

# The Impact Of Public External Debt On Economic Growth Of Ethiopia

Mohammed Endris Awol

Ethio shop supervisor in ethio telecom,  
Ethiopia, PH:+251-920 06 0000  
[muha.fet@email.com](mailto:muha.fet@email.com)

**Abstract:** This study attempted to assess the impact of public external debt stock on economic growth of Ethiopia over the year from 1971 to 2018. Particularly, the study sought to answer whether public external debt stock and debt servicing has any significant impact on real GDP, the trends of public external debt stock and external debt repayment and this study also investigated the directional relationship between public external debt and real GDP of the country. The data used for this study was gathered from World Bank, world development indicator, international monetary fund, national bank of Ethiopia, ministry of finance and economic development and united nation conference for trade and development. The study was conducted by using Eviews 11 statistical software and employed Auto regressive distributed lag (ARDL) approach to real GDP data as a function of stock of public external debt, public external debt servicing, fixed capital formation, inflation rate, export, real effective exchange rate and trade openness. The empirical finding result from the study revealed that public external debt stock has an adverse significant impact to economic growth of Ethiopia both in the long run and short run with a coefficient of 0.133 and 0.050 respectively, which possess a greater challenge for the growth of a country. While public external debt servicing has positive significant impact to real GDP both in short run and long run with a positive coefficient of 0.0433 and 0.1356 respectively. On the other hand, the variable fixed capital formation, inflation rate, export and real effective exchange rate has positive significant impact to economic growth of Ethiopia. Thus, the study recommended that the government should minimize the reliance on external debt by diversifying the sources of finance through mobilizing its own resource domestically and enhance the exports of country and reduce imports of luxuries goods and also they should conduct those measures which minimize fiscal deficit so as to tackling the problem of severe external debt burden. The government should place an embargo on further acquisition of public external finance, except for top priority projects public external debt should use wisely and effectively in attention with the country's short-run and long run macroeconomic conditions.

**Keywords:** Public External debt stock, Public External debt servicing, Economic Growth

## 1. Introduction

Sustainable economic growth is the dominant concern of all economies, especially for developing nation's economy that commonly face fiscal deficit mainly driven by inelastic current expenditure. Even though, LDCs strive for higher economic growth trajectory, but given higher fiscal imbalances, they find it difficult to generate investment that can help to economic progress. Therefore, these economies become depend up on a huge foreign borrowing that leads to substantial public external debt accumulation over time [1]. The occurrence of deficit in Sub Saharan Africa countries in the post global financial crises period leads to weaken currencies value, rising the borrowing cost, along with imbalance growth perspective are creating perverse dynamics of public external debt accumulation that might jeopardize public debt sustainability. Larger fiscal deficit is contributing for a current rising public debt level in the region, among other factors. From the year 2013, the dynamics and composition of public debt changed in significant manner. Public debt raised on average from 37% of GDP in 2013 to 56% of GDP in the year 2016. Debt sustainability risk in the nations of this region increase over the past few years, with 18 countries at high risk of debt distress as March of 2018 compared with 8 countries in 2013 [2]. Debt service on the other hand, showed a negative impact with the economic growth of a country. The more the external debt payments, the lesser will be funds rose for public services such as the construction of roads, hospitals, schools and new business opportunities in the long run. It is not surprising to face this result since external debt servicing requires the outflow of financial resources in terms of foreign currencies which is already extremely less in supply. Even though, the debt stock has a significant strong positive

relationship with GDP growth, the debt burden of a country and the consequent debt service impose a constraint on the economy. This is due to insufficient foreign exchange to finance imports of raw materials and capital goods needed for economic growth in the long run as well the debt stock may act as a tax on future income and production and may discourage investment by the private sector in the future [3].

## 2. Statement of the problem

A country is seen as in a high risk of debt distress when it struggling to service its debt. Even though borrowing is usually seen as the prerequisite for economic growth, unsustainable external debt results a significant risk on global commitments to eradicate poverty and sustainable development. Unstable public external debt burden forced the government to spend more on debt servicing and less in health services, education and infrastructure. High debt burden also creates uncertainty, retarding investment and innovation [4]. Ethiopia was under a serious external debt problem until 1990 as shown by the qualitative and quantitative analysis. This was affected her good name and access from external concessional borrowing window were totally closed. There was debt overhanging, crowding out and liquidity problem born out fragile state followed by Dergue regime that was characterized by large borrowing from multilateral, bi lateral and commercial creditors to finance war and unstable macroeconomic policy (Teklu et al. 2014). As 2017 debt sustainability assessment, debt service to export ratio shows a breach, which is more persistent and larger than the year 2016. The ratio exceeds the threshold in 2018/19 and reaches the peak point in the future [5]. In fact, there have been attempts by the previous researchers on the same topic in Ethiopia. However, most of the studies

conducted in Ethiopia have the following limitations. First, they did not separate total external debt in to private and public external debt, in a real case splitting external debt is crucial since their transmission channel are different in saddling an impact on economic growth. Second methodological limitation observed in the thesis conducted by Hana [6] on the impact of external debt on economic growth of Ethiopia independently by using simple ordinary least square (OLS) for method of analysis in which the result may not valid or spurious even if it showed significant impact. Third most of the previous researcher uses co integration method of analysis. Even though this technique is widely used for time series data, its result is unreliable for small sample size [7]. The other limitations of this model are related with the use of Johnson procedure of co integration analysis that has a high probability of generating outliers, as well as high variance [8].

### 3. Literature Review

#### 3.1 Theoretical Literature

According to World Bank, external debt can be defined as “the sum of obligation arising from the agreement and requirement to repay the principal with or without interest, or the interest with or without capital for the debts which should be repaid by residents in a country to non-residents in a country, which they have borrowed and have not repaid yet [9].” External debt defined as a transfer flows which are generally obtained from the external sources of finance. This results an increasing effect on the national income of a nation during the time of borrowing and a decreasing effect during the time of servicing the debt. It is financing resources which are mostly used by developing countries than the advanced countries. They are applied in facilitating growth and development of nation’s economy. Particularly developing nation borrow due to lack of national resource, high level of deficit, lack of saving and deficit in balance of payment [10].

##### 3.1.1 Keynesian Theory of Public debt

An economic crisis created by the great depression of 1930 was partly laid an impact for the development modern theory of public debt. As per Keynes postulate, there were unemployed resources which the private sector could not use, these resources can be used to balance budget. According to his view an increase in public debt through a multiple impact would raise the national income. He linked the public debt with deficit financing and an authorized government can borrow to boost the economy output by increasing demand and employment level. According to Precious, argued that a rise on the government debt is a burden on the country’s economy. In addition, an expansionary fiscal shock is due to increasing government spending, this increment in government spending results on the contraction of public debt, if the collected revenue fails to meet the expenditure. At the end this scenario raises the country’s demand of goods and services, since more money in the economy is prevail [11].

