# Determinants of External Debt in Ethiopia

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## Abstract

*The study is attempted to examine the determinants of external debt in Ethiopia. Ethiopia is one of HIPC suffering from historically increasing external debt. External debt is the amount that a country is owing to the foreign country with or without interest payment on principal. In developing country financing budget deficit via external debt is burden as there is low economic growth and problem of debt overhang. In this study time series data from 1981 to 2016 is used, and ARDL model was used to analyze the data. As well the variables in the sample are normally distributed and the result of bound test depicted the existence of long run association among the variables. In short run ECM regression shows that inflation rate, primary budget deficit and exchange rate are statistically significant which mainly determining Ethiopian external debt whereas domestic saving and resource balance is insignificant. Inflation rate is negatively related to Ethiopian External debt while primary budget deficit and exchange rate are positively related to Ethiopian external debt. In long run Inflation rate, primary budget deficit as ratio of GDP, domestic saving as ratio of GDP and resource balance as ratio of GDP are statistically significant. Primary budget deficit as ratio of GDP and domestic saving as ratio of GDP has positive impact on Ethiopian external debt accumulation while inflation rate and resource balance as ratio of GDP have negative impact. And exchange rate negatively related to external debt but statistically insignificant. Thus as policy implication the government of should opt for equity finance (FDI and portfolio investment), reduce budget deficit, concern the efficiency of investment and maintain stable exchange rate.*

**Key words:** External debt, HIPC countries, Ethiopia and ARDL model

## 1. INTRODUCTION

External debt is the amount of national income that is owed to foreign country with or without interest payment. In many developing countries, development finance involves external borrowing to economic development projects. Due to this it is the major concern of highly indebted poor countries (HIPCs) and affected their economic fundamentals since 1970s (ADB, 2010). But currently it took the global attention as a result of 2008 global financial crisis and become a well discussed issue (Lau et al., 2016)

Medeya (2017) argued LICs with low level of income inequality have higher risk of a debt distress. Gill and pinto (2005) argued higher debt to GDP ratio increases the chances of a crisis and enhances volatility, lowering growth. Alternatively, the higher fiscal deficits are, and the more volatile output is (implying lower growth), the higher is the actual public debt to GDP ratio likely to be (for given inflation targets) and the lower the sustainable level of debt. In line with this arguments developing countries with low domestic mobilization capacity relay more on external loans and grant (Tashome, 2015). Once Siddique *et al.* (2015) pointed out that external debt is an important source of finance mainly used to supplement the domestic sources of funds for supporting development and other need of a country.

External debt is not a problem in itself. But it becomes a problem when the foreign borrowing is unrelated to productive investment, or when a net debtor country is hit by a severe shock to its key macroeconomic Variables. High external debt has diverse causes and various impacts in different groups of economies. In most low income countries, it is the result of chronic current account deficit, primarily reflecting limited export capacities and high dependence on imports for both consumption and investment purposes (UN, 2015). This mostly affected LICs in 1980s and 1990s.

Over accumulation of external debt may lead to debt overhang problem and crowding out effect in the economy of developing countries. Debt overhang concept is a situation when there is low growth rate as a country accumulates more external debt. On the other hand this external debt grows induces burden of debt servicing which act as a disincentive to investors and affects economic growth which results in crowding out in investment. As a result of this scenario, in long run the debtor countries benefit is minimum (Sachs, 1984; Krugman, 1985; Arslanalp, 2004). As Sichula (2012) pointed out, HIPC countries have for years suffered from the brunt of external debt burdens by having high debt service obligations and economic declining.

As a result, in 1996, international monetary fund launched the HIPC Initiative in an attempt to reduce the external debt burden of low income countries to sustainable levels in a reasonably short period of time. This HIPC initiative has generated a lot of attention as burden of external debt suffered financing of most developing countries. Additionally the major problem results with external debt in HIPCs are its sustainability. Birdsall et al. as sited by Siddique*et al.* (2015), HIPC has three common main characters: i) they paid heavy debt in 1970s due to oil price shock, ii) debt ratio of these countries is much higher than the other developing countries which has problem on its sustainability, and iii) they are poor country and experience low economic growth.

