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RESEARCH ARTICLE

RELATION OF GOVERNMENT EXPENDITURE WITH ECONOMIC GROWTH AND POVERTY REDUCTION IN ETHIOPIAN -ARDL ANALYSIS

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ABSTRACT

This study examines the relation of government expenditure with economic growth and poverty reduction in Ethiopia using time series data over the period 1980 to 2013. Employing modern time series econometric techniques such as unit root tests, bound test co-integration approach and error correction techniques within an ARDL framework which yields more robust estimates. It is found that government spending affect economic growth positively and significantly by increasing real private investment and fixed capital accumulation which increase capital accumulation, reduction in current account deficit, external debt burden and improve education/skills of the households by improving human capital. Findings emerge from this study that government expenditure has significant short run impact on poverty reductions in its lag form in which it might be examined by the role of fiscal policy in alleviating poverty of current year in Ethiopia. The study suggested policies that the role of government should be extended to ensure the magnitude and the quality of private investment as high as possible.

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INTRODUCTION

Government expenditure plays a vital role in economic growth and poverty reduction throughout the world. According to Keynesian approach, public spending may increase the aggregate demand which further stimulates the economic growth and employment. The size of government expenditures and its effect has been an issue of continued interest for decades the received literature, essentially of an empirical nature, has proceeded at two levels. One set of study has explored the principal causes of growth in the public sector. Wagner's Law -the "Law of increasing expansion of public and particularly state activities" (Wagner, 1893) is one of the earliest attempts that emphasizes economic growth as the fundamental determinant of public sector growth. Most of the studies try to investigate that government spending is positively related with economic growth. While increase in government spending may lead to fiscal deficit. But if government reduces their expenditure, it may adversely affect the economy, but the excess of government expenditure due to the current expenses or unproductive use over the taxes collection capacity of economy creates fiscal deficit. In most of the developing countries, fiscal deficit is financed through internal and external borrowing. The internal borrowing affects the interest rate and it crowds out the private investment in the long run. While external borrowing leads to current account deficit and appreciation of exchange rate which further decreases the net export of the country. (Tajo, 2011) stated that poverty of Indonesia was removed or reduced significantly by increasing government expenditure on public sectors. (Samite, 2004) government spending in Agriculture sector of Iran in 2004 shows that it leads to falling of rural poverty and as a result, we can emphasis the value added and employment in Agricultural sector for poverty reduction. (Wondewesen, 2012) investigated the relationship between government expenditures and economic growth in Ethiopia for the period 960/61-2010/11and employed co-integration and error-correction Model and Ordinary Least Square (OLS) method. The results showed how to examine the short and long run relationships between GDP and government sect oral spending. A recent study using time series data for the period 1980 to 2013 for Ethiopia and using ARDL analysis to examine the nature of government expenditure and its impact on economic growth and poverty along with private investment, and secondary school enrolment using human capital.

Study design and methodology

The study employed secondary sources of data. The nature of data is a time series data that will cover over the periods of

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1981 to 2013. The data of macroeconomic variables was obtained from different institutions such as WB, MOFED, NBE, IMF, CSA and HDI.

Government expenditure and economic growth: The explicated econometric model is formulated as:

$$LnGDP_t = \delta + \beta_1 lnGCt + \beta_2 lnPI_t + \beta_3 SEt + \beta_4 lnGE_t + \varepsilon_t \quad \text{---------- (1)}$$

Whereas, GDP real growth domestic product, proxy for growth, GC gross fixed capital formation as share of GDP, PI real private investment, SE secondary school enrolment and GE government expenditure proxy is for budget deficit.

