International Debts and Implications on Ghana's GDP Growth. Annual time series data (1980-2014)

Dr. Patrick K Ansah

Lecturer in Economics, Regent University College of Science and Technology Accra, P.O. Box DS 1636, Dansoman, Accra, Ghana.

ABSTRACT: Development projects are at the heart of government borrowing, with the goal of transforming the economy. However, excessive borrowing has resulted in a massive debt for Ghana. As a result, this research aims to examine, using annual time series data, the trends and effects of Ghana's external debt and service on GDP growth from 1980 to 2014. Aside from GDP, the variables that were analyzed included gross domestic investment, population, foreign direct investment, openness to trade, and the ratios of external debt to GDP and the percentage of GDP used to service that debt. Exogenous Solow growth models were used to examine the effects of external debt burden on GDP growth separately from those of the standard Solow growth model. Two different models are being used, one to look at what is causing an increase in the country's external debt and how that will affect GDP, and the other to look at how servicing that debt will affect GDP growth. OLS estimation method was used, backed by Bruesch-Godfrey test, Koenker-Basset (KB) test statistics, Cobb Douglass estimation function, and STATA statistical package (version 2012) for the regression analysis. Tests for autocorrelation and heteroscedasticity were passed by the models. For both models, the R2 value and F-statistic (Prob>F 0.000 is less than 0.05) indicate that the independent variables account for approximately 99.51 percent of the GDP variation. For the sake of comparison, we can see that all but one parameter in both models is statistically significant (the population coefficient in the second model). According to Simon (1987), Todaro and Smith (1990), and others, GDP and population (POP) have a positive and significant relationship, as do gross domestic investment (INV) (2012). Foreign direct investment (FDI), the external debt ratio (EXD), and the debt service on the country's external debt are all positive, as predicted a priori; however, all four of these variables are negative. Despite this, the coefficient of external debt to GDP is higher than the coefficient of debt service on external debt. An increase in external debt of 1 percent of GDP results in a 0.2285 percent reduction in GDP, whereas an increase in external debt servicing costs results in a 0.069669 percent reduction in GDP. This means that Ghana's external debt should be constantly monitored by the government, and debt should not be allowed to exceed a maximum limit in order to avoid overhanging debt. The government must properly monitor funds to ensure that they are used only for the intended purpose. As a second step, the government of Ghana should concentrate on other strategic economic areas. Because of their high multiplier effect, investments in infrastructure, agriculture, and other sectors should be prioritized. As a result, the total amount of debt owed will be reduced. Finally, Ghana's economy can't solely rely on its external, or foreign, debts, which are always a drag on growth. To determine whether or not they need additional financing, the government should compare their economy's health to fiscal discipline, which governs fiscal policy.

KEYWORDS: Gross Domestic Product (GDP), population growth, Foreign Direct Investment (FDI), External Debts, Growth and Trade Openness

1.1 The Background of the Research

All sources of revenue (taxes, printing money, and borrowing) are mobilized to invest in viable projects that will help boost economic growth and development in most developing countries. All countries, especially developing economies, have been concerned about sustainable growth, particularly in the face of burgeoning fiscal deficits, particularly external debt servicing and widening current account deficits. (Shabir 2009) Recently, external debt and growth have dominated discussion of economic issues. In developing countries, this is even more critical because they are constantly burdened by debts owed primarily to external sources. For countries, external debts are an important source of additional funding. The vast majority of developing countries lack the financial resources necessary to carry out their development plans. As a result, they turn to borrowing from outside

sources to cover their annual budget deficits (Agbemavor 2015). It is defined as the total public and private debt owed to non-resident creditors, which can be repaid either in foreign currency, commodities, or services.

According to economic theory, countries in the early stages of economic growth can benefit from a moderate level of borrowing. External borrowing will speed up economic growth because their capital and investment stock is insufficient at this early stage to support higher levels of economic growth. It is argued that external debt, when used to finance budget deficits, may not be an answer but a problem in its own right. To service the debt, external loans should be channeled into infrastructural and development projects capable of boosting economic growth and output. It is possible, however, that the debtor country will be unable to repay its loan if it isn't used for productive or income-generating purposes. A country's ability to meet its debt interest payments from its export earnings is an important factor in determining when external debt becomes a problem (Tejiman 2015). Alternatively, one can look at a country's debt to GDP ratio, which provides an indication of the country's ability to repay its debt. Countries such as Ghana rely on a variety of sources for financing. It is possible for the government to borrow money from the general public and other domestic institutions. It is possible for the government to take out external loans. Bilateral and multilateral sources are included here. Debts owed to international financial institutions like the IMF and World Bank are known as multilateral debts. For example, a country may have bilateral debt owed to another country or government. Foreign reserves and additional borrowing (domestic and foreign) can be used to meet the government's external debt obligations (Tejiman 2015). The government's choice of funding source has a direct impact on the economy.

It is possible that rising government deficits are to blame for rising external debt. The majority of governments with deficits borrow the majority of their deficit funding from outside sources. In addition, rising external debts are a result of unfavorable trade terms. Unfavorable trade terms make it difficult for a country to earn a profit from its exports. Because of this, the economy has to rely on external borrowing to keep it afloat. The stock of a country's debt is also affected by the price of oil. Increases in the price of oil typically lead to an increase in the cost of government-sponsored projects. As a result, the government is forced to take on additional debt. In addition, a rise in international interest rates tends to raise borrowing costs. Because of this, the debt burden of debtor countries will rise.

Several empirical studies have looked into the causes of developing countries' external debt. The oil shocks of the 1970s, according to Krum (1985), have been linked to developing countries' debt crises. International interest rates rose sharply as a result. This resulted in an increase in the value of the debt stock of debtor countries, which in turn affected the ability of countries to service their debts. Also, according to Agenor and Montiel (1996), the debt crisis is a result of excessive public sector borrowing. According to Ajayi (1991), external debt has both internal and external causes. The impact of global oil price shocks and worsening terms of trade are two examples of external factors. Internal factors include excessive monetary expansion, excessive external borrowing, and poor project management.