Ethiopia, one of the developing countries, external debt is not simply unsustainable; even the higher debt relief would not bring the country within each of meeting its responsibility within the context of global poverty reduction goals. In line with this according to the World Bank classification of highly indebted economies, the country is one of the severely indebted low income countries (one of HIPCs) (Gizaw, 2005).

This scenario may hamper the economic development plan of the country since there is negative relationship between external debt and GDP in most of HIPCs. As external debt decreases there is an increase in GDP. It is because of this international monetary fund intended to reduce the debt burden for many developing countries in general and Ethiopia in particular under HIPCs initiatives as the country attained HIPCs completion point. In this country the share of external source is more dominating than the internal source in deficit financing since 1970swhich was higher in 1990s and reached maximum in 2004 in which 107 % of GDP during which the country is categorized under HIPCs. In 2006 Ethiopia got debt forgiveness under HIPC initiative. Then the burden of suffering from external debt financing reduced. But over recent five year period (2009/10-2013/2014), external debt increased by 249% (Hassan et al. 2014).

Additionally, in very recent years (2010s), due to Growth and Transformation Plan (GTP) that is five years ongoing developmental plans aimed to record fast, sustainable and broad based economic growth and simultaneously so as to attain Millennium Development Goals (MDGs), the Ethiopia government is busy. This ongoing developmental plan needs huge resources but there is risk of financial resource to attain the objective. Thus in order to finance these projects the country is mobilizing resources from internal and external. However these years the ratio external debt accumulation to GDP is increasing which induced increase of risk of debt distress in Ethiopia (ADB 2010; IMF, 2015, 2016; and WB, 2017). Therefore, taking this in to account our study is confined to the factors determining the increase of external debt accumulation in Ethiopia using time series data covering 1981 up to 2016 years

External debt accumulation increased since 1970s oil crisis in developing countries. It becomes the most economic problem from the turn of 21$^{st}$ century since it is increasing as the scale of commodity exchange between developed and developing countries increasing (Girniewicz, 2009). Asley as cited by Benedict *et al.* (2014) high level of external debt in developing countries negatively impacts trade capacities and performance. It is not only economic problems of HIPCs but also become, currently, the concern of developed countries since 2008 global financial crisis (Lau, 2016). Abdullahi*et al. (*2016) once saidö *debt in general and external debt in particular is a necessary evil that all economies survive with*ö. In a sense, on the other hand, it means that the more debt the more its burden even if we cannot avoid it we should reduce.

Theoretically the force behind external debt accumulation is a countries resource gap in financing their own development in general (Tiruneh, 2004). While Empirically the macroeconomic indicators which determines the external debt in different countries are GDP, debt service, exchange rate, trade openness, term of trade, Fiscal deficit, inflation and etc.(Awan et al, 2015; Al-Fawwaz, 2016; Lau and Lee,2016 )

The effect of this external debt on economic growth continues to attract considerable interest from policymakers (Babu*et al*. 2014). However scholars did not agree its effect on economic growth. Researchers like Lekomola(2010), Kassu et al.(2014), Ajayi and Oke(2012), Zouhaier and Fatma (2014), Mweni et al. (2016), Azam et al.(2013) found negative effect of external debt on economic growth while A-Zeaud (2014), Ayunku and Etale (2016) and Ugwgbe et al.(2016) found positive effect of external debt on economic growth in a given country. But in the case of Ethiopia all most all researchers namely: Ramakrishna (2002), Gebrekidan*et al*. (2013) and Kassu *et al.*(2014) found the adverse (negative) effect of external debt accumulation on economic growth of Ethiopia.

However, historically, the external debt of Ethiopia is increasing. After the fall of the Imperial Regime the size of Ethiopiaøs external debt increased significantly. The magnitude of debt in 1975 was only US$371 million and it was US$ 9.1 billion (214% of GDP) in 1991(at the end of Derg regime). By 1998, the total debt stock was $9,812 million, about 150 per cent of GDP. Approximately, 54% of that total debt was contracted for defense purposes and helped neither in improving the productive capacity of the economy nor in alleviating poverty (AFRODAD, 2006).In 2004, the total public debt (in which external debt has very high share) to GDP ratio of Ethiopia was around 106.7 percent which was more than average Sub-Saharan, middle income and low income countries. At this time Ethiopia was considered as highly indebted poor countries (HIPC) (Hassan *et al.* 2014).