Unit Root Procedure: While the bounds test for co-integration does not depend on pre-testing the order of integration, the variables need to either be I(0) or I(1) or mutually integrated and not I(2).Hence, the need to test for unit root to ascertain the absence or otherwise of I(2) variables cannot be Overemphasized (Gloria own)

The ARDL Co integration Approach: This approach provides a simultaneity method of assessing the short and long-run effects of one variable on the other hand, (Baharumshah et a, 2009)has reviewed it, the ARDL modelling approach (Wondeferehu M,Temesgen Y @ Jibril H. *et al*., 2015) later extended it. To estimate bound test procedure co-integration, the estimated conditional ARDL

Model to test the long run relationship between poverty and its determinants variables is as follows:

$$\Delta LnGDPt = \delta + \sum_{i=1}^{p} \breve{\alpha} i \Delta lnGCt - 1 + \sum_{i=1}^{p} \beta i \Delta lnPIt - 1 + \sum_{i=1}^{p} \theta i \Delta lnSEt - 1 + \sum_{i=1}^{p} \phi i \Delta lnGEt - 1 + \beta_1 lnGC_{t-1} + \beta_2 lnPI_{t-1} + \beta_2 lnSE_{t-1} + \beta_3 lnGE_{t-1} + U_t \quad \text{--------(2)}$$

The parameters $\breve{\alpha}$, β, θ, ϕ, and ¥ denote the short-run dynamics of the model to be estimated via the error correction framework and β1, β2, β3, β4, and β5 represent the long-run parameters. α is the constant term (drift) in the ARDL model and U_t is the white noise error term. In the second step, once co integration is established the conditional ARDL (p1, q2, q3, q4, q5, q6) Long run model for RGDP can be estimated as: using the above re-parameterization of ARDL which is done by the help of (Verbeek, 2004).

$$LnGDP_t = \delta + \sum_{i=1}^{p} \delta 1 \, lnGDPt - 1 + \sum_{i=1}^{p} \delta 2 lnGEt - 1 + \sum_{i=1}^{p} \delta 3 lnGCt - 1 + \sum_{i=1}^{p} \delta 4 lnSEt - 1 + \sum_{i=1}^{p} \delta 5 lnPIt - 1 + U_t \quad \text{-------- (3)}$$

The estimation of (3) involves selecting the orders of the ARDL (p, q1, q2, q3, q4) long-run model using AIC and SBC.

$$\Delta LnGDP_t = \delta + \sum_{i=1}^{p} \Delta \pi i lnGDPt - 1 + \sum_{i=1}^{p} \Delta \alpha i lnGCt - 1 + \sum_{i=1}^{p} \Delta \beta i lnPIt - 1 + \sum_{i=1}^{p} \Delta \theta i lnSEt - 1 + \sum_{i=1}^{p} \Delta \varphi lnPIt - 1 + €ecm_{t-1} + U_t \quad \text{------ (4)}$$

The coefficients of parameters are dynamic coefficients of the model's convergence to equilibrium, € is the speed of adjustment to long-run equilibrium following a shock to the system and ECM error correction mechanism.

Government expenditure and poverty reduction: The researcher uses similar model suggested by Adam and Page (2005) and (Adam *et al*., 2015) to explore the impact of government expenditure on poverty. Thus, its explicit econometric form is:

$$Lnpv_t = \beta + \alpha_0 lnGDPt + \alpha_1 lnSE + \alpha_2 lnIN_t + \alpha_3 lnGE_t + PIt + \varepsilon_t \quad \text{---(5)}$$

Whereas, pv, poverty measure ,whether head count ratio or poverty gap or both due to availability of data GDP, real growth domestic product, IN income inequality, the coefficients of explanatory variables is expected to be, α_0, α1, α2,and α_3 negative, positive, positive/negative, respectively. The estimated conditional ARDL model to test the long run relationship between poverty and its determinants variables is as follows:

$$Ln\Delta pov_t = \delta_0 + \sum_{i=1}^{p} \gamma i \Delta lnRGDPt - 1 + \sum_{i=1}^{p} \eta i \Delta lnINt - 1 + \sum_{i=1}^{p} \psi i \Delta lnGEt - 1 + \sum_{i=1}^{p} \psi i \Delta lnPIt - 1 + \delta_1 lnpov_{t-1} + \delta 2 lnRGDPt_{-1} + \delta_2 lnIN_{t-1} + \delta_3 lnGE_{t-1} + \alpha_3 lnPI_{t-1} + U_t \quad \text{\_\_\_\_\_ (6)}$$