##### 3.1.2 Ricardian theory of Public debt

David Ricardo assessed the impacts of the tax burden resulting from public debt. Ricardo also examined the problem of public debt from the perspective of its impact on capital stock and its rate of growth. He shared the widespread anxiety in which capital might drive abroad by a

tax burden made increasingly onerous due to the need to service the public debt. Ricardo therefore recommended that public debt redeemed in order to deter capital flight. With the concern of capital accumulation Ricardo justified tax financing of government expenditure in preference to public loans. Public borrowing harmed capital by misleading the population as to the extent of government wastefully and as to the extent of their own personal wealth. As per Ricardo’s view, tax and loan are source of financing to government expenditure, but they were not equivalent in a practical context, the choice of which of them to employ would have various implications for the level of investment and thus the growth rate of capital. If a taxpayer did not properly calculate the future tax burden implied by public borrowing, he will not recognize the necessity to invest at the time the borrowing takes place in order to ensure a future return to meet his future tax liability. Therefore, the level of investment is lower than it would be needed to pay the tax. Generally, Ricardo made two related policy implication. First, with the absence any means of source of finance the government expenditure must be filled by source of borrowing. Second, sound and effective action should be undertaken immediately to redeem existing public debt [12]. Ricardian equivalence theory is that the level of government external debt is not as such important and does not have any impact on the economy. This theory states that public debt did not influence consumption level, capital including the growth of an economy; if government decrease taxes now, society should know that taxes would be raise in the future. Therefore, the people would not consume more but they would be saved more in order to pay the future tax rate and the budget deficit will coincide with an increase in private saving. Things became different in the long run, if this theory does not hold, the reduction of public savings brought about by a huge budget deficit will not be fully compensated by an increase in private savings. As a result, total national savings will decline, resulting in lower total investment, either domestic or foreign. Lower investment at home will have a negative effect on the growth of an economy since it will lead to a smaller capital formation, higher interest rate, lower labor productivity and wages. Lower foreign direct investment or higher capital flight instead, will leads to a negative significant impact on foreign capital income and will thus lower the country’s future GNP. This negative impact of an increase in public debt on future economic growth or GNP can be revealed by the presence of distortion in the taxes [13].

##### 3.1.3 The conventional view

Elmendorf & Mankiw, have published the working paper named Government Debt, in this paper they have analyzed about the conventional view. They describe it as the approach agreed by the majority of economists and policymakers. The analysis of this view is depending on the assumption that tax reduction is equal with the increase in debt. In the short run, economists agree that lower taxes result the increase in households’ disposable income as well as consumption. As per Keynesian theory, the higher aggregate demand increases national income. Keeping both prices and wages constant, higher demand affects the production of a nation. Therefore, government will raise deficit by the tax cut or increasing government spending. To sum up, fiscal policy can affect the national income of a country merely by changing the supply of factors of production [13].

## 3.2 Empirical Literature review

### 3.2.1 Cross country studies

Naeem Akram, had done a research on the nexus between public debt and economic growth of Asian countries by using generalized moment method (GMM) analysis. In doing so, external debt as percentage of GDP and debt servicing as a percentage of GDP has a negative significant impact on the growth of Asian economy [14].

Abu Siddique, investigated the impact of external debt on economic growth of 40 highly indebted poor countries by using panel data over the period of 1970 to 2007 and apply Autoregressive distributed lag method of data analysis. The study showed that the variable external debt has a negative significant impact on economic growth both in the long run and the short run in the three sets of alternatives pooled estimates; namely, the mean group (MG), the pooled mean group (PMG) and the dynamic fixed effect estimation. This implies, having higher level of debt as a proportion of GDP would have decreased the level of GDP in HIPC's [15].

Amilkar, tried to analyze empirically the impact of external debt on economic growth across the varying level of public debt to GDP ratio for 20 advanced countries over the period from 1946 to 2009. The study employed OLS method of data analysis and from the regression analysis public debt has adverse significant impact on economic growth of advanced economy [16].

### 3.2.2 Single country studies

Abula and Ben-Daddy, investigated the impact of public debt stock on Nigerian economy by using over the time spanning from 1986 to 2014. The study applied the Johansen co-integration test, Error Correction Method (ECM) and the Granger Causality test. Co-integration results declared that the existence of a long-run relationship between the variables; external debt, domestic debt, external debt servicing, domestic debt servicing and economic development in Nigeria. Out come from ECM revealed that stock of external debt and servicing of it have negative insignificant relationship with Nigerian economy [17]. An empirical finding by David and Etido, assessed the impact of external debt on growth of Nigeria. The study employed OLS and co integration and ECM model for the period from 1980 to 2012. The result from ECM model showed that the coefficient of external debt flow was leads to a reduction on economic growth. That means the current debt flow deter the growth of the economy in the short run. As per this model, the external debt stock affect positively to economic growth in Nigeria. Contrary to the ECM method the OLS regression model revealed that past debt stock has a significant negative impact on GDP. The result is in line with the priori theoretical expectation and indicates the debt overhang problem. Debt service rate has negative significant impact on GDP [18]. Onakoya and Ogunade, have assessed the link between external debt and growth in Nigeria. The research applied Autoregressive distributed lag (ARDL) model to analyze the data covering from 1981 to 2014. The result showed that external debt as well as debt servicing did not have any significant impact both in the short run and in long run on economic growth of Nigeria [19]. Paul, investigated the impact of external debt on economic growth in emerging economy evidence from Nigeria. The study employed OLS regression technique and use the variable GDP, external debt stock, external debt servicing, external reserve and exchange rate. The result declared that debt stock has significant

positive impact in the long run, but debt servicing has negative and insignificant impact on economic growth. The Granger causality test revealed that there exists unidirectional causation between GDP and external debt stock [20]. A similar investigation was done by Ajayi, on the effect of external debt on Nigerian economy. The study was adopted OLS techniques and the result stated that external debt lay down an adverse effect on nation's income and per capita income of the country. External debt servicing and interest rate has also positive significant impact on economic growth of the nation [21]. Aderoju, also had done a study on the relationship between external debt, debt servicing and internal debt in case of Nigerian economic service provision. The researcher adopted OLS method to analyze the collected data. The empirical finding revealed that external debt and debt servicing had an adverse relationship with economic service provisioning or spending by the government. On the other hand, internal debt had inversely related to economic service spending [22]. A study by Kumar, also examined the macroeconomic impact of stock of public debt in India using a Structural Vector Auto regression (SVAR) technique for the period from 1980 to 2017. The variable used on this study was public debt, economic growth, investment, interest rate and inflation in India. The results confirmed that public debt has an adverse effect on economic growth, a positive impact on long-term interest rate and a mixed response on investment and inflation in India. It is also stated that the domestic debt stock had adverse effect on Indian economy than external debt. The finding from variance decomposition analysis revealed that much of the variations among selected macro variables are explained by public debt and growth in India [23].