Even if the country facing such challenge the government of Ethiopia envisioned to be one of middle income earning country in 2025 in which massive public driven infrastructural investment is required which is increasing external debt further. Due to this, the  stock of external debt in Ethiopia showing increasing trends *i.e*. US$5,516 in 2000, US$ 6, 229 in 2005, US$7,335 in 2010, US$12,575 in 2013 and US$ 20,414 in 2015 in million (WB, 2017). In addition even if external debt remain sustainable due to low level of export earning, the risk of external debt distress has increased from low to moderate in 2015in this country. The present Value of public and publicly guaranteed (PPG) external debt increased to 18.8 percent of GDP in 2014/15, and predicted to reach 24.5 percent of GDP by 2017/18 which also reflecting the sharp increase in disbursements to finance public investment projects (ADB, 2010; IMF, 2015).

This show, also under current Ethiopia government (during the past twenty years), external debt(ED) accumulation is also increasing as the government is undertaking more expenditure for economic development and to attain Millennium development goals (MDGs). But more accumulation of debt can lead to debt distress. For example in 2008 Ghanaøs reclassification from low to moderate risk of debt distress resulted from its rapid accumulation of external and domestic public debt contracted on commercial terms, and high current account and fiscal deficits (ADB, 2010).

In addition, this countryøs Exports underperformed relative to projections owing to a weak external environment and the supply shock from the drought required scaled-up food imports. Despite strong remittances and imports of investment goods, the current account deficit remains high which Reflecting higher indebtedness (IMF, 2016). In very recent, as of March 01, 2018, Ethiopia categorized under high risk of debt distress as IMF debt sustainability analysis (DSA) (IMF, 2018). In summary since 2006 (during which Ethiopia got debt relief) to 2015 the risk of debt distress was low, in 2015 to 2018 it was moderate, and in this year

2018 the country categorized under higher debt distress which shows the country is nearing debt crisis.

Therefore, the growing of external debt from year to year and its risk of distress in Ethiopia, as it is discussed above, motivated us to study the determinants of external debt in this country empirically since most of studies have failed to see the factors enforcing Ethiopian government for relying on and increasing external debt accumulation over years. On the other hand, in this paper, the problem of the study lies in that there is a lack of knowledge of the factors induced Ethiopian government for the increasing external debt. This paper, thus, attempted to address this knowledge gap in analyzing the macroeconomic determinants of external debt using time series data from 1981 to 2016.

The general objective of the study is to analyze the determinants of external debt in Ethiopia. More, specifically, the study attempted:
1. To assess the impacts of resource gap on external debt in Ethiopia.
2. To analyze the long run and short run impacts of primary budget deficit on external debt accumulation.
3. To investigate the relationship between exchange rate and external debt accumulation both in long run and short.

Based on the above specific objectives, the following testable hypotheses are formulated.
Ho: 1: Variables in the study are positively related to external debt accumulation of Ethiopia in short run and statistically significant.
Ho:2: Variables in the study are positively related to external debt accumulation of Ethiopia in long run and statistically significant.

## 2. LITERATURE REVIEW
The Major channels through which developing countries have financed their deficits can be classified into two categories *i.e.* debt finance and equity finance. The forms of debt finance are Bond, bank, and official finance. In this case, the debtor must repay the face value of the loan, plus interest, regardless of its own economic circumstances. While direct investment and portfolio purchases of stock shares are, on the other hand, the forms of equity finance (Krugman et al., 2012).

Thus for the augment domestic resource it is inevitable for developing country to use external debt or equity finance. But in this study the main subject is external debt. As IMF (2014) defined gross external debt, at any given time, is the outstanding amount of those actual current, and not contingent, liabilities that require payment(s) of principal and interest by debtor at some point(s) in the future and that are owed to nonresidents by residents of an economy. It refers to the legal obligation to the government to pay the money borrowed with the principal as per the terms of agreement. In other words debt indicates the accumulated annual fiscal deficit in the country in the given period (Teshome, 2015).