All parameters are similarly defined as growth model. Next the long run ARDL (p, q1, q2, q3) poverty can be estimated as:

$$Lnpov_t = \sum_{i=1}^{p} \delta 1 lnpovt - 1 + \sum_{i=1}^{q1} \delta 2 \, lnRGDPt - 1 + \sum_{i=1}^{q2} \delta 3 \, lnINt - 1 + \sum_{i=1}^{q3} \delta 3 lnGEt - 1 + \alpha_4 \sum_{i=1}^{q4} lnPIt - 1 + U_t \quad \text{---------- (7)}$$

The estimation of the aforementioned model, involves the information of SBC. Finally, the error in the model is been corrected.

$$Ln\Delta pov_t = \delta + \sum_{i=1}^{p} \beta i \Delta lnpovt - 1 + \sum_{i=1}^{p} \gamma i \Delta lnRGDPt - 1 + \sum_{i=1}^{p} \eta i \Delta lnINt - 1 + \sum_{i=1}^{p} \psi i \Delta lnGEt - 1 + \sum_{i=1}^{p} ¥ \Delta lnPIt - 1 + \zeta ecm_{t-1} + U_t \quad \text{-------- (8)}$$

Where β, γ, η, ψ and ¥ are short run dynamic coefficients of model to adjustments of equilibrium, ζ speed of adjustment, ECM error coercions mechanism.

RESULTS AND DISCUSSION

Government expenditure and economic growth

The result shows that in all the three cases, the variables are non-stationary in their levels. This is shown in appendix 1, table 1.1 by the computed results which are less than the critical values in absolute term both at 5%, 1 and 10%. The variables in first difference are however, stationary. This implies that all the variables are integrated one after the other.

The bound tests results of ARDL model

The calculated *F*-statistics are reported in appendix 1, Table 1.2. For Equation 4 F(*LNRGDP, LNSEt, LNIt, LGEt*) = 5.94. From these results, it is clear that there are long-run relationships between the variables because its calculated *F*-statistics are higher than the upper bound critical value of 4.09 at 5% level. Evidence of co-integration relationships between the variables also rules out the possibility of estimated relationship being 'spurious'.

Results of the Long Run Relationship

The results indicate that, an increase in secondary school enrolment leads to encourage economic growth. Expenditure on education emphasizes positive impact on growth. Government investing on school enrolments (leads to improve human capital) has possibly improved human development outcomes thereby boosting long-run growth. The narrow base of education and health sectors and the highest priority given to primary education and basic preventive health care by government could probably explain the effect. On the other hand, the coefficient of real *GDP* is statistically significant at 5% level, indicating that if the country were to increase her

Government expenditure especially on education, health and capital goods at 1%, growth rate per capita will be increased by 0.70340%.

The coefficient of government expenditure is consistent with (Fan and Rao, 2003) it shows that government expenditure is positively correlated with the economic growth and output as it considered as a sign of macroeconomic stability. Theoretically, if the government spending factor in Ethiopia increases, it increases opportunities of increasing per capita by reducing income inequalities among the people and will consequently boosts the growth. (see appendix 1, Table 1.3)

Short run dynamics

These studies examined that the variables in the model are co integrated and provides support for the use of an error correction mechanism (*ECM*), so that we can use short run dynamics. The results suggest the coefficient of the real *GDP is* theorized in literature review positive sign, indicating a positive impact on the economy of Ethiopia in the short run which is consistent with the long run results. This means that, in the short run, investing on education has both long and short run in positive impact and significant impact on economic growth of Ethiopia. When we came to real private investment, it has a positive impact on growth of economy which is consistent with long run impact, but statistically insignificant in long run. The evidence shows there should be some restrictions or policy measurements on real private investments in long run to be as significant as short run. Finally, the error correction term *ECMt*−1 which increases the speed of adjustment to restore equilibrium following shock has the expected negative sign and is statistically significant at 1%, thus, reinforcing the attainment of a long run equilibrium relationship among the variables. The size of the error correction term (-0.4456) precisely indicates that around 45% of the deviation from the long run equilibrium is corrected every year. This suggests a relatively somewhat high speed of adjustment from the short run deviation to the long run equilibrium.