### Empirical study in Ethiopia

Dagnachew, had tried to explore the extent and to assess critically and ascertained the causality linkage of public external debt that retard the ongoing GDP growth and development of Ethiopia. The Researcher used annual time series data spanning from 1970 to 2016. The researcher applied co integration method and Granger causality approaches to analyze the collected data. The finding of the analysis declared that, the economic growth equation shows that external debt stock was found not insignificantly effect to economic growth in Ethiopia. In addition, the granger causality approach also indicated that there is no bidirectional causation between external debt and GDP [24].

Akashaya, had investigated the impact of external debt on economic growth in Ethiopia over the period 1981 to 2014. The researcher used as explained variable real GDP Growth rate and control variables external debt stock to GDP ratio, external debt service to export ratio, gross domestic investment to GDP ratio, human capital proxies by educational spending to GDP ratio, labor force as a share total population and openness as factors used for the assessment of economic growth of Ethiopia. The study used VECM and co integration approach to estimate the mention variable. The empirical result suggested that there exists a long run relationship between external debt stock and GDP Growth in Ethiopia and revealed that external debt stock contributes directly (positively) to the economic growth of Ethiopia [25].

Amsalu, also explored the function of debt (both external debt stock and service) on economic growth in Ethiopia covering a period of about 35 years spanning from 1981 to



2015 by using Johansen co-integration test and VECM. The study also employed Granger causality test to check the direction of the causation. The result of co integration test using Johansen maximum likelihood technique revealed the presence of multiple long run relationship between the debt variables and GDP growth. The empirical estimation from the Growth equation confirmed that external debt stock has a significant and positive long run relation to Ethiopian economy as measured by the real GDP but for squaring it has significant and adverse relation with the GDP suggesting that there exists a nonlinear linkage and it has a positive contribution only up to some maximum level. External debt servicing on the other hand, has significant and negative effect to the long run GDP growth of the country [26].

## 4. METHODOLOGY

### 4.1 Data type and Collection Method

To analyze the impact of public external debt on economic growth of Ethiopia, secondary time series data is used covering a period from 1971 to 2018. The required data for the study area would collected from National Bank of Ethiopia (NBE), ministry of finance and economic development (MOFED), international monetary fund (IMF), World Bank (WB), world development indicator (WDI) and united nation conference for trade and development (UNCTAD).

### 3.2 Methods of Data analysis

Both descriptive and econometric method of data analysis is used. The study is explored the co-integration and long run relationship between the variables through Autoregressive Distributed Lag (ARDL) or Bound Test approach. Furthermore, the causal relationships among the variables are checked via Granger causality test method. The econometric part analyzed by using the latest version of Eviews versions 11 statistical software packages.

### Functional relationship and Model specification

According to Sala-i-Martin (1997) suggested that, economic theories are not enough to identify the explanatory variables that determine economic growth of a nation. As a result, the researcher proposed a cross-sectional econometrics model as follow;

$$\gamma = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \dots + \beta_n x_n + \varepsilon \text{ --- (4.1)}$$

Where,  $\gamma$  represent a vector of economic growth rate  $\alpha$  denotes the constant (intercept)  $\beta_1, \beta_2, \beta_3, \dots, \beta_n$  represents the coefficients and  $x_1, x_2, x_3, \dots, x_n$  denotes a vector of potential explanatory variables which is vary from the study to study.

Thus, economic growth of a nation does not only depend on the above-mentioned variables (physical capital, labor force, technological progress and human capital) rather there are other variables that determine GDP.

this thesis tried to adopt the autoregressive distributed lag (ARDL) method of data estimation to explore the impact of public external debt on economic growth of Ethiopia. Therefore, the researcher included explanatory variables such as; public external debt stock (PED), public external debt servicing (PEDS), capital stock or fixed capital formation (K), inflation (INF), Export (EXP), real effective exchange rate (REER) and trade openness (TOP) on the above GDP model. Mathematically it can be written as;

$$GDP = f(PED, PEDS, INF, EXP, REER, TOP) \text{ --- (4.2)}$$

Thus, the above theoretical relationship can be empirically modeled by incorporating the error term via regression equation can be stated as;

$$\begin{aligned} \ln rGDP_t = & \beta_0 + \beta_1 \ln PED_t + \beta_2 \ln PEDS_t + \beta_3 \ln K_t \\ & + \beta_4 \ln INF_t + \beta_5 \ln EXP_t + \beta_6 \ln REER_t \\ & + \beta_7 TOP_t + U_t \text{ --- (4.3)} \end{aligned}$$

Where:

$\beta_0, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7$  denotes the parameter or coefficients used to estimate the model

$rGDP_t$  : Real GDP at time t,

$PED_t$  : Public external debt stock at period t,

$PEDS_t$ : Public external debt servicing at time t,

$K_t$  : Capital stock at period t,

$INF_t$  : Inflation rate at time t,

$EXP_t$  : Export at time t,

$REER_t$  : Real effective exchange rate at period t,

$TOP_t$  : Trade openness at time t.

$U_t$  : Stochastic or error term at time t.

$\ln$  : Natural logarithm

### Autoregressive Distributed Lag (ARDL) Model

Most of the study that has been done in the past are adopted the VECM, Johnson co integration, VAR and Granger causality techniques. However, these approaches could not have a valid outcome in small sample size [27]. Hence autoregressive distributed lag (ARDL) method of co integration has more applicable than Johnson co integration model.

The reasons for using ARDL model are as follows:

- It does not require all variables to be integrated of the same order I (1) as the Engle granger and Johnson co-integration approach and it is still applicable irrespective of whether the underlying regressors are purely I (0), I (1) or mutually co integrated.
- It is simple, allowing co integration relationship once the lag order of the model is identified.
- It does not consider the problems arising from the different order of integration of the variables.
- The test is relatively more efficient in small samples or finite sample data sizes.

### Long run co integration Error correction model and diagnostic test

After checking the co integration relationship among the variables and estimating the long run model, next step is to estimate the short run dynamic parameters and the adjustment coefficient that measure the speed of adjustment the equilibrium after a short term shocks by using the VEC model. The standard error correction model can be written as follows:

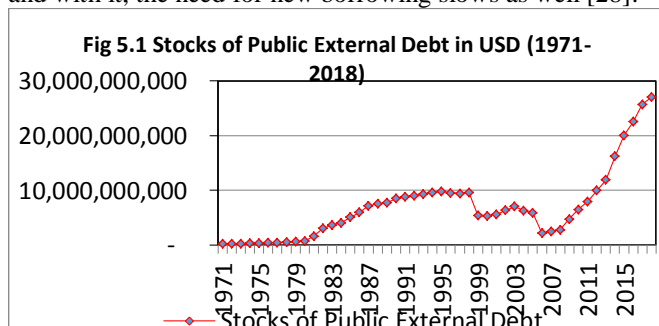
$$\begin{aligned} \Delta \ln rGDP_t = & \beta_0 + \sum_{j=0}^n \beta_{1j} \Delta \ln PED_{t-j} + \sum_{j=0}^n \beta_{3j} \Delta \ln PEDS_{t-j} \\ & + \sum_{j=0}^n \beta_{2j} \Delta \ln K_{t-j} + \sum_{j=0}^n \beta_{4j} \Delta \ln INF_{t-j} \\ & + \sum_{j=0}^n \beta_{5j} \Delta \ln EXP_{t-j} + \sum_{j=0}^n \beta_{6j} \Delta REER_{t-j} \\ & + \sum_{j=0}^n \beta_{7j} \Delta TOP_{t-j} + \delta ECT_{t-1} + U_t \text{ --- (4.4)} \end{aligned}$$

$\beta_{1j}, \beta_{2j}, \beta_{3j}, \beta_{4j}, \beta_{5j}, \beta_{6j}$  and  $\beta_{7j}$ , are Coefficients that represents the short run dynamics of the model,  $ECT_{t-1}$ , is error correction term lagged by one period,  $\delta_i$  is error correction parameter that measure the speed of adjustment towards the long run equilibrium after a short-run disturbance.