Developing countries' participation in the global economy is hampered by excessive external debts, as they are subject to a variety of conditions from creditor countries and institutions (Ayadi 1991). External debt has an impact on economic growth, according to a wide range of academic studies. Several conclusions have been drawn as a result of these studies. In developing countries, Patilo et al (2002 and 2004) looked at the connection between total external debt and GDP growth. They come to the conclusion that the growth rate of GDP and the level of external debt are not linearly related. The growth rate is positively influenced by low external debts. External debt has a negative impact on this relationship. They point to a 35-40 percent debt-to-GDP ratio and a debt-to-exports ratio of 160-170 percent as the turning point. External debt has been shown to have an impact on growth in Clements et al (2003a, b, c). Their findings also support the theory that accumulated external debts have a negative impact on economic growth. Their debt-to-exports ratio of 100-105 percent and external debt-to-GDP ratio of 20-25 percent must be met before they can begin exporting. The debt overhang hypothesis is supported by their research. According to Frimpong and Oteng Abeyie (2006), Ghana's economic growth is negatively impacted by debt servicing costs. External debt inflows, however, have a positive impact on economic growth." Due to the structural and institutional differences between countries, country-specific studies on the impact of external debt on economic growth are now required.

1.2 Study Proposition

Debt relief, among others, has been shown to be ineffective in alleviating countries' suicidal distress as the external debt of emerging economies continues to rise. External debt has been the subject of a slew of studies, with varying degrees of agreement on whether or not it contributes to economic growth.

External debt has a negative effect on economic growth, according to Kalongi (2013). He argued that a country's inability to pay its debts is the root of its citizens' plight. External debt, according to Chongo (2010), is a double-edged sword that impedes economic growth. Economic growth in developing countries is increasingly dependent on domestic debt markets, according to Abbas and Christensen (2007), who studied the role of domestic debt markets. According to Freeman and Webber (2009),

International Debts and Implications on Ghana's GDP Growth. Annual time series data (1980-2014)

government spending on things like education, health care, and other social services can boost the economy. According to the conventional macroeconomic theory, government expenditures have a positive correlation with economic growth. For most countries, borrowing money from abroad is the best option for funding budget deficits. Inflationary measures such as printing money are used to finance deficits. As a result, monetarists are adamantly opposed to the use of monetary expansion to fund budget deficits. Investing in the private sector could be crowded out if the government borrows from its own citizens. Because of these reasons, countries prefer to use external borrowing as a means of financing their budget deficits (Agbemavor 2015).

For the most part, economic growth theories call for a modest amount of external borrowing to supplement domestic savings. It's widely accepted that developing countries have a savings and investment deficit that needs to be filled with foreign aid and borrowing in order to grow their economies.

Different conclusions were reached by different empirical studies based on the same research scope, all of which looked at the impact of external debt on economic growth in various emerging and developing countries. By extending the scope of the research beyond what has previously been done, this study aims to address the same debt issues and the strong relationship it has with economic growth of Ghana.

1.3 Main Purpose

In general, the purpose of this study is to examine the impact of external debt on Ghana's economy. Development projects are at the heart of government borrowing, with the goal of transforming the economy. However, excessive borrowing has resulted in a massive debt for Ghana.

1.4 Clearly Stated Goals

I. To examine the impact of external debts on Ghana's economic growth.

ii. To assess the financial burden that Ghana's external debts place on the country from 1980 to 2014,

iii To examine the trends in Ghana's foreign debt and GDP.

2. REVIEW OF LITERATURE.

Available literature on the issue at stake is reviewed in this section. 2.1 deals with the theoretical aspects of the literature, while 2.2 encapsulate the empirical aspects. 2.3 Ghana's External Debt: Overview and 2.4 Ghana's Economic Development Trends

2.1 Theoretical Review

2.1.1 Harrod-Domar Model

It was Sir Roy Harrod, in 1939, and Evsey Domar, in 1946, who independently developed this model. In this growth model, a country's economic growth is determined by the level of savings and its capital output ratio. In order to supplement domestic savings, this model advocates the use of foreign aid or external borrowing. This model explains how investments lead to growth, and how this growth is measured. Gross domestic product (g) growth is directly linked to the national net savings rate (s) and inversely linked to the national capital-output ratio (c) . Growth is predicted solely by an increase in capital stock, according to the model's assumptions. Therefore, the need for capital stock additions is evident (Todaro and Smith 2012)

According to the ratio of the savings rate and capital output ratio, GDP growth is directly proportional to the growth rate (c).

The relationship is given as: $\frac{\Delta y}{y} = \frac{s}{c}$ .Savings are needed by developing countries in order to grow, according to the Solow-growth model. A lack of savings necessitates borrowing from the outside world, which can boost economic growth. [Todaro and Smith, 2012]

2.1.2 The Two-Gap Hypothesis.

The 'two gap model' of Chenery and Strout was the standard model used to justify aid (1966). In order to achieve a given growth rate, this model assumes that there is a discrepancy between the amount of domestic savings available and the amount of capital and intermediate goods that must be imported (savings gap) (foreign exchange gap). There is a limiting factor for growth if these gaps are present and widening, so they should be bridged with borrowing from external sources. (Todaro & Smith, 2012).

2.1.3 Solow's Growth Model

There are many factors that contribute to economic growth, and this model focuses on the Solow factors. Robert Solow created and published this model in 1956. It is still in use today. The Harrod-Domar model is extended in some ways by the inclusion of labor as a factor of production in the Solow growth model, which emphasizes long-term economic growth (Ejigajehu 2013). The following assumptions have been made while building the model: In the short term, technology is a constant. All factors have diminishing returns. Only a single homogenous good will be produced and consumed by countries. A constant return to scale is

also assumed in this model. Workers' output is dependent on their level of capital per worker, according to this model's production function for each individual. A country's output per worker will rise if it has a higher capital-to-labor ratio. Investment levels and depreciation rates and population growth rates all play a role in capital accumulation in this model. The stock of capital will rise in tandem with an increase in investment. Capital stock depreciation is proportional to the growth of the company's total assets. This is due to the fact that as the population grows, the amount of capital available to each worker decreases, resulting in a decrease in steady-state output. To put it another way, capital accumulation can only increase output up to a certain point where the level of investment is equal to depreciation, which is known as the steady state. What we've learned here goes against the Harrod-Domar model, which predicts an endless cycle of capital accumulation and economic expansion. [Todaro and Smith, 2012] External debts are not included in the Solow growth model, but the impact of external debt on both public and private investments can easily be examined to see how this affects Solow's growth model. The debt overhang hypothesis states that investors are discouraged from investing because of the high risk of future tax increases associated with servicing the debt. A decrease in private investment is expected as a result of this. Because of this, public savings and investment are constrained as a result of increased debt service costs and the consequent reduction in resources available for such projects. This means that the country's investment suffers as a result of both the debt overhang and the debt crowding out effect caused by external debt. Investment and production will be negatively impacted, resulting in a lower level of output and economic growth. For more information, see (Ejigajehu 2013).