Testing for structural break and ARDL model diagnostic

To complement this study, it is important to investigate whether growth equation are stable or not, for the entire period of study. The methodology used here is based on the cumulative sum (*CUSUM*) and the cumulative sum of squares (*CUSUMSQ*) tests proposed by Brown *et al.* (1975) on my first paper. Figures 1.1 clearly indicate that both the *CUSUM* and *CUSUMSQ* plots lie within the 5% critical bound thus, providing evidence that the parameters of the model do not suffer from any structural

Instability over the period of study.

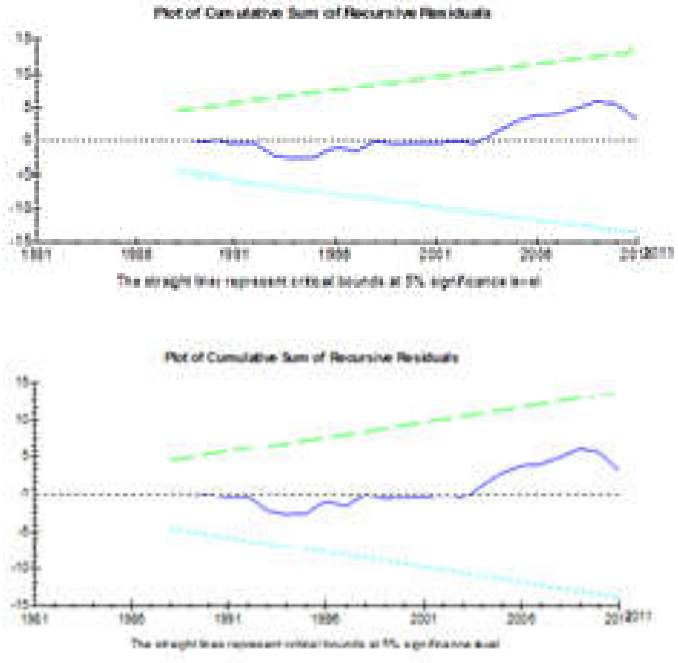


Figure 1.1 Plot of CUSUM and CUSUMSQ for growth model

The result of the diagnostic test confirms the adequacy of the model. That is, the null of there is no serial correlation is not rejected at any conventional significant level which shows that there is absence of serial correlation (autocorrelation) at the 5% significance level and the null assumption of constant variance between the regression of squared residual, is not rejected at any of the significance level which indicates that there is no hetroscedastcity problems. (See appendix 1, table 1.5)

Government expenditure and poverty reduction

The variables in their first deference suggest that by using stationary similar procedure like growth models, there is evidence of Co-integration relationship between the variables. (See appendix 2, table 2.1)

Results of the long run relationship

The Result shows that there is inverse relationship between government expenditure and poverty as if expenditures are on the development side, like development of social facilities, public utilities, infrastructure, overhead capital generation, health and education so it can reduce poverty in long run. So the real matter is concerned with the composition of government expenditure. But usually, the increase in public expenditure causes fiscal deficit which distort economy governments take different measure to reduce fiscal imbalances like cut in development expenditure, subsidies and social expenditures which affects the welfare. If the reduction in fiscal deficit is a matter of concern, then Government can reduce fiscal deficit by increasing productivity and growth rather than reducing expenditure. Finally, the results indicate that an increase in economic growth leads to reduction in

poverty incidence which is consistent with the analysis of poverty reduction (Adam and page, 2005). That is to say, in the long-run, an increase in real output has the potential of improving poverty in Ethiopia. The results indicate that if the country were to increase her *GDP* by 1%, poverty incidence will reduce by 0.137 %. (Apendex 2, table 2.2)