## 5. DATA ANALYSIS AND DISCUSSION

### 5.1 Trends of public external debt and public external debt servicing

The present value of total public debt stays well below the indicative threshold of 56% of GDP in the baseline and under most scenarios considered throughout the projection period. The only alternative scenario where a breach occurs is under the assumption of a primary fiscal balance throughout the simulation horizon fixed at its 2017/18 level. However, the baseline assumes a gradual increase in domestic interest rates to achieve positive real interest rates by the end of the DSA projection window. As a result, the primary balance in the baseline increases gradually over time, as fiscal policy accommodates the increased financing costs. In contrast, the fixed primary balance scenario implies a gradual widening of the fiscal deficit, contrary to the authorities' policy intentions and past record of prudent budgetary policy. All indicators also show a declining trend after 2025/26 as public investment tapers off with the completion of the large projects planned under the GTP II, and with it, the need for new borrowing slows as well [28].



Source: World Bank, 2020

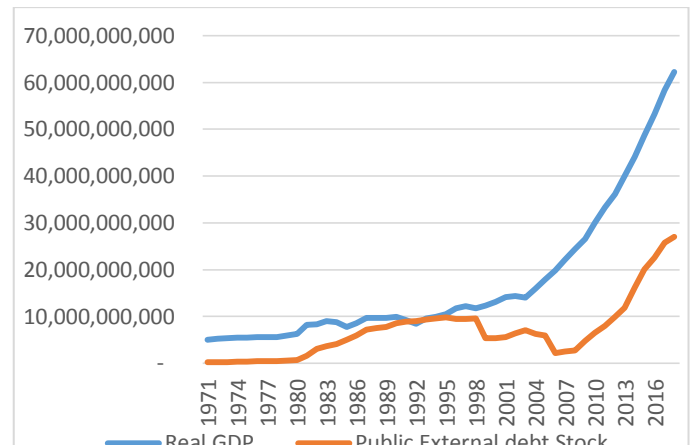
The fig 5.1 shows that, there was a sharp decline in the public external debt stock from the year 1999 to 2007. This is due to the cancellation of public external debt to the poor countries and financial crisis at that time is another reason and together these led to a decline in the public external debt stock in 2006 and the improvement to GDP ratio and it declined to US\$ 2.2 Billion (14.4% of GDP). However, the public external debt stock has continued to increase time to time despite the several debt cancellation and restructuring initiatives that the country has gone through due to higher borrowing by public enterprises. In 2018, this figure increased to US\$ 27.3 Billion as shown in the figure.

### 5.2 Trends of real GDP growth and public external debt in Ethiopia

Ethiopia is one of developing country in Africa and assisted its revenue through exports of primary commodities. Real GDP growth retarded in the year 2017/18, because of partly to civil unrest, political instability, and policy adjustments that involved fiscal consolidation to stabilize the public external debt. In attempting to support the available domestic resources, the former successive government obtained huge

amount of public external debt stock, which is used for financing the development of national project [29].

Figure 5.2 Trends of public external debt and economic growth



The above figure shows the relationship between real GDP and public external debt stock of Ethiopia over a period 1971 to 2018. Hence, there exist an increment in real GDP and public external debt stock. Ethiopia's impressive economic improvement recently has accompanied by social unrest and widespread demonstrations in the Oromia and Amhara regions. The demonstrations exposed deep-rooted developmental, social and political concerns with Ethiopia's state-driven model [30].

## 5.2 Econometrics Analysis

### 5.2.1 Unit root Test

Most of time series data exhibit trending behavior or non-stationary in the mean. Thus, investigating the existence of unit root is the main task for time series model. The existence of unit root indicates that the data is non-stationary while the absence of unit root revealed that the stochastic process is stationary. Therefore, the researcher has performed the test to examine the stationary of the time series data. The two most common trend removal or detrending procedures are first difference and time-trend regression. First difference is appropriate for I (1) time series and time-trend regression is appropriate for trend stationary I (0) time series. Unit root tests can be used to determine if trending data should be first differenced or regressed on deterministic functions of time to render the data stationary. Moreover, economic and finance theory often suggests that the existence of long-run equilibrium relationships among non-stationary time series variables. The implementation of unit root is critical in the ARDL procedure in order to ensure that the variables are integrated at I (0) and I (1). Augmented Dickey-Fuller (ADF) test and Philips-Peron (PP) unit root tests are used to check the order of integration among the variables. These tests are conducted for three alternative specifications: intercept (constant) only, intercept & trend and none (without trend and constant). See table 5.1

Table 4.2 ADF Unit root test

| Variable | ADF Test Spastics at level |                     |       | ADF Test Statistics at 1 <sup>st</sup> difference |                     |
|----------|----------------------------|---------------------|-------|---|---------------------|
|          | intercept                  | Trend and intercept | none  | intercept   | Trend and intercept |
| lnGDP    | 0.145                      | -1.379              | 1.52  | -2.48   | -4.51***            |
| lnPED    | -1.779                     | -1.689              | 1.62  | -4.72***  | -4.75***            |
| lnPDS    | -0.167                     | -1.311              | 1.89  | -6.76***  | -6.76***            |
| lnK      | 1.506                      | -1.113              | 3.01  | -7.31***  | -8.43***            |
| INF      | -5.35***                   | -5.40***            | -1.32 | -9.47***  | -9.36***            |
| lnEXP    | -0.059                     | -3.507*             | 1.35  | -12.6***  | -12.25***           |
| REER     | -3.211**                   | -3.408*             | -0.55 | -9.43***  | -9.329***           |
| TOP      | -1.854                     | -2.224              | 0.33  | -7.35***  | -7.35***            |

| Critical values | Mac Kinnon Critical values |      | trend and |
|-----------------|----------------------------|------|-----------|
|                 | With intercept             | None |           |
| 1%              | -3.588<br>-2.618           |      | -4.181    |
| 5%              | 2.929<br>-1.948            |      | -3.515    |
| 10%             | 2.603<br>-1.612            |      | -3.188    |

Note that: \*\*\*, \*\* and \* indicate the rejection of a null hypothesis of non-stationary at 1%, 5% and 10% of significance level, respectively. Akaike information criterion (AIC) is used to determine the lag length.