2.1.4 Keynesian Theory

The government's role in the economy is emphasized in the Keynesian theory. Government spending is one of the independent components of total expenditure, according to this. An increase in the multiplier effect is attributed to an increase in the autonomous components of aggregate demand. In 1936, John Maynard Keynes's "The General Theory of Employment, Interest Rates, and Money" was published, and this school is said to have been born. According to this theory, the government can borrow to make up for the decline in consumer and private sector spending in times of recession when the private economy is severely contracted in order to cushion the economy. The multiplier effect of higher government spending will increase overall demand and output. Infrastructural projects are a source of employment and income for the government. As a result, output rises as a result of an increase in aggregate demand. As a result, the theory encourages governments to borrow money from abroad. Borrowing from outside the country increases the economy's supply of resources, which, when put to productive use, leads to higher economic growth. An emphasis on minimal government is at odds with this theory, which advocates for more government. Consequently, Keynes allowed governments to borrow for any purpose in order to boost the economy's effective demand, resulting in more jobs and output. As a result of external debt, economic growth is expected to increase (Dwyer 2011). The impact of external debt on the economy is discussed in section 2.3.

2.1.5 Theorem of The Financing Gap

Developing countries, according to this theory, are in a financial bind. The financing gap is the discrepancy between a country's available resources and the total amount of investment needed. Countries should seek external funding to fill in the financing gap, argue proponents of this view From Domar, Easterly (1999) claims that the concept was born out of (1946). However, Rostow's stages of growth model reflects this (1960). According to Rostow, a country must have enough savings to invest before it can take off. There are times when domestic resources are not sufficient to allow a country to take off, so external funding is needed to supplement them. Researchers (Muhammad and colleagues 2016).

2.1.6 Factors That Lead to an Increase in External Debt

The trajectory of a country's debt over time can be predicted by a number of factors. Factors that affect the growth rate of the debt to GDP ratio include the primary deficit ratio, the difference between the real interest rate and the growth in the real GDP, and the stock of already existing debt to GDP ratio. Deficits in government spending and revenue are referred to as government primary deficits. The burden of debt increases as the government's primary deficits rise, because the government will have fewer resources to pay interest on its debts as a result. The debt-to-GDP ratio will rise if the real interest rate is higher than the GDP growth rate. A situation in which real interest rates are higher than GDP growth rates means that debt service payments are increasing faster than GDP growth. As a result, debt servicing costs will increase the total amount of debt that a person has to pay. Only by running a primary budget surplus can we keep up with the rising debt burden. Depending on whether the real interest rate is higher or lower than GDP growth, the current debt-to-GDP ratio will either rise or fall. Carlin and Soskice (2005) found that Countries' debt burdens will also be affected by the terms of trade. In countries with unfavorable trade terms, export earnings do not raise enough money for development projects and interest payments on debts. It's possible that this will exacerbate the problem of mounting debt. Economic mismanagement has also been cited as a factor in the rising external debts of developing

countries by various authors. DEDH, DOH and LCH hypotheses have all been used to examine how external debt affects economic growth in a variety of ways: a direct effect, a debt overhang, and a "crowding out" effect, among others.

2.1.7 Debt Hypothesis Direct Effect (DEDH)
Economic growth can be affected directly by external debts through the productivity of investment, according to this theory. However, even if external debt service requirements have little effect on investment and savings, the mix of investments or the productivity of investments can have an impact on growth. For the purpose of raising the necessary funds to pay back its debt, a country with a large stock of public debt will prefer to engage in short-term investment projects. Short-term investments, on the other hand, aren't as lucrative as long-term ones. The country's high external debt will force it to focus on short-term investments rather than long-term investments. Because short-term investments are less productive than long-term investments, this situation has an impact on the mix of investments, and the productivity of investments has an impact on economic growth. Although investment levels may not be directly affected, countries that have a large debt burden are likely to face a low investment mix. Fosu is the name of the game (1996).

2.1.8 Hypothesis of Debt Overhang (DOH)
First proposed by Myers (1977) in the corporate finance literature, this theory is now widely accepted. If the company's debt is so high that any profits from new investment projects are taken away by its current debt holders, this is known as a "debt trap" situation. This is a quote from Myers (1977). Krugman (1988) and Sachs (1989) were the first to apply it to governments (1989). According to Krugman (1988), debt overhang occurs when the expected present value of future resource transfers is less than the debt. Debt service payments are expected to rise in proportion to output levels if a country's current debt burden exceeds its ability to repay it in the future. Economic growth is negatively impacted as a result of the taxation of returns on domestic investments by foreign creditors. Investors are discouraged from investing in stocks with high debt levels because they fear higher taxes in the future to pay off the debt. Debts are a tax on future generations, which discourages investment, resulting in a decrease in the economy's ability to grow. As a result, businesses believe that the government will implement measures such as printing more money to service debts and devaluing the currency to encourage exports. Macroeconomic instability will result as a result of these measures, which will have an impact on investment. This discourages investors from putting their money where their mouth is, which has a negative impact on the economy. Cordon (1988) and Krugman and Sacks (1989) are among the works cited in Chowdhury (2001).

2.1.9 Equivalence of Ricardian Theorems
The debt overhang effect of external debts is also depicted in this theory. It says that the government's new spending is financed by a corresponding increase in savings. People believe that higher taxes in the future will be necessary to cover the additional interest costs incurred by today's deficit spending. People will increase their current savings by reducing their current consumption in anticipation of these taxes, which will have an impact on economic growth. Brue and Grant (2012) It's called "crowding out." According to this theory, the amount of money available for public investment projects decreases due to the costs of debt service. Due to increased debt servicing, public spending on infrastructural and human capital development decreases, and this has a negative impact on economic growth. Higher debt service can also increase the government's interest bill and deficit, decreasing public savings, which can either raise interest rates or crowd out credit available for private investment, reducing economic growth (2003). As a result, both public and private sector investment will be impeded by debt service payments.