Al-Fawwaz (2016) investigated the major determinants influencing the external debt in Jordan during the period 1990-2014. The finding shows there is a positive and statistically significant effect of terms of trade variable (TOT) on external debt in the long run, where an increase in terms of trade by (1%) will lead to an increase in external debt by (53%) approximately. More over there is a negative and statistically significant effect of Gross Domestic Product *per capita* variable (GDP*pc*) on external debt, where an increase in

(GDPpc) by (1%) will lead to a decrease in external debt by (78%) approximately. Other variable like exchange rate which is negatively affecting external debt of Jordan, and trade openness which is positively affecting external debt in this country were statistically insignificant.

Waheed (2017) also investigated the macroeconomic determinants of external debt in oil and gas exporting and importing countries. The study used panel data of 12 oil and gas exporting and 12oil and gas importing countries covering the year 2004 ó 2013. The study identified eight macroeconomic factors affects the external debt of oil and gas exporting and importing countries significantly. The effect of different macroeconomic factors can be different in these two groups of countries.

Eberhardt and Presbitero (2015) studied the long-run relationship between public debt and growth in a large panel of countries. Their analysis was built on theoretical arguments and data considerations in modeling the debtógrowth relationship as heterogeneous across different countries. They investigated the debtógrowth nexus adopting linear and non-linear specifications employing novel methods and diagnostics from the time-series literature adapted for use in the panel. They found some support for a negative relationship between public debt and long-run growth across countries, but no evidence for a similar debt threshold within countries.

Makhlouf (2014) studied the causes and consequences of sovereign debt. As this research finding state Sovereign debt grows steadily with the growth in governmental functions and responsibilities and the increasing demands and expectations of the average citizen. Only countries with consistently balanced budgets and payment balances have historically avoided incurring significant amounts of sovereign debt. While such debt may help in maintaining economic stability and financing some development projects, excessive amounts of sovereign debt have many negative consequences, including the slowing of the rate of GDP growth, a rise in unemployment, and possible insolvency and default. Furthermore, the higher the debt, the higher the likelihood of a rise in the cost of future loans, and the more likely that tax would have to be increased to compensate for the rise in the cost of servicing the debt. When international organizations and other governments offer assistance to deal with a debt crisis, such assistance usually comes with strings attached and harsh conditions that may cause other problems and unintended consequences.

Al-Zeaud (2014) examined the impact of public debt on the performance of the Jordanian economy using new econometric techniques of per capital income approach. As this empirical research finding, population growth and public debt have vital role for economic growth in Jordan. It also stated that public debt has positive effect on economic growth, while population growth has negative effect.

AL-zeaud and Al-awawdeh (2014)examined Granger Causality and the relationship between debt and economic growth in Jordan economy over the period (1990-2012), using Granger Causality test, multiple regression, The empirical results show there is causality relationship running from economic growth (GDP) to debt (DEBT), also that there is a positive relationship between debt and economic growth.

Ramakrishna (2002) External Debt of Ethiopia: An Empirical Analysis of Debt and Growth. Focusing the study of the external debt situation in Ethiopia, the researcher estimated a debt-growth model in a co-integration framework. The evidence provided by the model supports the debt overhang hypothesis as the country has been on the wrong side of the debt Laffer curve. The model used in the study show as there is negative as well as non-linear relation between debt and growth. The evidence also shows that fiscal balance, investments, and openness have influenced economic growth negatively (the exception being agriculture). These results support the cases for more debt relief and fiscal consolidation and efficient investment utilizations for Ethiopia during that time.

As the study carried out by Kassu *et al*. (2014) on the nexus between public external debt, Capital formation and economic growth in economy of Ethiopia shows public external debt, as percentage of GDP, has a negative and significant relationship with real GDP in the long run and no significant effect in the short run. On the other hand external debt as percentage of GDP has positive and significant effect on capital formation in the long run and negative in the short run.

Gebrekidan *et al*. (2013) studied the impact of external debt on Economic growth of Ethiopia using time series data. The result revealed the existence of negative relationship between economic growth and external debt accumulation.

Tiruneh (2004) empirically investigated the causes of external indebtedness using panel data. Again using both random and fixed effects models and cross-section pooled time series, the results suggested that capital flight, debt service payments, the imports to GDP ratio, income per capita, and the growth rate of GDP are the key determinants of the demand for overseas borrowing. A separate cross-section pooled times series analysis for HIPCs indicates that this groupøs demand for overseas borrowing was driven mainly by sluggish economic growth, high past debt service payments, income instability, and demand for foreign exchange to finance their import bills (this makes sense, as most of them are holding currencies that are not freely convertible), which is partly the reflection of the foreign-exchange gap.