Source: - Output from Eviews 11, 2020

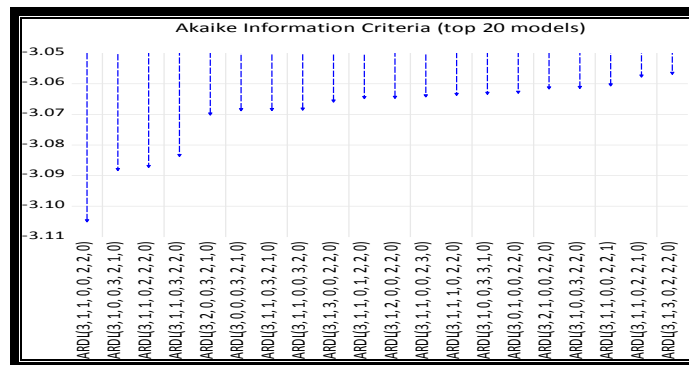
The decision rule of the above table is based on ADF critical values. The output from ADF unit root test revealed that inflation rate (INF) is stationary at level with intercept only and trend & intercept at all level of significance. Real effective exchange rate (REER) and export (lnEXP) are also stationary at zero lag with intercept or trend and intercept at 5% and 10% significance level respectively. The remaining variables are stationary at their first difference. In other word none of the variables are stationary at their second difference rather those variables are a mixture of I (0) and I (1) such ADF test justified that using ARDL approach (bound test approach of co-integration) is appropriate.

5.2.2 ARDL Model Lag length selection criteria

The issue of finding an appropriate lag length for each of the underlying variables in the ARDL model is very important. In this study Akaike information criterion (AIC) is conducted to determine the optimal lag length of each variable automatically because it is a better choice for small sample size data. Moreover, according to Pesaran and Shin (1999), for the annual time series data a maximum lag length is recommended to choose the optimal lag for each variable. Therefore, in this paper a maximum lag length of 3 was chosen for the given ARDL model. Finally, in this model,

AIC selects the optimal lag length of each variable (lnrGDP, lnPED, lnPEDS, lnK, INF, lnEXP, REER, TOP), respectively and it is ARDL (3,1,1,0,0,2,2,0). This determination of the lag length is helpful to get the valid result and inferences.

Figure 5.3 Optimal lag length for each variables



Source: output from Eviews 11, 2020

5.2.3 Estimation Result and Discussion

The preceding task in the ARDL approach to Co-integration is to test whether the presence of Co-integration or long run relationship among the variables or not. As showed in the ADF test statistics, the variables those had been included in real GDP model are making their stationary both at the level I (0) and at the first difference I (1). The Bound test for co-integration is run to investigate the joint significant of the coefficients in the specified conditional ARDL approach model. Under this study the bound test for all variables are tested, with the null hypothesis of no co-integration against the alternative of co-integration. Thus, the decision rule to accept the null hypothesis (no co-integration) is, if the calculated F-statistics is found to be less or lower than the upper and lower bound critical values. Conversely, we reject the null hypothesis, if the F-statistics is greater than the upper bound and lower bound critical values, and we can conclude that there is co-integration (long run relationship) among the variables.

The result of bound test for spending effect model is summarized in the following table.

Table 5.2 Bound Test for Co-integration

ARDL Bounds Test  
Date: 11/30/19 Time: 11:01  
Sample: 1974 2018  
Null Hypothesis: No long-run relationships exist

| Test Statistic | Value    | k |
|----------------|----------|---|
| F-statistic    | 12.60098 | 7 |

| Critical Value Bounds |          |          |
|-----------------------|----------|----------|
| Significance          | I0 Bound | I1 Bound |
| 10%                   | 1.92     | 2.89     |
| 5%                    | 2.17     | 3.21     |

|      |      |      |
|------|------|------|
| 2.5% | 2.43 | 3.51 |
| 1%   | 2.73 | 3.90 |

Source: - Output from Eviews11, 2020

The result from the above table 5.2 revealed that the F-statistics value (12.60098) is above or greater than both the lower (I0 Bound) and the upper (I1 Bound) critical values at 1%, 2.5%, 5% and 10% level of significances. Therefore, we can reject the null hypothesis of no long run relationship among the variables instead we accept the alternatives of long run relationship or co-integration exists among the variable at all level of significance.

### 5.2.4 Long Run Estimation

Once we assured the existence of long run relationship or co-integration among the variables the next step will be estimating the long run relationship among log of real GDP, log of public external debt stock, log of public external debt servicing, log of capital stock, inflation rate, log of export, real effective exchange rate and trade openness. Then next critical step is estimating the long run coefficient of real GDP (lnrGDP) on its regressors. The result is reported as bellow;

As indicated on the table log of public external debt stock (lnPED) has highly significant negative impact on log of real GDP or economic growth of Ethiopia. The coefficient (-0.133) implies that a 1 percent increase in public external debt stock, holding other things remain constant, leads to a 0.133 percent decline in real GDP of Ethiopia in the long run. Moreover, this significant negative influence revealed that the greater the stock of public external debt, the more economic growth worsens. The inverse relationship between public external debt stock and real GDP is partly due to the use of public external borrowing on nonproductive activities as verified by the literatures. On the other hand, a greatest amount of public external debt is going to the repayment of past accumulated public external debt stock rather than boosting domestic investment. This result also in line with high public external debt stock is associated with low economic performance, as a higher tax burden on capital is needed to service the accumulated public debt. This scenario leads to a lower rate of return from capital resulted to lower investment, broaden the dead weight loss and finally lower economic growth

**Table 5.3 Long run coefficients of real GDP mode**

| Long Run Coefficients |             |            |             |           |
|-----------------------|-------------|------------|-------------|-----------|
| Variable              | Coefficient | Std. Error | t-Statistic | Prob.     |
| LNPED                 | -0.133195   | 0.031734   | -4.197194   | 0.0002*** |
| LNPEDS                | 0.135693    | 0.034598   | 3.921991    | 0.0005*** |
| LNK                   | 0.270006    | 0.049610   | 5.442543    | 0.0000*** |
| INF                   | 0.004925    | 0.001295   | 3.804835    | 0.0007*** |
| LNEXP                 | 0.534379    | 0.092677   | 5.766048    | 0.0000*** |
| REER                  | 0.003430    | 0.000466   | 7.352049    | 0.0000*** |
| TOP                   | -0.715845   | 0.809931   | -0.883835   | 0.3843    |
| C                     | 6.068001    | 0.784930   | 7.730622    | 0.0000*** |

Source: - Output from Eviews 11, 2020

Note: - The sign \*\*\* shows that significance of the coefficient at 1% level.