Short run dynamics

The coefficient of the real *GDP both in lags and normalized form* has the theorized negative sign and significant, specifying a positive impact on poverty reduction which is consistent with the long run results. This means that in the short run, growth in economic activities in Ethiopia has the potential of reducing poverty. The short run impact of government expenditure on poverty is negative and significant as (Bennett, 2007) Which might have examined the role of fiscal policy in alleviating poverty in Ethiopia. The short run impact of poverty with respect to income inequality (Gini coefficient) is positive and significant which is according to most of the theorized review. This positive and significant relation indicate that at a given rate of economic growth, poverty reduces more in low inequality countries, as opposed to high inequality countries, so the income inequality variable is positive and significant (Adam and Page, 2005). Finally, The size of the error correction term (-0.5231) precisely indicates that around 52% of the deviation from the long run equilibrium is corrected every year. This suggests a relatively high speed of adjustment from the short run deviation to the long run equilibrium poverty levels. (Apendex 2, Table 2.3)

Appendixes: Apendex1

Table 1.1 Unit root test for growth model

	ADF- test			PP-test		
Variables	With Constant and no trend	With Constant and trend	With no constant	With Constant and no trend	With Constant and trend	With no constant
LnRGDPt	1.303	1.813	0.81	0.22	.652	0.736
LnSEt	2.11	2.55	0.46	2.20	2.9	1.281
LnINt	.14	1.93	1.53	.146	2.1	1.41
LnGCt	.76	1.21	1.29	.39	2.22	1.72
LnGEt	1.76	.96	2.89	.728	2.44	3.08
		At first difference				
DLRGDPt	4.977*	4.469*	2.73*	7.92*	7.52*	2.88*
DLnSEt	3.404*	3.23*	6.885*	5.95*	4.03*	6.9*
DlnINt	4.26*	4.57*	5.42*	5.74*	5.97*	5.43*
DlnGCt	3.56*	4.34*	5.34*	3.75*	6.02*	5.87*
DLGEt	6.08*	6.99*	2.731*	7.4*	6.32*	2.83*
		Critical values				
1%	3.71	4.33	2.65	3.71	4.33	1.65
5%	2.98	3.58	1.95	2.93	3.71	1.92
10%	2.62	3.22	1.60	2.62	2.98	2.65

Whereas DL indicates that the variables are at the first difference form

Table 1.2 bound test procedures

K	critical values			F-statistics (F_{rgdp} (RGDP /GEXP SE, PI, INt).
5	1%	5%	10%	5.94**
I(0)	3.71	2.98	2.62	
I(1)	4.74	3.67	3.45	

Notes: Critical values are obtained from Narayan (2004). *** represents statistical significance at the 1% level.
K is the number of regressors

Table 1.3 ARDL to estimate long run coefficients

Autoregressive Distributed Lag Estimate ARDL(1,0,2,0,1) selected based on Schwarz Bayesian Criterion			Dependent variable is LNRGDP
Regressor	Coefficient	Standard Error	Ratio[Prob]
LnGDPT(-1)	.70340	.038	12.1084[.000] **
LnNSEt	.0076139	.006	.895 [.031]**
LnGCt	-0.023	0.056	0.896[.131]
lnGCt(-2)	0.078	0.043	0.087[.024]**
LnPIt	.0103	.036	.69743[.523]
LnGEt	.014	.017	.5625[.54]
LnGE(-1)	-0.23	0.056	.268[.015]**
CONS	-.48983	.3175	-1.54[.014]**

Table 1.4 ARDL –VEC mechanism

Error Correction Representation for the Selected ARDL Model ARDL (1, 0, 0, 0, 1) selected based on Schwarz Bayesian Criterion Dependent variable is LNRGDP			
Regresso	Coefficient	Standard Error	T.Ratio[p]
DLGDPt	.08336	.0673	.785[.062]
DLNSETt	.0251	.004592	.567[.035]*
GCt	0.1345	0.145	0.456[0.56]
DLNPIt	.0104	.04076	-.6787[.014]*
DLNGEt	-.3130	.2367	-1.675[.671]
LNGE(-1)	-.02679	.4513	-.674[.514]
CONS	-.48983	. 0342	. .78[.004]*
ECM (-1)	-.4456	.0453	-1.89[.014]*