2.2 External Debt and Economic Growth: An Empirical Review.
The impact of external debt on economic growth has been studied in a variety of ways. It has been extensively researched by a number of authors using a variety of data and sample sizes. The results of a few of these studies are outlined in detail below.
It took Geiger (1990) 12 years to examine how 9 South American countries' external debt impacted economic growth. Geiger used an ARDL model. Excess external debt has a negative impact on the economy, according to his findings.
Nigeria's debt accumulation was studied by Ajayi (1991) using a growth cum-debt model. An annual time series dataset from 1970 to 1988 was used for the research. Between 1973 and 1974 oil shocks, mismanagement of the economy, and budget deficits were cited by him as major causes of Nigeria's debt accumulation.

According to Fosu (1991), external debts have a significant impact on economic growth in sub-Saharan African countries between 1970 and 1986 in 29 countries. Debt service as a percentage of exports, debt outstanding and disbursed as a percentage of GDP and debt outstanding and disbursed as a percentage of exports were all used as independent variables in the Ordinary least squares regression. The Direct Effect of Debt hypothesis is supported by the results for all debt burden measures. As a result, the productivity of capital is negatively impacted, which in turn has a negative impact on growth. In countries with high debt, economic growth is expected to decline by about 1.1 percent.

International Debts and Implications on Ghana's GDP Growth. Annual time series data (1980-2014)

For the years 1970-1995, Were (2001) examined how Kenya's external debt affected the country's economic growth. The dependent variable was the growth rate of real GDP. The stock of external debt to GDP ratio, the stock of external debt to GDP ratio with a lag (to reflect debt accumulation), and the debt service as a ratio of exports were used as independent variables to measure the debt load. As a result of empirical evidence, external debt accumulation has been shown to have a negative impact on economic growth. A debt overhang problem exists in Kenya, according to the findings.

A study by Clements et al. (2003) examines the relationship between external debts, public investments, and growth in 55 low-income countries between 1970 and 1999. The dependent variable was the rate of real GDP growth, while the independent variables included the total debt service as a percentage of exports and the stock of external debt. Evidence from empirical studies using fixed effects and the general method of moments (GMM) shows that the debt overhang hypothesis is correct, with debt levels exceeding 20-25 percent of GDP having a negative impact on per capita income growth. This suggests that the relationship between the growth of the economy and the level of external debt is inverted U-shaped.

Sri Lanka's economic growth from 1952 to 2002 was studied by Wijeweera et al (2004) using a co-integration analysis. They concluded that Sri Lanka has an overhang of debt that needs to be addressed.

The impact of Ghana's external debt on the country's economic growth from 1970 to 1999 was also studied by Frimpong and Oteng Abeyie (2006). For the dependent variable, GDP growth, gross investments, total debt service (a measure of crowding out), total external debt to GDP ratio, foreign direct investment and the annual growth rate of export capacity to imports were used as independent variables. The findings show that while debt servicing has a negative impact on economic growth, inflows of external debt have a positive effect. These findings are in line with the debt crowding out hypothesis.

The factors affecting Nigeria's external debt burden were examined by Saibu and Abogan (2006) using annual time series data from 1970 to 2004. It was found that Nigeria's debt burden was affected by exchange rates, government fiscal deficits, and inflation, all of which were analyzed using an error correction model. Increases in government fiscal deficits increase the debt burden, whereas an increase in exports, inflation, and exchange rates reduce it.

For both Nigeria and South Africa, Ajayi and Ayadi (2008) conducted a comparative study on the impact of external debt on economic growth. From 1980 to 2007, they used Ordinary Least Squares and Generalized Least Squares. Using real GDP growth, total external debt, debt service as a percentage of exports, and the debt-to-GDP ratio as independent variables, they calculated the debt burden. Economic growth in both countries is negatively affected by debt and its servicing requirements, according to their findings. External debt has a positive effect on growth up to a certain point, but after that, it has a negative effect. These findings show that external debt and economic growth are not linked in a straight line.

For the period from 1972 to 2005, Malik et al (2010) investigate the relationship between Pakistan's external debt and economic growth. External debt was found to be negatively and significantly linked to economic growth using time series econometric techniques. There was also a significant negative impact on GDP growth due to debt servicing. There will be fewer opportunities for economic growth as the cost of debt service rises.

From 1974 to 2007, Mehdi and Meherizi (2011) examined the impact of Iran's external debt on economic growth using a VAR. Excess external debt had a negative impact on GDP and private investment, according to the study.

A time series econometric technique was used by Rahman and Basher (2012) to examine how Bangladesh's external debt affected its economic performance from 1972 to 2010. To put it another way, they concluded that GDP and external debt are strongly linked in terms of correlation.

Between 1991 and 2010, Ejigajehu (2013) studied the impact of external debt on economic growth in eight African countries that were poor and heavily indebted. Debt burden was included in the Solow growth model that he adopted. The dependent variable was economic growth, and the independent variables were growth rate of investment, population growth, and trade balance. He also looked at debt service as a percentage of exports, total external debt as a percentage of GNI, and net total debt service as indicators of the country's debt burden. From his calculations, he deduced that the debt crowding out effect dampens economic growth.

For the years 1990 to 2010, Faraji and Said (2013) examined Tanzania's economic growth in relation to the country's external debt. According to their OLS results, external debt has a positive effect on economic growth, while debt servicing has a negative effect on economic growth, using GDP as the dependent variable.

Research by Tarek and Tarek (2013) examines how external debt affects the economic growth of North African nations. They used a 1990-2010 time frame to gather data on five countries in North Africa. They used Patilo et al. as a basis for their model (2002). It was determined by looking at the rate of growth in real GDP. It was found that total exports, external debt per capita, and exports as a percentage of GDP were used as independent variables to measure the debt load. According to their findings, there is in fact a Laffer debt curve. Up to a point, external debt has a positive effect on growth. The threshold level is set at 47 percent of GDP, according to the researchers.

International Debts and Implications on Ghana's GDP Growth. Annual time series data (1980-2014)

External debts and economic growth in East Africa were examined by Babur et al. (2014). taking into account external debts as part of the Solow growth model According to the findings, external debt has a negative impact on the East African GDP growth rate.