The coefficient of log of Public external debt servicing is positive and statistically significance as shown in the above table. The result revealed that public external debt service is fractions of scarce resources which are goes to for the repayment of foreign public debt payment that are not affect the development spending, hence economic growth. The coefficient of log public external debt servicing implies that keeping other factor constant a 1 percent increase in the variable leads to 0.136 percentage increase in real GDP of Ethiopia in the long run. As expected and supported by many theories fixed capital formation (lnK) has direct positive significant impact to economic growth of Ethiopia. As shown from table 5.3, other things remain the same a 1 percent increase in the capital stock leads to a 0.270 percent increase in real GDP. It is known that capital plays a significant role in modern productivity; production without capital is unthinkable or difficult for every nation. With the growth of technology and specialization, capital becomes more complex and advanced type. More goods are produced with the use of capital. The greatest productivity of advanced or developed nation is mainly due to extensive use of capital. A raise in capital investment is likely to increase labor productivity if it promotes technological progress. This leads to an increase in aggregate output that results an improvement in real GDP of the economy.

Inconsistent with the prior expectation inflation rate is significant positive impact to economic growth with a very little coefficient (0.004) which is nearly zero thus, other things being equal a 1 percent increase in inflation rate leads to 0.04 percent increases in the real GDP of Ethiopia in the long run.

The variable log export (lnEXP) is one of the main deterministic factors that influence real GDP. As a priori expectation and supported by many theories and empirical findings the coefficient of lnEXP is highly significant positive impact on economic growth of Ethiopia. A theory goes back to the Classical economies theory by Adam Smith and David Ricardo, who argued that international trade plays significant role in enhancing economic growth. It was also recognized that export filled the need of foreign exchange. Other things being constant a 1 percent increase in export leads to 0.534 percent increases in real GDP in the long run. In a similar fashion, real effective exchange rate (REER) has also positive significant impact to real GDP with a meager coefficient. Other things remain the same a 1 percent increase in real effective exchange rate leads to a 0.03 increase in real GDP. This implies that an increase in real effective exchange rate that is depreciation of Ethiopian birr promotes economic growth of Ethiopia through enhancing international competitiveness. This result is also in line with the traditional view of exchange rate. This approach states that depreciation has expansionary effect on economic growth through aggregate demand channel. It means that depreciation of currency will make domestic goods relatively cheaper in international market and this will improve export performance that leads to in correcting the difficulties of balance of payment which finally promote economic growth of Ethiopia.

In the above real GDP model the last variable but the result was not expected as actual is trade openness that is negative but insignificant impact to economic growth. A possible justification is that the country's export sector could not able to perform well during the period under study. As a result, the volume of import is excessively higher than the volume



of import. In addition, the large proportions of imports are containing consumer goods instead of capital goods and technologies. Thus, trade openness retard Ethiopian economic growth instead of supporting it.

**5.2.4 Short Run Dynamic Error Correction Estimates**

The included variables in the model are co-integrated in the long run, thus, it shows the existence of an error correction mechanism that bring together the long run linkage with its short run dynamic adjustment.

ARDL Error Correction Regression  
 Dependent Variable: D(LNRGDP)  
 Selected Model: ARDL(3, 1, 1, 0, 0, 2, 2, 0)  
 Date: 11/30/19 Time: 23:16  
 Sample: 1971 2018  
 Included observations: 45

ECM Regression

| Variable      | Coefficient | Std. Error | t-Statistic | Prob.     |
|---------------|-------------|------------|-------------|-----------|
| D(LNRGDP(-1)) | 0.391489    | 0.068950   | 5.677863    | 0.0000*** |
| D(LNRGDP(-2)) | -0.188142   | 0.058904   | -3.194067   | 0.0035*** |
| D(LNPED)      | -0.050126   | 0.023347   | -2.146976   | 0.0406**  |
| D(LNPEDS)     | 0.043361    | 0.019041   | 2.277255    | 0.0306**  |
| D(LNEXP)      | 0.202318    | 0.036391   | 5.559506    | 0.0000*** |
| D(LNEXP(-1))  | -0.155945   | 0.044915   | -3.471987   | 0.0017*** |
| D(REER)       | 0.000956    | 0.000169   | 5.652021    | 0.0000*** |
| D(REER(-1))   | -0.000667   | 0.000237   | -2.818385   | 0.0088*** |
| CoIntEq(-1)*  | -0.782871   | 0.064833   | -12.07524   | 0.0000*** |

|                    |          |                       |           |
|--------------------|----------|-----------------------|-----------|
| R-squared          | 0.909794 | Mean dependent var    | 0.070019  |
| R-squared          | 0.909794 | Mean dependent var    | 0.070019  |
| Adjusted R-squared | 0.889748 | S.D. dependent var    | 0.118242  |
| S.E. of regression | 0.039261 | Akaike info criterion | -3.460293 |
| Sum squared resid  | 0.055492 | Schwarz criterion     | -3.098961 |
| Log likelihood     | 86.85660 | Hannan-Quinn criter.  | -3.325592 |
| Durbin-Watson stat | 1.880113 |                       |           |
| Adjusted R-squared | 0.889748 | S.D. dependent var    | 0.118242  |
| S.E. of regression | 0.039261 | Akaike info criterion | -3.460293 |
| Sum squared resid  | 0.055492 | Schwarz criterion     | -3.098961 |
| Log likelihood     | 86.85660 | Hannan-Quinn criter.  | -3.325592 |
| Durbin-Watson stat | 1.880113 |                       |           |

Note: - the sign \*\*\* and \*\* indicates that 1% and 5% level of significance.

Source: - Output from Eviews 11, 2020

The above ARDL short run estimates shows that with consistent to the long run output public external debt stock is significant and negative impact to real GDP. A 1 percent increase in lnPED leads to 0.05 percentage decrease in the growth of a country in the short run. Similarly, public external debt servicing is also significant positive impact to real GDP. A 1 percent increases in lnPEDS results a 0.04 percent improvement on economic growth.

In the short run both the variable log of export and real effective exchange rate is positive and significant impact similar to the long run effects. The positive coefficient of export revealed that other things remain equal a 1 percent increase in lnEXP leads to 0.20 increase in economic growth of Ethiopia in the short run. An export is beneficial for an economy through allowing domestic producers to gain ownership advantage and develop low cost and enables to produce differentiated product. Real effective exchange rate

(REER) also has direct significant impact with a lowest coefficient 0.001 as shown on the above table 4.6.

Real gross domestic product, export and real effective exchange rate are affected by the lagged value of itself and the results are statically significant.

A pervasive parameter to note in the estimation of Error Correction model (ECM) is the coefficient of adjustment, which in this study, measures the speed of adjustment in the real GDP following a shock in the system. It can also be seen as a measure of the degree of adjustment of the actual real GDP with regard to its equilibrium level. As shown on the above table 5.4 the value, -0.7828, is ECM coefficient which shows how quickly variables converge to equilibrium from shocks. Thus, the output for real GDP shows that the expected negative sign of error correction is highly significant. This confirms the existence of long run relationship among the variables with their various significant lags. Approximately 78.28% of the disequilibrium from the previous year's shocks converges back to the long run equilibrium in the current year. The coefficients of the error correction term in the above table 5.4 shows that real GDP has the significant coefficient at 1% level, with a t-value of -12.075, and has a correct negative sign. This suggests that the real GDP equation constitutes the true co-integrating relationship.