## 3. METHODOLOGY OF THE STUDY
### 3.1 Data Type and Source
In order to undertake the study we used time series data. The sources of the data used were secondary data which is taken from World Bank (WB), National Bank (NB) of Ethiopia and MoFED. The study covered period from 1981 to 2016.

## 3.2 Econometric model specification
Since the paper more focuses on examination of the determinants of external debt in Ethiopia, we used time series data. For analysis of this data we used ARDL bound test and error correction term (ECT) as econometric tools. And to control the spurious regression results in our model, the unit root test was also conducted.

To achieve our objectives, a macro - econometric model developed to capture the interrelationships between external debt and the various economic aggregates in line with the theoretical framework and literature reviewed.
In order to examine the determinants of external debt, the macro-economic functional form will be as follow:

$$ED/GDP. = f\left(IFR, \; \frac{PBD}{GDP}, \quad NER, \quad \frac{EM}{GDP}, \; \frac{S}{GDP}\right)$$

Where:

ED = total Stock of External debt
INR = Inflation Rate
GDP = Gross Domestic product
PBD = Primary Budget Deficit
EM = Resource balance (export minus import)
NER = Nominal Exchange Rate
S = domestic saving

Using these variables, we extended the model developed by Awan et al (2014) for time series data analysis. In this model, except inflation and exchange rate, variables were used as share of GDP different from their model. Then the empirical model involves logarithm form for the study:

$$Ln\frac{ED}{GDP} = \beta_0 + \beta_1 IFR + Ln\beta_2\frac{PBD}{GDP} + Ln\beta_3 NER + Ln\beta_4\frac{EM}{GDP} + Ln\beta_5\frac{S}{GDP} + et$$

# 4. RESULTS AND DISCUSSION
## 4.1. Unit root test.
At any time we are working with time series data using ARDL model we should check whether the data is stationary or not. Therefore, the unit root test should be checked provided the order of integration of the series. In this study, unit root test was checked using Augmented Dickey-Fuller test and the unit root test result show as the series become stationary at different level. INR and LNSNGDP is stationary at level or I(0) with one and five percent level of significance respectively.

## 4.2 Diagnostic and Model stability test
The next task is undertaking diagnostic test and bound test for co-integration. For the diagnostic test the serial correlation, heteroskedasticity and normality test was used. As well we conducted Ramsey's Regression Specification Error Test (RESET). The test indicated that there is no serial correlation, no problem of heteroskedasticity and the residuals are normally distributed. Additionally Ramsey's Regression Specification Error Test (RESET) was conducted. By the test, we failed to reject the null hypothesis (the included fitted values are jointly insignificant). Therefore there is no problem of miss-specification in our model.

Table 4.2 Summary of diagnostic tests

| Test | Null hypothesis | F-stat DF | F-stat Prob. | Observed R-square | Decision |
|------|-----------------|-----------|--------------|-------------------|----------|
| Serial correlation | No serial correlation | F(3, 8) | 0.9650 | 0.7974 | Fail to reject |
| Hetros-cedasticity | No hetroscad-asticity | F(20,11) | 0.0709 | 0.1663 | Fail to reject |
| Normality (of residual) | normally distributed | Not Applicable | 0.7527 | Not Applicable | Fail to reject |
| RESET | No miss-specification | (7,4) | 0.1197 | Not Applicable | Fail to reject |