Debt and economic growth in Jordan were examined by Mahmoud (2014). From 1990 to 2013, he analyzed data. Using the Cobb Douglas production function, the study found that both long-term and short-term external debt had a negative or no significant impact on economic growth in Jordan, according to the findings.

Additionally, Winifred (2014) examined the impact of external debt on Nigeria's economic growth over the period 1980 to 2012. Augmented Dickey Fuller (ADF) test, Johansen Co-integration test, Vector Error Correction Mechanism test and Granger Causality test were the estimation techniques used. As a result of inefficient trade and exchange rate policies, poor lending, and inadequate loan utilization, Nigeria has a high external debt burden.

Over the course of four decades, Siddique et al. (2015) analyzed the impact of external debt on economic growth in HIPC countries. Capital formation, trade, debt, and population growth were all considered independent variables in the analysis. It was found that the debt to GDP ratio had a negative correlation with economic growth when applied to an Autoregressive Distributed Lag Model (ARDL). According to the findings, countries that are heavily in debt will see an uptick in their growth rates as their debt load declines.

For the years 2003:1-2014:03, the VAR method was used by Korhmarz (2015) to examine the effect of Turkey's external debt on economic growth. The results showed that external debt and economic growth had a one-way relationship.

Co-integration was used by Awan et al. (2015) to examine the causes of Pakistan's external debt using time series data spanning 1976 to 2010. Using the ARDL model, Pakistan's external debt was found to be influenced by fiscal deficits, nominal exchange rates, and trade openness.

2.3 Ghana's External Debt: Overview

External debts have been a constant burden on Ghana and other developing countries. At the end of 1982, Ghana's external debt payments totaled $577 million (114 percent of GDP), making it one of the most heavily indebted countries in the world at the time. Oil price increases, an increase in international interest rates, and shoddy economic policies and management at home are among the factors that have contributed to the debt crises. Including arrears of $81 million, Ghana's nominal public and publicly guaranteed debt amounted to $6.0 billion by the year 2000. About 571 percent of fiscal revenue and about 157 percent of exports of goods and non-factor services were represented by external debt in US$3.9 billion in net present value terms.

At the end of 2000, the nominal value of external debt held by multilateral creditors was 65.6 percent of the total. In nominal terms, bilateral creditors accounted for 27.9% of the external debt. In 2000, Ghana became a participant in the HIPC debt relief program. The purpose of this relief is to ensure that the country has sufficient financial resources to service its external debts on a long-term basis and to spend the freed resources on priority areas identified in the Ghana Poverty Reduction Strategy (GPRS). The country also benefited from the Multilateral Debt Relief Initiative (MDRI) in 2006, which provided total debt relief from debts owed to the International Monetary Fund (IMF), the World Bank's International Development Association (IDA), and the African Development Bank (AfDB). Since the HIPC and the MDRI reliefs, Ghana has seen its debts fall to about 26% of GDP. (BOG) As a result, the country's external debt has resumed its upward trend. At 28.89 percent in 2010, 28.507 percent in 2011, 29.96 percent in 2012, 33.05.% in 2013, and 45.61.0% at the end of 2014, the debt-to-GNP ratio has steadily increased (WDI 2016). Foreign debt is a major source of concern for policymakers, who are trying to balance interest payments with the need to maintain and expand the economy.

WDI 2016 data source shows that the external debt-to-GDP ratio has been steadily rising over time. It increased from 31.45% in 1980 to 63.415% in 1990, a significant increase. 125.49 percent of GDP was owed outside the country in the year 2000. To some extent, the HIPC program of 2000 was responsible for bringing down Ghana's debt burden. Between the years 2000 and 2006, the external debt-to-GDP ratio decreased significantly, from 123.23 percent in 2001 to about 18 percent in 2006. From a low of 20.58 percent in 2007 to an all-time high of 45.61 percent in 2014. (WDI 2016)

2.4 Ghana's Economic Development Trends

The country's economic output and income are measured by the GDP. It's the sum of all the money spent on the country's final products and services over a specified time period. In 2015, Ghana's gross domestic product (GDP) was US$37.86 billion. About 0.56 percent of the global economy is accounted for by this. From 1960 to 2015, GDP has averaged around US$3.43billion. US$47.8 billion in 2013 was its highest value ever, while US$1.20 billion in 1960 was its lowest. During the period from 1980 to 2014, GDP grew by an average of 4.5%. During the year 2000, GDP growth was at a rate of 3.7% It steadily increased to 5.2 percent in 2003 and to 6.4 percent in 2006, before leveling off in 2007. However, it dropped to 4.34 percent in 2007 before rising to 14.0

percent in 2011. But it has been declining again, and it reached a low of 3.88 percent in 2015 before rising slightly in 2016. (WDI 2016, WDI 2017)

A look at Ghana's economic growth rates over the last decade reveals a fluctuating growth. Despite the recent oil discovery, which many expected to cushion the economy and spur growth, the economy has generally grown at very slow rates. Again, according to WDI (2016) data source, GDP growth rate rose from 0.47 percent in 1980 to about 5.1 percent in 1989 between 1990 and 2006, it fluctuated between 3.32 percent and 6.9 percent. As of 2014, the GDP growth rate was 3.98 percent, down from 14.4 percent in 2011.

3. SPECIFICATION OF THE MODEL

All of the information comes from secondary sources, and it spans the years 1980 to 2014. A sample size of 35 years is provided by this time period. For a wide range of estimation and analysis options, this is a suitable size. It includes data from the 2016 World Economic Forum (WDI). The year's data on external debt stocks, GDP, and GDP per capita are directly taken from the World Bank's 2016 World Development Indicators (WDI) database. WDI 2016 data on trade as a percentage of GDP is used to gauge a country's level of trade openness. The WDI 2016 measure of gross domestic investment is used to calculate gross capital formation.

Neoclassical growth models are used to study the impact of external debt on Ghanaian growth, and external debt variables are added to the model. The Solow growth model is a classic example of a neoclassical growth model. Exogenous factors like new technology or personal savings drive long-term economic growth in Neoclassical growth models.

Exogenous Solow growth model is used to avoid the difficulty of accurately measuring data on the variables, and various measures of external debt burden are augmented. It is true that the Solow growth model does not take into account all of the factors that influence economic growth. Trade openness and foreign direct investment have been added to the list of factors that contribute to economic growth in this study. Two other measures of the burden of foreign debt are also incorporated into the Solow model used in this study.