**5.2.5 Long run Residual Diagnostics and Stability for real GDP model**

**5.2.5.1 Residual Diagnostics**

After estimation of the long run and short run model, deploying various diagnostic tests is a mandatory step in time series data. Diagnostic testing provides information regarding how these data might be modeled and in order to test the standard property of the model. In this study, diagnostic tests that would provide explanation for the existence of serial correlation (Brush and Godfrey LM test), functional misspecification test (Ramsey's RESET test), test for normality (Jaque-Bera test), heteroscedasticity (Breusch-Pagan-Godfrey test) and also CUMSUM recursive and CUMSUM square recursive residual tests are applied to test the overall stability of the long run and short run coefficients. I. Serial correlation test: is applied to test whether the residual is serially correlated or not. If the residual is not serially correlated our model is becoming the best model. Dissimilar the Durbin-Watson statistic for AR (1) errors, the serial correlation LM test could be used to test for higher order ARMA errors and is applicable whether there are lagged dependent variables or not. A generalization of this procedure that helps for testing of higher-order autoregressive disturbance is the LM test of Breusch pagan and Godfrey test. In this (LM test) the regression is augmented with p lagged residual series. The null hypothesis of the test is that there is no serial correlation in residuals up to the identified order against the alternative hypothesis and the decision rule is that accept the null hypothesis if F-calculated is less than F-tabulated however reject the null hypothesis if F-calculated higher than F-critical values. The result is summarized on bellow table.

A table 4.8 result indicates that the p-value is more than 5 percent; we can't reject the null hypothesis. Our null hypothesis is, there is no serial correlation. Therefore, the model is best model. Hence, the test accepts the hypothesis of no serial correlation up to order two, with a p value 0.804.



Where p is a pre-specified integer or no serial correlation between residuals based on the probability F statistic.

II. Heteroscedasticity Test: There are number of heteroscedasticity tests in order to check the problem of heteroscedasticity. For this study, we employ the brush

| Test   | Chi-Square     | P-value  |
|--|----------------|----------|
| Serial correlation   | 0.6883         | 0.8044   |
| Heteroscedasticity   | 0.5809         | 0.6643   |
| Normality  | Not applicable | 0.792136 |
| A. Lagrange multiplier test of residual serial correlation<br>B. Based on the regression of squared residuals on squared fitted values<br>C. Based on a test of skewness and kurtosis of residuals |                |          |

pagan Godfrey test of heteroscedasticity. This set of tests allows whether the residual is heteroscedasticity or not, that means to be a best model the residual must be homoscedasticity.

In the above table 5.5 result shows that the P-value is 0.664 which is more than 5 percent, meaning that we can't reject the null hypothesis. Our null hypothesis is that residual has not a problem of heteroscedasticity or the residual is homoscedastic. Therefore, our model is best.

III. Normality Test: this test is conducted to check whether the residuals are normally distributed or not by applying Jarque-Bera normality test. It is a goodness of fit that shows whether the data sample has skewness and kurtosis. This test is summarized in the bellow figure.

Output from the above table 4.8 shows that the P-value is 0.79 (79 percent), which is more than 5 percent, implies that

failing to reject the null hypothesis. Our null hypothesis is that the residuals are normally distributed. This means that the error terms are normally distribute with mean zero and constant variance and the relationship between the variables is confirmable.

**Table 4.8 Diagnostics test**

1. 4

**4.2.6.2 Stability Test**

Finally, to ensure that the model is stable or not and to check the functional form of the model we conducted the stability test.

- A. Ramsey RESET Test: this test helps us to check the functional form of our model which indicates whether the models are well constructed or not. The output from the bellow (table 4.9) shows that the P-value is 0.693 (69.3 percent) which is more than 5 percent. Hence, we can't reject the null hypothesis of Ramsey RESET test. The result revealed that the model did not have omitted variable bias and the models are well constructed. Moreover, with this value, the test result of F statistics reveals that fail to reject the null hypothesis. These stated that the error terms are normally and independently distributed with zero mean and constant variance and the researcher concluded that the model is stable.

Ramsey RESET Test

Equation: UNTITLED

Omitted Variables: Squares of fitted values

Specification: LNRGDP LNRGDP(-1) LNRGDP(-2) LNRGDP(-3) LNPED

LNPED(-1) LNPEDES LNPEDES(-1) LNK INF LNEXP LNEXP(-1) LNEXP(-2)

REER REER(-1) REER(-2) TOP C

|                  | Value    | Probability |
|------------------|----------|-------------|
| t-statistic      | 0.399188 | 0.6929      |
| F-statistic      | 0.159351 | 0.6929      |
| Likelihood ratio | 0.264805 | 0.6068      |

F-test summary:

|                  | Sum of Sq. | df | Mean Squares |
|------------------|------------|----|--------------|
| Test SSR         | 0.000326   | 1  | 0.000326     |
| Restricted SSR   | 0.055492   | 28 | 0.001982     |
| Unrestricted SSR | 0.055167   | 27 | 0.002043     |

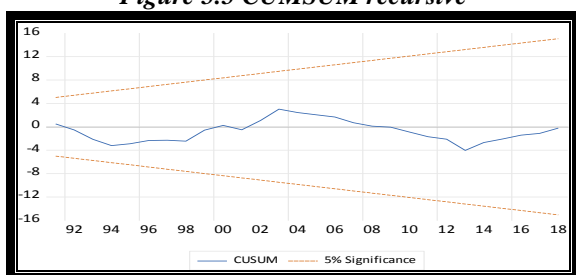
LR test summary:

|                   | Value    |
|-------------------|----------|
| Restricted LogL   | 86.85660 |
| Unrestricted LogL | 86.98900 |

Source: - Output from Eviews 11

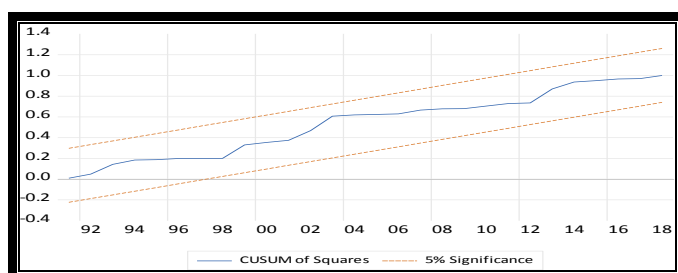
B. CUMSUM recursive and CUMSUM square recursive: To test a structural stability of the short run and long run relationship model, there are various tests based on recursive residual. The two most important common recursive residuals (CUMSUM) and cumulative sum of squares recursive residuals (CUMSUMSQ) which are recommended by (Pesaran and Shin, 1999, 2001). The CUMSUM test is conducted by plotting the sum of the recursive residual. If this sum goes outside the critical bound, we conclude that there was a structural break at the point at which the sum began its movement towards the bound. Hence, for the stability test the graph plots both the cumulative sum of residual with 5 percent critical lines. Moreover, if the cumulative sum remains inside between the two critical lines or bounds back after it is out of the boundary lines, the null hypothesis of correct specification of the model cannot be rejected. But, if the cumulative sum goes outside between the two critical bounds there exists series parameter instability problem. The straight lines represent critical bounds at 5% level of significance. This scenario is summarized on the bellow figure.