Source: Authors e-view nine result, 2018

Then after we have conducted this diagnostic test of the model, we conducted model stability tests using CUSUM and CUSUMSQ test. Brown *et al*. as cited in Awan et al. (2015) introduced cumulative sum (CUSUM) and cumulative sum of square (CUSUMQ) tests. Cumulative sum test is helps for systematic change in the parameters. On the other hand cumulative sum of squares helps in showing sudden change in the regression coefficients. As the following graph shows, the model is stable at 5% critical bound. This indicates the residual is between the two straight lines in which any other series included in the residual do not affect the series included in our model.
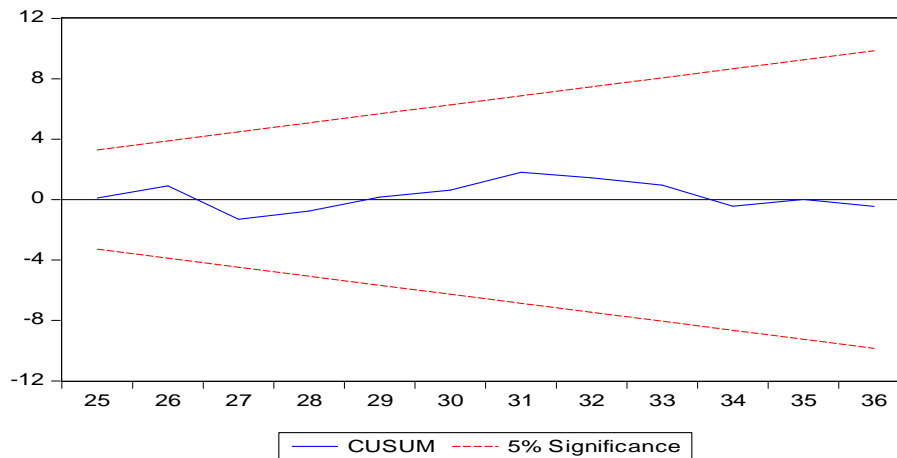


*Source: Authors computation by E-views nine*, 2018

**Graph 4.1.plotof Parameter stability (CUSUM)**
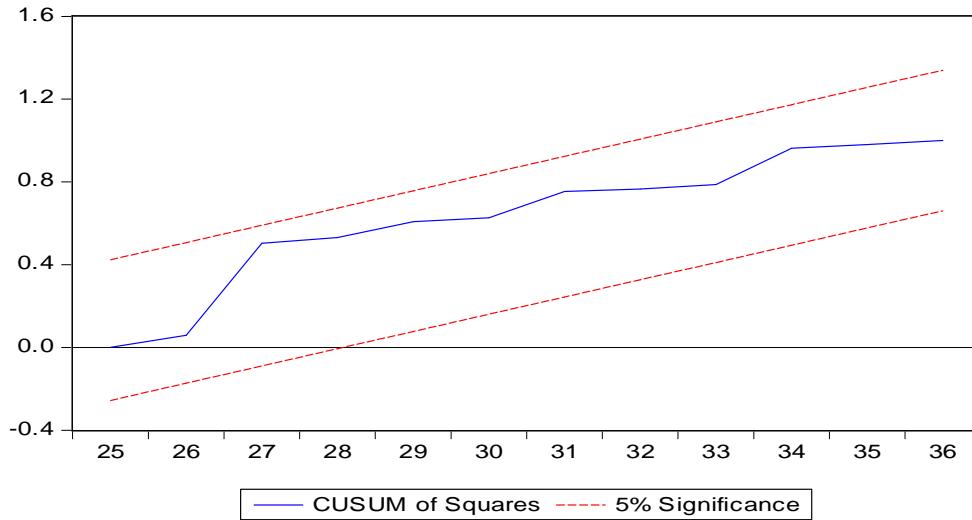
*Source: Authors computation by eviews nine*, 2018
**Graph 4.2 plot of Parameter stability (CUSUMSQ)**

## 4.3 Bound test

Before applying the ARDL model for long run, bound test is conducted to test the existence of co-integration among the variables. The result of bound test of co-integration revealed that the F-statics (8.018636) is above the upper bound at one percent. Therefore the null hypothesis of no long-run relationships exist is rejected. On the other hand, this indicates the existence of a co-integration relationship between the variables of the study.

Table 4.3 Results of Bound Test for co-integration

| Test Statistic | Value | K |
|---|---|---|
| F-statistic | 8.018636 | 5 |

Critical Value Bounds  (pesaran et al., 2001)

| Significance | I(0) Bound | I(1) Bound |
|---|---|---|
| 10% | 2.75 | 3.79 |
| 5% | 3.12 | 4.25 |
| 2.5% | 3.49 | 4.67 |
| 1% | 3.93 | 5.23 |

Source: *Source: Authors computation by E-views nine*, 2018, 2018

## 4.4 ARDL Co-integration and long run Form of the model

**T**he error correction model indicating the short-run dynamics and the long-run relationship is developed after we proved the existence of a long-run relationship between the variables. Then from our model the equation can be written as follow:

Table 4.4 ARDL *Short run (Co-integration) estimation result*

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| D(INR) | -0.195206 | 0.068285 | -2.858701 | 0.0156** |
| D(INR(-1)) | 0.070734 | 0.057947 | 1.220674 | 0.2477 |
| D(INR(-2)) | -0.063311 | 0.054021 | -1.171967 | 0.2660 |
| D(LNPBDNGDPD) | 0.462778 | 0.180906 | 2.558111 | 0.0266** |
| D(LNPBDNGDPD(-1)) | -0.340144 | 0.136505 | -2.491805 | 0.0299** |
| D(LNERD) | 1.587474 | 0.675220 | 2.351048 | 0.0384** |
| D(LNERD(-1)) | -1.069821 | 0.847318 | -1.262597 | 0.2328 |
| D(LNERD(-2)) | 1.257949 | 0.753832 | 1.668738 | 0.1234 |
| D(LNEMNGDPD) | 0.410397 | 0.387572 | 1.058893 | 0.3123 |
| D(LNEMNGDPD(-1)) | 0.892894 | 0.594436 | 1.502086 | 0.1612 |
| D(LNEMNGDPD(-2)) | 2.470545 | 0.608982 | 4.056842 | 0.0019* |
| D(LNSNGDPD) | -0.336454 | 0.398607 | -0.844075 | 0.4166 |
| D(LNSNGDPD(-1)) | -0.902483 | 0.321450 | -2.807540 | 0.017** |
| D(@TREND()) | 0.014533 | 0.008747 | 1.661421 | 0.1248 |
| CointEq(-1) | -1.265014 | 0.191711 | -6.598538 | 0.0000* |

Source: Author's own computation from E-view nine, 2018
Note: *, ** and *** shows the significance of the variable at 1%, 5% and 10% respectively
$R^2 = 0.88$,
Adjusted $R^2 = 0.66$,
DW = 1.76

From the above table the first column shows variables in the model that is inflation rate, primary budget deficit as ratio of GDP, Nominal exchange rate, Resource balance(net export) as share of GDP, gross domestic saving as ratio of GDP with their respective lag length selected based on Akaike information criteria(AIC). Whereas C and TREND are represent constant and trend respectively. The second column shows the estimated coefficients of the model. On the basis of t-statistics following inflation rate, primary budget deficit as ratio of GDP, exchange rate are statistically significant at 5% level of significance while Resource balance(net export) as share of GDP and gross domestic saving as ratio of GDP are statistically insignificant.

Inflation rate has negative impact on Ethiopian external debt and statistically significant. One unit increase in inflation rate decreases the country external debt by 0.195206 percent.
Primary budget deficit and exchange rate is positively related to external debt of Ethiopia. One percent increase in primary budget deficit increases external debt by 0.46%, other things being unchanged.

Similarly one percent increase in exchange rate increases external debt in Ethiopia by 1.58% at five percent level of significance which is consistent with Awan et al.(2015) finding *i.e.* one percent increase in exchange rate causes 1.0716 percent increase in external debt burden of Malasia.

The coefficient value of co-integression equation (CointEq (-1)) in the above table shows the coefficient value of ECT which is -1.265014 and statistically significant at one percent level of significance. The negative sign shows that the model is convergent towards equilibrium, whereas the value shows the adjustment speed of the model toward equilibrium. It means that the adjustment speed of previous year¢s disequilibrium to current year equilibrium is about 126%.

Table 4.5 Long run estimation result

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|----------|-------------|------------|-------------|-------|
| INR | -0.181366 | 0.084668 | -2.142080 | 0.0554*** |
| LNPBDNGDPD | 1.001689 | 0.329390 | 3.041043 | 0.0112** |
| LNERD | -0.379554 | 0.758016 | -0.500721 | 0.6264 |
| LNEMNGDPD | -2.543922 | 0.842602 | -3.019126 | 0.0117** |
| LNSNGDPD | 1.336253 | 0.613192 | 2.179176 | 0.0519*** |
| C | 0.170293 | 0.131344 | 1.296541 | 0.2213 |
| @TREND | 0.011489 | 0.007011 | 1.638557 | 0.1296 |

*Source: Authors computation by eviews nine*, 2018

As the study show, in long run, exchange rate is statistically insignificant. Primary budget deficit is positively related to external debt, and resource balance (net export) is negatively related to external debt of Ethiopia and statistically significant at 5% level of significance. While inflation rate and gross domestic saving are statistically significant at 10% level of significance in long run.

