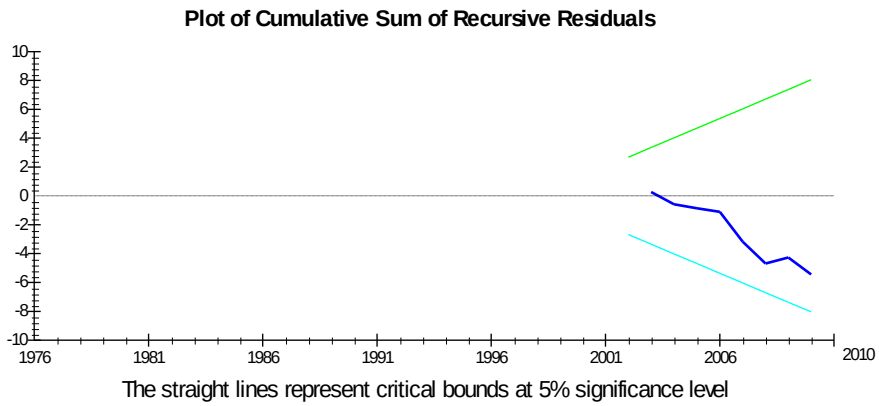

Figure 2.

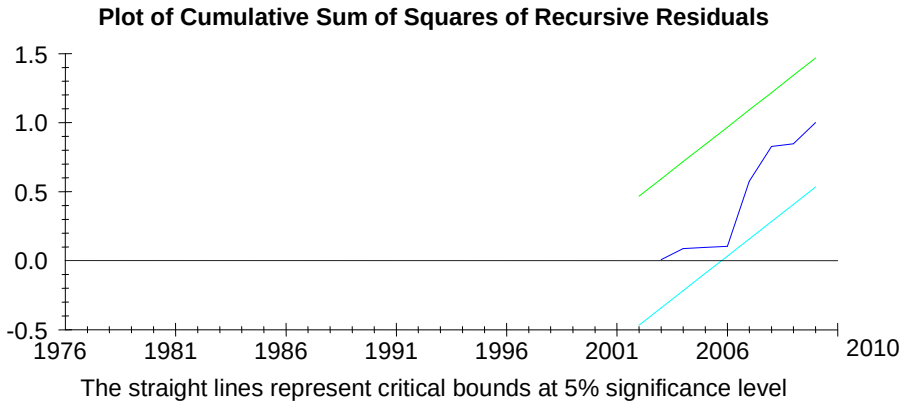
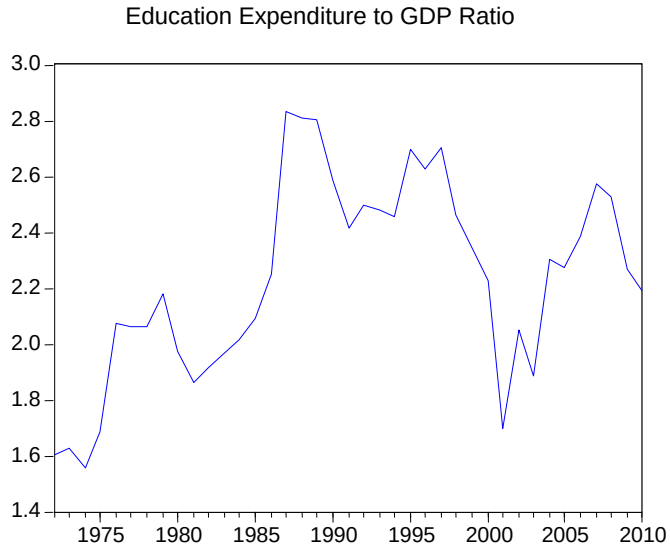
Figure 3.