List of additional temporary variables created: dLNRGDPT = LNRGDPT-LNRGDPT(- DLSET = LNSET-LNSET(-1) DLNPIT = LNPIT-LNPIT (-1) DLNGET = LNGET-LNGET (-1) DLNGCT = LNGCT-LNGCT (-1) dCONS = CONS-CONS(-1) ecm = LNRGDPT +.54872*LNSET + .11368*LNGCT -.36566*LNPIT + 5.310*LNGET -11.356*CONS
R-Squared .7630 R-Bar-Squared .678 S.E. of Regression .023 F-stat. F (5, 25) 8.0664[.000] Mean of Dependent Variable .020523 S.D. of Dependent Variable .0501 Residual Sum of Squares .035409 Equation Log-likelihood 61.0218 Akaike Info. Criterion 53.045 Schwarz Bayesian Criterion 50.23 DW-statistic 2.01

Table 1.5 ARDL model diagnostic tests

Test Statistics	LM Version	F Version
* A: Serial Correlation	CHSQ (1) = .6401[.229]	F(1, 23)= .64068[.132]
* B: Functional Form	CHSQ (1) = .0734[.496]	F(1, 23)= .049696[.426]
* C: Normality	CHSQ (2) = .32714[.341]	Not applicable
* D: Heteroscedasticity	CHSQ (1) = 3.219[.415]	F (1, 29) = 2.1279[.155]
Wald statistic	CHSQ(1) = 8.6225[.003]	
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 skewers and kurtosis of residuals		
D: Based on the regression of squared residuals		

Appendix 2 for Poverty Model

Table 2.1 unit root test results for poverty model

	ADF- test			PP-test		
Variables	With Constant and no trend	With Constant and trend	With no constant	With Constant and no trend	With Constant and trend	With no constant
LNPOVt	2.42	0.78	1.30	1.07	1.34	2.45
LNINt	2.6	1.09	1.07	1.301	2.906	2.047
LnGET	1 .52	1.43	1.04	.330	.824	0.62
LnPIt	2.11	.14	0.39	.75	.75	0.65
LNRGDPt	1.32	1.54	1.04	.934	2.44	0.24
	At first difference					
DLpovt	3.967*	4.603*	2.69*	7.02*	7.32*	7.72*
DLINt	5.04*	4.75*	6.35*	5.40*	5.31*	5.03*
DLGETt	3.79*	4.34*	4.42*	5.55*	5.12*	5.17*
DLPIt	4.04*	4.63*	3.52*	6.02*	6.34*	6.14*
DLRGDPt	6.08*	4.27*	6.64*	7.04*	4.15*	4.41*
	Critical values					
1%	3.71	4.33	2.65	3.71	4.33	1.65
5%	2.98	3.58	1.95	2.93	3.71	1.92
10%	2.62	3.22	1.60	2.62	2.98	2.65

Table 2.2 bound test procedure for poverty equation

K	critical values			F-statistics (F_{rgdp} (pov /GE LINt, PI, SEE).
5	1%	5%	10%	6.08**
I(0)	4.71	3.58	3.72	
I(1)	5.72	3.67	3.45	

Notes: Critical values are obtained from Narayan (2004). *** represents statistical significance at the 1% level. *K* is the number of regressors

Table 2.3 ARDL to estimate long run coefficients

Estimated Long Run Coefficients using the ARDL Approach B) ARDL (1, 0, 1, 0,1) selected based on Schwarz Bayesian criteria			
Regressor	Coefficient	Standard Err	T-Ratio [Prob]
LNIN	.01712	0.351	-.2463[.004]**
LNGEt	-0.1412	.04001	-2.672[.0025]**
LNGEt(-1)	-0.345	0.541	-5 .1349[.021]*
LNPIt	-0.2145	.0412	1.134[.1014]
LRGDPt	-0.641	.04073	3.401[.013]*
Constant	3.20	.05412	7.35[0.00]