Various measures of external debt burden are included in two models. Amount of debt as a percentage of GDP is included in model 1. Model 2 substitutes a different measure of debt burden, namely the percentage of GDP devoted to servicing external debt. The models are of the form:

$$\text{GDP} = f(INV, POP, TOP, FDI, EXD) \text{ for model 1}$$
$$\text{GDP} = f(INV, POP, TOP, FDI, DSERV) \text{ for model 2}$$

There are two models specified, each with a different measure of the burden of external debt. Model 1 incorporates debt stock as a percentage of GDP into the equation. This debt burden variable is replaced in model 2 by another debt burden variable, the percentage of GDP that is spent on external debt service. Cobb Douglass' model is used to depict it and the following is how Cobb Douglass modeled it:

For model 1,

$$GDP = \beta_o INV^{\beta_1} POP^{\beta_2} TOP^{\beta_3} FDI^{\beta_4} EXD^{\beta_5}$$

The logarithmic transformation of the model yielded the following log-log model: $\ln GDP = \beta_o + \beta_1 \ln INV + \beta_2 \ln POP + \beta_3 \ln TOP + \beta_4 \ln FDI + \beta_5 \ln EXD + u_i$

Where:

    GDP = annual gross domestic product.

    INV = gross domestic investment

    POP = population

    TOP = Trade openness

    FDI = Foreign direct investment.

    EXD = External debt as a percentage of GDP

    u_i = stochastic error term

β_0 is the intercept term and, β_1 ,β2,β3,β4 and β5 are the independent variables' coefficients. The lag value of GDP is included in the model to avoid the occurrence of autocorrelation.

$$\ln GDP = \beta_o + \beta_1 \ln GDP_{t-1} + \beta_2 \ln INV + \beta_3 \ln POP + \beta_4 \ln TOP + \beta_5 \ln FDI + \beta_6 \ln EXD + u_i$$

Model 2

In addition, the study aims to examine the impact of debt on economic growth. External debt has an impact on Ghana's economy in the form of debt servicing. The debt service on the external debt to GDP ratio is substituted in a separate model (DSERV). For the purpose of calculating the external debt burden, Model 2 employs DSERV rather than EXD.

$$\ln GDP = \beta_o + \beta_1 \ln GDP_{t-1} + \beta_2 \ln INV + \beta_3 \ln POP + \beta_4 \ln TOP + \beta_5 \ln FDI + \beta_6 \ln DSERV + u_i$$

International Debts and Implications on Ghana's GDP Growth. Annual time series data (1980-2014)

Ordinary Least Squares (OLS) are used for all estimations (OLS). There will be regressions and all the necessary tests conducted using the STATA statistical package (version 2012).

3.1 Description of A Variable
A country's overall economic output (GDP) For a given period of time, Ghana's GDP provides a snapshot of the country's overall economic health. All final goods and services produced in a given period of time are included in this total value figure. The majority of the time, this is done on an annual basis. GDP data is only calculated from 1980 to 2014 for this study's purposes. As a measure of economic growth, GDP has been selected as a stand-in. This study's dependent variable.

3.1.1 Gross Domestic Product
The total value of gross fixed capital formation, changes in inventories, and acquisitions less disposals of valuables for a unit or sector is what is used to calculate gross capital formation.
Gross domestic investment is a proxy for it. Investment in a country's capital stock that does not take into account capital depreciation is referred to as gross domestic investment. Increasing capital acquisition, according to many growth models, should lead to economic growth. Investing is the most common method of acquiring capital. If investment increases then capital stock per worker rises, which in turn raises output, according to the Solow growth model. Increased productivity and economic growth will result from this. I believe there will be a positive correlation between GDP and capital formation.

3.1.2 Direct Investment from Abroad
An investment in a domestic business by a foreign company or individual is known as a foreign direct investment (FDI). It is a category of cross-border investments, according to the World Bank, where a resident of one economy has control or a significant degree of influence over the management of a company located in another. In order to establish a direct investment relationship, one must own 10% or more of the company's ordinary shares of voting stock. Borensztein et al. have shown that FDI is primarily a method of transferring technology and ideas from one country to another. Increasing FDI means more resources coming into the country, which means more advanced technology to boost output and, as a result, faster economic growth. As a result, I believe that FDI will have a positive correlation.

3.1.3 The Percentage of GDP Used to Pay Off External Debt.
Additionally, this variable is used as a way to gauge the impact of debt burden. Debt service payments on external debt are calculated as a percentage of gross domestic product (GDP). This variable serves as a stooge for the external debt crowding out effect. Public investment projects are less likely to be completed because of debt service obligations, according to the crowding out hypothesis. Infrastructural and human capital investment are suffering as a result of reduced public spending due to the increasing burden of servicing the national debt. External debt service consumes a larger share of GDP than GDP itself, which reduces the amount of money available to fund development projects. It is therefore expected to have a negative correlation between GDP growth and debt service on external debt.

3.1.4 The Proportion of GDP That Is Owed to Foreign Creditors
This is the ratio of the country's external debt to its GDP. As a percentage of the country's gross domestic product, the external debt stock was calculated. As a proxy for the impact of external debt on economic growth, this variable has been introduced. The debt overhang effect is specifically measured using it as a proxy. An overhang effect occurs when rising external debt causes investors to reduce investment, which in turn affects the growth of the economy. – The country's debt burden rises as the country's external debt to GDP ratio rises. External debt as a percentage of GDP is expected to be negatively correlated with GDP growth.

3.1.5. Population
Solow's growth model shows that increasing population negatively affects economic growth. This is due to the fact that as the population grows, the capital stock becomes more dispersed. This results in a decrease in output per worker as a result of lower capital stock per worker. I expect a negative correlation between GDP growth and population growth.

3.1.6 Traders' Willingness to Open Their Markets
As the name suggests, trade openness measures how easy it is for one country to conduct business with another. Trade policies between countries are taken into consideration when calculating this index. The ratio of a country's total imports and exports to the country's GDP is used to measure it. One of the most important factors contributing to economic growth is free and open international trade (David 2007). As a result, the variable must be included. Edwards and his colleagues have shown that trade openness is associated with economic growth in a large number of studies. It contributes to the exposure of comparative advantage by increasing competition (Petrakos and Arvanitidis 2008). There should be a positive correlation between increased trade and increased economic growth.