In this model one percent increase in primary budget deficit increases Ethiopian external debt burden by 1.0016 percent. This is consistent with Awen et al. (2016) finding that is one percent increase in fiscal deficit causes 0.39539 percent increase in external debt in Malasia. Similarly, one percent increase in resource balance decreases external debt by 2.54 percent, other thing being unchanged. This may imply the resource imbalance in the study period occurred due to the importing of capital goods during this study time which are more productive, and has higher return by which it can cover cost of importing. On the other hand it means that the resource imbalance created by this country during the study period is increasing income more than its cost by which a country is able to reduce external debt burden.

One unit increase in inflation rate decreases the external debt of Ethiopia by 0.181366 percent in the study years. This may be due to the government is obtaining higher revenue during higher inflation. One system of rising domestic government revenue in Ethiopia is Value Added Tax (VAT). During inflationary period this system of taxation (VAT) rises as value of a produced product rises (inflationary period) which enables the government to collect higher revenue. This raises the domestic revenue of Ethiopian government and may reduce the demand of external borrowing.

Saving as share GDP is positively related to external debt of Ethiopia as share of GDP. One percent increase of saving as share GDP increases Ethiopian external debt to GDP ratio by 1.336253 percent. This is inconsistent with theoretical literature. It implies the country saving is being invested on inefficient and less productive investment which may not support

growth. This situation agrees with Ramakrishna (2002) study finding. As his finding shows investments have negative impacts on economic growth of Ethiopia except in agricultural sector and this finding results support the efficient investment utilizations for Ethiopia. Tiruneh (2004) found the demand for overseas borrowing was determined mainly by sluggish economic growth.

Therefore, we can conclude, this may show as the countryøs saving is being invested on inefficient investment in which its return is low and low return from investment leads low (sluggish) growth which further increases overseas borrowing due to this sluggish growth.

Exchange rate is negatively related to external debt as share of GDP in Ethiopia but statistically insignificant. This is in line with the finding of Al-Fawwaz(2016). This researcher found negative effect of exchange rate on external debt of Jordan but statistically insignificant in long run.

## 5. CONCLUSION AND POLICY IMPLICATIONS

The study attempted to examine the macroeconomic determinants of external debt of Ethiopia using time series data from 1981 to 2016. The external debt in Ethiopia is increasing yearly which is not good for economic growth owning debt overhang and crowding out effect. For analysis of long run and short run relationship among variables, ARDL bound test and error correction term (ECT) were used as econometrics tools. The bound test result depicted the existence of long run relationship among the series. As error correction model revealed in short run inflation rate, primary budget deficit as ratio of GDP and exchange rate are statistically significant which mainly determines Ethiopian external debt whereas domestic saving and resource balance (net export) is insignificant. Inflation rate is negatively related to Ethiopian External debt while primary budget deficit and exchange rate are positively related to Ethiopian external debt.

In long run inflation rate, primary budget deficit as ratio of GDP, domestic saving as share of GDP and resource balance as ratio of GDP are the major variables determining external debt in Ethiopia and statistically significant. Primary budget deficit as share of GDP and domestic saving as share of GDP have positive impact on external debt of Ethiopia whereas inflation rate and resource balance(net export) have negative impact on Ethiopian external debt and statistically significant. And exchange rate is negatively related to external debt but statistically insignificant.

The Ethiopian government should resort to Equity finance for development than financing deficit through external debt. In the case of external debt financing, debtor must repay the face value of the loan plus interest regardless of its own economic circumstances. But equity finance that is foreign direct investment and portfolio purchases of stock shares are less vulnerable to debt distress in developing country. Equity rather than debt financing of its investments therefore leaves a developing country much less vulnerable to the risk of a foreign lending crisis (Krugman, et al., 2012, p.630). Thus foreign direct investment and portfolio investment can reduce external debt of Ethiopia and its risk of distress.
   o   Government should reduce its budget deficit

- o Suitable exchange rate policy should be devised to minimize the external debt burden and adopt it as policies that enhance the exports of country and reduce imports of luxuries items.
- o Investment on efficient capital should be encouraged in this country.

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