Table 2.4 ARDL –VEC mechanism for poverty model

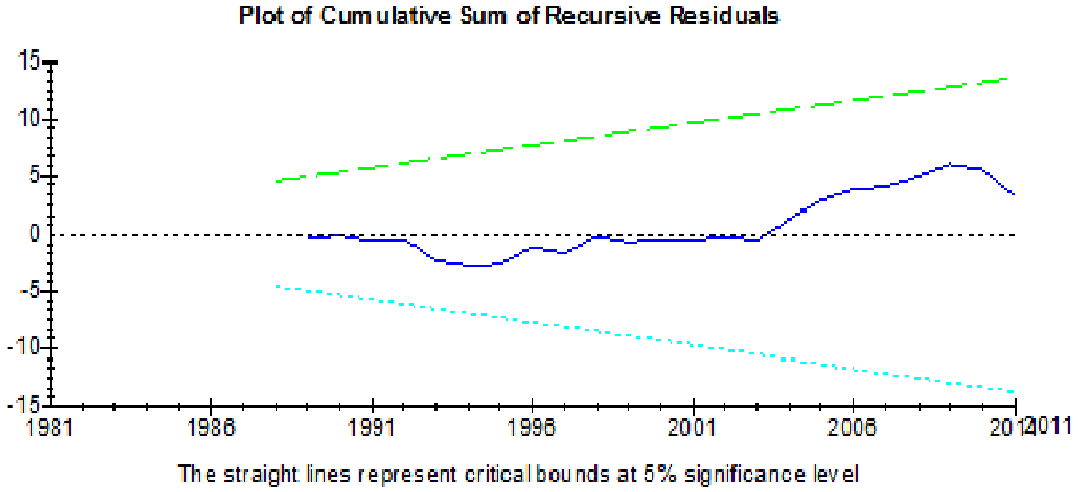
Error Correction Representation for the Selected ARDL Model ARDL (1, 0, 0, 0, 2) selected based on Schwarz Bayesian Criteria Dependent variable is LNPOVt			
Regressor	Coefficient	Standard Error	T.Ratio[p]
DLNINT	0.5647	0.46758	-.13980[.006]
DLNGEt	-0.45673	0.03678	-3.0712[.050]**
DLNPIt	-0.0056	-0.4216	-1.7769[.089]**
DLRGDPT	-0.07868	0.4789	-.96129[.016]**
dLRGDPt(-)	-0.07864	0.1786	2.7354[.012]**
CONS	0.5647	0.2450	3.2728[.003]**
ECM (-1)	-0.5231	0.1536	-3.1639[.004]**

List of additional temporary variables created: DLNPOVTt = LNPOVTt-LNPOVTt (-1)
DLNINt = LNINt-LNINt (-1) DLNGEt = LNGEt-LNGEt(-1)
DLNPITt = LNPIt-LNPIt(-1) DLRGDPt = LRGDPt-LRGDPt (-1) dLRGDPt(-1) = LRGDPt (-1)-LRGDP (-2) Constant = CONSTANT-CONSTANT (-1)
ECM = LNPOVT + .018122*LNINt + .021282*LNGEt + .11735*LNPIt + .13671*LRGDP -1.2232*CONS
R-Squared .670600 R-Bar-Squared .65600 S.E. of Regression .02452 F-stat. F (6, 23) 2.5062[.002] Mean of Dependent Variable -.0062102 S.D.of Dependent Variable .014637 Residual Sum of Squares .0036903 Equation Log-likelihood 92.4805 Akaike Info. Criterion 84.4805 Schwarz Bayesian Criterion 78.8757 DW-statistic 2.40

Table 2.5 ARDL-Poverty model Diagnostic tests

Test Statistics	LM Version	F Version
* A: Serial Correlation	CHSQ (1) = 3.78[.352]	F(1, 21)= 3.0363[.096]
* B: Functional Form	CHSQ (1) = 1.183[.177]	*F(1, 21)= .86268[.364]
* C: Normality	CHSQ(2)= 140.341[.053]	Not applicable
* D: Heteroscedasticity	CHSQ(1)=1.8712[.270]	F(1, 28)= 1.8626[.183]
Wald Statistic	CHSQ(1)= 30.4801[.000]	-