International Debts and Implications on Ghana's GDP Growth. Annual time series data (1980-2014)

The variables in the first and second models are summarized in the table below using descriptive statistics for context. Because the variables in both models are nearly identical, the descriptive statistics for both models are combined.

Table 3.1. Descriptive statistics (1980-2014)

Variable	Mean	Standard deviation	Minimum	Maximum
GDP	USD13billion	USD13billion	USD4.04billion	USD47.8billion
INV	USD3billion	USD3.77billion	USD136million	USD13.3billion
POP	18million	4.743998million	1.8million	26.8million
TOP	62.7941	30.2999	6.320343	116.0484
FDI	USD706million	USD1.180billion	USD2million	USD3.360billion
EXD	60.79967	30.12691	18	125.4967
DSERV	4.26055	2.500228	0.8647108	10.44693

Source: computed by stata

4. ANALYSIS OF DATA

Section 4.1 presents all the diagnostic statical test, whiles section 4.2 also captures the regression outcome for both Models One and Two as well as the subsequent discussions.

4.1 Diagnostic Tests Statistics

Multicollinearity, heteroscedasticity, and autocorrelation tests are carried out to ensure that the estimated model results are suitable for analysis. Multicollinearity is measured by the variance inflation factor, and heteroscedasticity is tested using the Koenker-Basset (KB) test. Autocorrelation was also tested using the Bruesch-Godfrey (LM) test.

4.1.1 Multi-Collinearity Test.

If two or more explanatory variables are linearly related, either positively or negatively, then multicollinearity is present. Individual coefficients cannot be estimated in the case of perfect Multicollinearity. Although the coefficients can be determined in the case of imperfect multicollinearity, they have large variances and standard errors. This means that the coefficients can't be accurately estimated. However, the minimum variance property of OLS is not harmed by multicollinearity. For the most part, all economic variables have some level of collinearity with other variables. Examining the R2 and the significance of the individual coefficients can quickly reveal the presence of Multicollinearity in a model. Multicollinearity may be present if R2 is high but t-ratios are low. Volatility Inflation Factor (VIF) greater than 10 or a tolerance of less than 0.01 is generally considered to be evidence of high Multicollinearity, according to Damodar (2004). Both models' VIF and tolerance values are listed below:

Table 4.1. VIF and Tolerance values for model 1 and 2

Variable	Model 1		Model 2	
	VIF	1/VIF	VIF	1/VIF
$lnINV$	47.43	0.021	37.18	0.027
$lnPOP$	26.64	0.037	36.07	0.028
$lnTOP$	18.66	0.054	18.29	0.055
$lnGDP_{t-1}$	14.61	0.068	14.86	0.067
$lnFDI$	11.46	0.087	10.99	0.091
$lnEXD$	5.08	0.197		
$\ln DSERV$			5.42	0.185

Source: computed by stata

The table shows that, based on the VIF, population, GDP, trade openness, and foreign direct investment have high levels of multicollinearity in both models, since their respective VIFs exceed ten, as can be seen from the table. Multicollinearity is not a problem, however, because most of these variables are statistically significant.

4.1.2 Heteroscedasticity.

In a regression model, heteroscedasticity occurs when the variance of the error term is non-constant for all observed values. The error term must have a constant variance according to the classical linear assumption. The OLS estimators are still unbiased, but they do not have the smallest possible variance when heteroscedasticity is present. Hypothesis testing will be misled as a result.

International Debts and Implications on Ghana's GDP Growth. Annual time series data (1980-2014)

It is (Damodar 2004). Models 1 and 2 are tested for heteroscedasticity using the Koenker-Basset (KB) test. This test relies on the model's residuals. An estimate of the regression's squared residuals is correlated with its estimated squared parameters.

The regression form is given as $\hat{\mu}^2 = \alpha_1 + \alpha_2\hat{y}^2 + v_i$

The null hypothesis: $H_o: \alpha_2 = 0$, If the null hypothesis is not rejected at the given level of significance, it means α_2 is not significant and so there is no heteroscedasticity.

The t-test or the f-test can be used. If the regression is in double log form, then the squared residuals are regressed on $(\log \hat{Y})^2$ (Gujarati 2004). This test is preferred because of its simplicity. As can be seen in the table below, the Koenker-Basset test for heteroscedasticity was performed on both the first and second models as shown in Table 4.2.

Table 4.2 Results of the Koenker-Basset tests for models 1 and 2

$\hat{\mu}^2$	Model 1			Model 2		
	Coefficient	T	$p > \lvert t \rvert$	Coefficient	T	$p > \lvert t \rvert$
$(log\hat{y})^2$	-0.0024	-0.87	0.388	-0.00299	-0.69	0.496
Constant	0.0268	0.98	0.332	0.0344	0.81	0.426

Source: computed by stata

The coefficients are statistically insignificant at a 0.05 level of significance, as shown by the above tests. p-values (0.388, 0.496) greater than 0.05 explain this. In other words, the null hypothesis has not been ruled out. This indicates that the models 4.2. have no heteroscedasticity.

4.1.3 Autocorrelation.

A regression model is characterized by autocorrelation if the error terms are serially correlated across time or across space. When autocorrelation is used, the OLS estimators remain unbiased but are less efficient than before. As a result, hypothesis testing becomes ineffective (Gujarati 2004) Autocorrelation is checked using the Bruesch-Godfrey test for models that have been provided. The LM test is a common name for this assessment. Non-stochastic variables, such as the lagged value of the dependent variable and AR schemes with higher levels, are allowed in this more general test (Gujarati 2004). The null hypothesis of no autocorrelation is tested against the alternative hypothesis of autocorrelation using the B-G test statistic. The null hypothesis of no autocorrelation is rejected if the test statistic is statistically significant. Error terms will be correlated if this is the case. The tables below show the Bruesch-Godfrey test results for the specified models. Models One and Two. The first and second models' Bruesch-Godfrey (LM) tests for autocorrelation yield the following results.