Figure 5.5 CUMSUM recursive



As depicted in the (figure 5.5) above, the plot of cumulative sum of recursive residuals graphical test of stability revealed by oscillation of the calculated statistics between the critical bounds at 5% level of significance and it is the indication of stable parameters under study. The CUMSUM of squares test is the same with the CUMSUM test, but plots the cumulative sum of squared recursive residuals, depicted as a fraction of these squared residuals summed over all observations. The straight lines represent critical bounds at 5% level of significance.

This is re plotted by the same pattern of the graph of cumulative sum of the squares of recursive residuals shown in the figure below.



Source: output from Eviews 11 software

The above graph shows that CUMSUMSQ stay within the lines, and, consequently, this confirms the equation is

correctly specified and the model is stable. Furthermore, the result indicates that there is no structural instability in the model during the sample period. Thus, one can conclude that long and short run estimates are quite stable and as well there is no any structural break as revealed from the results estimated model are efficient and reliable.

## 6. CONCLUSION AND RECOMMENDATION

### 6.1 Conclusion

The main aim of this study is to investigate the impact of public external debt stock on economic growth of Ethiopia for the period from 1971 to 2018. The major contribution of this investigation is that, unlike other previous researchers who used external debt at an aggregate level, this study has seen the separate impact of the government or public external debt. It is known that total external debt is the summation of private and public external debt.

The study tried to explore the profile of Ethiopian public external debt and the repayment profile by using descriptive statistics in the form of graphs and tables. And it sought to make a long-run relationship between public external debt stocked and public external debt servicing payment on economic growth in the country. The model adds other relevant time series variables such as fixed capital formation, inflation rate as a proxy of consumer price index, export of goods and services, real effective exchange rate (REER) and trade openness for empirical analysis. First of all, stationary of time series was tested by applying the Augmented Dickey-Fuller (ADF) and Philips- Perron (PP) unit root test. The variables are found to be mixture of integrated of order one and zero i.e.  $I(1)$  and  $I(0)$ .

In order to answer the objective of this study, the autoregressive distributive lag (ARDL) bound test modeling approach to co-integration, error correction model (ECM) and Eangle Granger causality test have been used. Based on the empirical analysis and findings, the following inferences are derived.

The empirical analysis output revealed that a significant negative long run impact exist between public external debt stock and economic growth, the adverse effect implies that, high level of public external debt stock poses a great challenge for the growth of a country. It is mainly due to improper use of this financial resource, used for nonproductive activities and the funds are not always associated with real productive sectors. On the other hand, a significant part of public external debt is deducting to repay previous other debts stock rather than to enhance capital investment in Ethiopia. Hence, higher tax burden on capital is required to repay this stock of public external debt, which results to a lower rate of return on capital, and hence lower investment and economic improvement in the country. Thus, reducing the stock of external debt is mandatory to maintain economic growth in Ethiopia.

Inconsistent with many studies, unexpectedly the coefficient of Public external debt servicing is positive and statistically significance. The result revealed that public external debt service is fractions of scarce resources which is goes to for the repayment of foreign public debt payment that are not affect the development spending, hence economic growth.

Moreover, capital stock or fixed capital formation has a direct positive significant impact to economic growth of Ethiopia. Capital plays a significant role in modern productivity; production without capital is unthinkable or difficult for every nation. With the growth of technology and specialization, capital becomes more complex and advanced type. More goods are produced with the use of capital. The greatest productivity of advanced or developed nation is mainly due to extensive use of capital. Inflation rate also has a positive significant impact with the smallest coefficient value which indicates a meager contribution to the economy of Ethiopia. Export exerts a direct significance positive effect to GDP of Ethiopia which is supported by many theories and empirical findings. It was also recognized that export filled the need of foreign exchange. The variable real effective exchange rate (REER) has positive significant impact to economic growth of Ethiopia. The positive direct effect is due to depreciation of currency will make domestic goods relatively cheaper in international market and this will improve export performance which leads to in correcting the difficulties of balance of payment which finally promote economic growth of Ethiopia. From this study the last explanatory variable is trade openness which has adverse insignificant effect on the growth of Ethiopia.

The short-run dynamic ARDL regression output also indicates that, the speed of adjustment of any disequilibrium towards long-run equilibrium or the equilibrium error correction coefficient found out (-0.7828) is highly significant which suggest that about 78.28 percent yearly adjustment towards long run equilibrium. It implies a very high speed of adjustment to equilibrium after a shock; highly significant error correction term further confirms the existence of a stable long run relationship.

Pair wise granger causality test result also shows that at lag length one there exist a bi directional causality between log of real GDP (lnrGDP) and log of stock of public external debt (lnPED). A unidirectional causation also found at lag length two between public external debt stock and economic growth of Ethiopia, but these variables has not any causal relationship at lag length three. Furthermore, public external debt servicing and economic growth has a unidirectional relationship at lag one. At lag length two and three the pair wise granger causality test revealed that public external debt servicing and real GDP has a bi directional causality.

## 6.2 Recommendation

Based on the major empirical finding, the researcher found overwhelming negative significant impact to economic growth of Ethiopia. This over growing accumulation of public external debt may leave the country to high debt distress or a high debt ratio region associated with a slower economic growth. Thus, this study suggests the following policy implications;

- ❖ Public external debt stock found to have negative impact on economic growth of Ethiopia implies that the country requires a better management of its public external debt obligations. The government should place an embargo on further acquisition of public external finance, except for top priority projects public external debt should be used wisely and effectively in attention with the country's short-run and long-run macroeconomic conditions.
- ❖ Dependence on external financial resource is both risky and unreliable thus, the government needs to mobilize its own resource domestically and need to design policies regarding to reducing its exposure to external debt stock in order to reduce its adverse impact on the economy.
- ❖ The government of Ethiopia should minimize the reliance on external borrowing by maximizing tax revenue collection through combating the illegal usage of taxes like tax avoidance and tax evasion in order to finance both recurrent and capital expenditure.
- ❖ The government of Ethiopia and policy makers to know the threshold level of public external debt is essential. This is due to reasonable public external borrowing can enhance economic growth through capital accumulation and improved productivity of the country.
- ❖ In order to reduce the public external debt burden, the policy makers should design those policies and strategies that enhance the exports of country and reduce imports of luxuries goods and also they should conduct those measures which minimize fiscal deficit so as to tackling the problem of severe external debt burden.
- ❖ The government should ensure economic, political stability and stop civil unrest in order to benefit from sustained foreign capital flows particularly foreign loans and foreign direct investments but debt burden should be made minimal.

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**Author 1** received the BA and MSC degrees in Economics from Dilla University in 2013 and 2020, respectively. During 2013 to 2015, he stayed in Ethiopian Revenue and Custom Authority (ERCA), from the year 2016 to 2022 he is working in ethiotelecom as a shop supervisor.