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



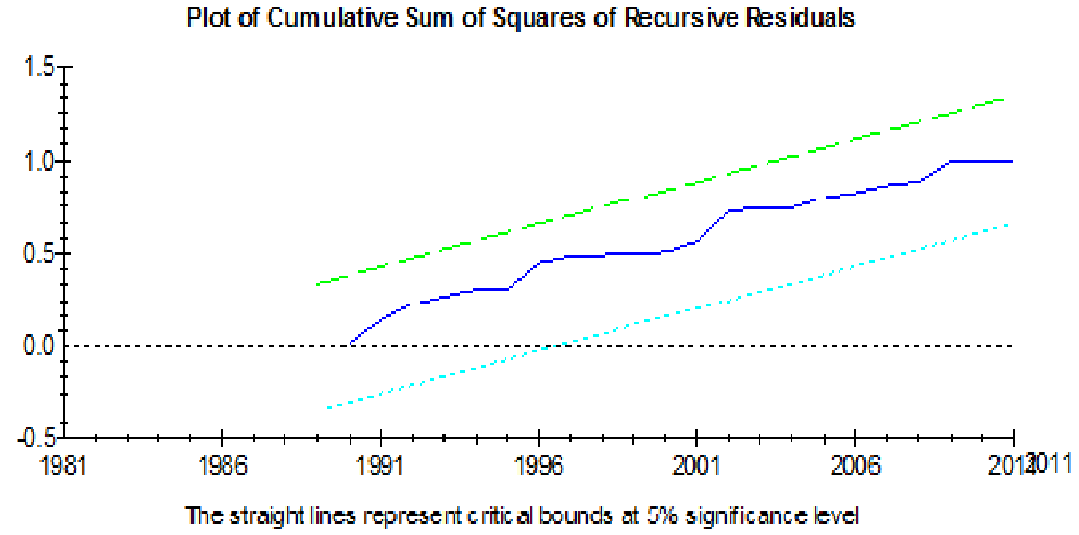


Figure 2.1 plot of CUSUM and CUSUMSQ for poverty model

Testing for structural break and model diagnostic

By applying the same procedures as growth model, the methodology used in poverty model based on the cumulative sum (*CUSUM*) and the cumulative sum of squares (*CUSUMSQ*) tests was proposed by Brown *et al*. (1975). Figures 2.1 shows that both the *CUSUM* and *CUSUMSQ* plots lie within the 5% critical bound thus, providing evidence that the parameters of the model do not suffer from any structural instability over the period of study.

Finally, diagnostic tests were conducted on the ARDL to confirm the presence of serial correlation, normality of the residuals, model specification as well as heteroscedasticity. (Appendix 2, Table 2.5)

Conclusions and policy recommendations

It was realized that government spending affects economic growth positively and significantly by increasing real private investment and fixed capital accumulation which increase capital accumulation, reduction in current account deficit, external debt burden and improve education/skills of the households by improving human capital. Findings emerge from this study that government expenditure has significant short run impact on poverty reductions in its lag form in which it might be examined by the role of fiscal policy in alleviating poverty of current year in Ethiopia. In addition to these, there is a strong and statistically significant long run impact on poverty reduction by accomplishing fiscal policy, through direct increase in the incomes of the poor, thus redistribution of income from rich to poor. Government expenditure should draw some policy implications like the guiding principle for public investment should be complimentary rather than compete with private investment, prudent fiscal policy should be pursued to widen and strengthen the revenue base in order to avoid costly or distortionary financing of the ever increasing government expenditure government investment to be productive, qualified civil servants should be attracted and motivated. Finally, government has a bigger responsibility in creating stable and conducive economic and political environment, building general consensus and mobilizing its people in development endeavor if the country has to direct itself into long-run growth. The major limitation the study encountered is that Most of the time series data were not in quarterly format and therefore variables such as real *GDP*, Government expenditure, secondary school enrollment etc, had to be used in their annual form and had no compiled file for Gini index which is proxy for income inequality. An attempt to extend the data length to 20014/15 or further was constrained by unavailability of these macro series from domestic official sources as the researcher had to fall on mainly foreign sources such as the World Bank, IMF, among others at a tremendous financial expense. Thus, future studies on government expenditure on economic growth and poverty reduction in Ethiopia should extend the context of the present study by simultaneously estimating a robust relationship between economic growth, poverty reduction and government spending (investment) by incorporating other relevant variables such as health expenditure (investment), education investment, Research and development, Science and technology, etc. particularly by panel time series data.

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