Table 4.3 Bruesch-Godfrey LM test for autocorrelation (model 1 and 2)

Model 1				Model 2			
Lags(p)	Chi2	Df	Prob>chi2	Lags(p)	Chi2	Df	Prob>chi2
1	0.012	1	0.9142	1	0.018	1	0.8938

Source: computed by stata

H_0 : no serial correlation

The Bruesch-Godfrey test statistics (chi2=0.012, 0.018) are statistically insignificant at a level of significance of 5%, as can be seen from the results. Due to their p-values (0.9142, 0.8938) being higher than 0.05, they are considered significant findings. In other words, the null hypothesis that there is no serial correlation has not been proven. As a result, the models do not have any autocorrelation and both models are best at describing the relationship between the variables, according to the results of the tests.

4.2 Regression Results

Again, the results from the models described in Chapter 3 also point to the fact that for Ghana's economic growth, two models are used: one to estimate the impact of Ghana's rising external debt on GDP, and a second to estimate the impact of the country's rising external debt servicing on GDP growth. Between 1980 and 2014, 35 years of data were analyzed for the regression results. All models utilize the OLS estimation method. Model 1 and Model 2 are covered in this section. The table below showing the estimation results for the first and second models.

International Debts and Implications on Ghana's GDP Growth. Annual time series data (1980-2014)

Table 4.4 Regression results for Model 1 and Model 2

Explanatory variable	Model 1	Model 2
$lnGDP_{t-1}$	0.3423***	0.3598***
Standard error	(0.0533)	(0.0696)
t-ratio	(6.42)	(5.17)
p-value	(0.000)	(0.000)
$lninv$	0.4174***	0.5362***
Standard error	(0.0594)	(0.0681)
t-ratio	(7.03)	(7.87)
p-value	(0.000)	(0.000)
$lnPOP$	0.9242***	0.6504**
Standard error	(0.214)	(0.3213)
t-ratio	(4.32)	(2.02)
p-value	(0.000)	(0.053)
$lnTOP$	-0.2285***	-0.4090***
Standard error	(0.0656)	(0.0841)
t-ratio	(-4.50)	(-4.73)
p-value	(0.000)	(0.001)
$lnFDI$	-0.0604***	-0.0739***
Standard error	(0.0156)	(0.0198)
t-ratio	(-3.86)	(-3.73)
p-value	(0.001)	(0.001)
$lnEXD$	-0.2285***	
Standard error	(0.0447)	
t-ratio	(-5.11)	
p-value	(0.000	
$lnDSERV$		-0.0969***
Standard error		(0.0449)
t-ratio		(-2.16)
p-value		(0.040)
$constant$	-5.9312	-4.3662
R^2	0.9952	0.9919
$Adjusted\ R^2$	0.9941	0.9901
$F-statistic$	924.39	549.36
$Prob > F$	0.0000	0.0000

**** Significant at 5% level of significance.

** Significant at 10% level of significance

Source: computed by stata .From the regression results, the model 1 is estimated as:

$$lnGDP = -5.9312 + 0.3423lnGDP_{t-1} + 0.4174lnINV + 0.9242lnPOP - 0.2285lnTOP - 0.0604lnFDI - 0.2285lnEXD$$

Model 2 is also estimated below.

$$lnGDP = -4.36662 + 0.3598lnGDP_{t-1} + 0.5362lnINV + 0.6504lnPOP - 0.4090lnTOP - 0.0739lnFDI$$
$$- 0.09669lnDSERV$$

The first model's R2 value is 0.9941, while the second model's R2 value is 0.9919. Their adjusted R squared are 0.9941 and 0.9901 respectively. This suggests that the independent variables specified in the first model account for about 99.41% of GDP variation, while the independent variables specified in the second model account for about 99.01% of GDP variation. For both models, the F-statistic (Prob>F 0.000 is less than 0.05) indicates that they are statistically significant at the 5% level of significance.

A 5% level of significance was used to test the significance of all the other coefficients in both models except for the population coefficient in the second model. P-values less than 0.05 are the reason for this.

The regression results show that GDP and lagged GDP values have a positive and significant relationship. The coefficient of lag GDP in the first model is 0.3423. This means that a 1% increase in GDP in the past will result in a 0.3475 % increase in GDP in the present (GDP). The first model's coefficient is 0.3598.

Similarly, the relationship between gross domestic investment (INV) and economic growth is both positive and significant in both models. According to the first model, an increase in GDP of 0.4174 percent can be achieved by increasing GDP by 1 percent. Model 2 predicts a 0.5362 percent rise in GDP for every 1 percent increase in gross domestic investment.

International Debts and Implications on Ghana's GDP Growth. Annual time series data (1980-2014)

In both models, population (POP) and economic growth have a significant positive correlation. Model 2 only has a 10% significance level, while model 1 only has a 5% significance level. According to the first model, an increase in population of 1% will lead to an increase in GDP of 0.9242 percent. According to the second model, population growth of 1% results in a 0.6504 percent GDP growth. There was a priori expectation that population growth would have a negative impact on the economy. Theoretical and empirical evidence abounds pointing to the existence of a link between rising populations and rising economies. Moreover, Simon's population theory (Simon 1987) supports this claim. According to this theory, an increasing population leads to an increase in technology. Increased economic growth is also facilitated by an increase in total demand and the ease with which labor can be divided (Todaro and Smith 2012). The positive correlation found in the regression results may be due to this. Trade openness (TOP) had a negative and significant impact on GDP in both models. According to the first model, an increase of 1 percent in trade openness will reduce GDP by 0.2285 percentage points, while an increase of 1 percent will reduce GDP by 0.4090 percentage points in the second model. Depending on the nature of trade, increased openness could have a negative impact on economic growth. Exports in developing countries like Ghana tend to be smaller than imports. Local industries will be decimated by cheap, close substitutes being imported into the market if trade is opened up without restrictions such as tariffs. This could result in a decrease in GDP and a decrease in economic growth. This could explain the negative relationship that was discovered following the estimation.

Both models show a negative and significant correlation between foreign direct investments and economic growth, according to the regression results. Model two predicts that a 1% rise in FDI will lead to a 0.0604 percent drop in GDP. An additional 1% increase in foreign direct investment is expected to reduce the GDP by 0.0739 percentage points. In order for foreign direct investment to have a positive impact on growth, factors such as human capital and profit repatriation must be taken into account. Foreign Direct Investment (FDI) has a positive impact on economic growth only when the host economy has a sufficient ability to absorb advanced technologies. Because of the way FDI and human capital interact, FDI has a negative impact on growth in countries with low levels of human capital. Foreign investors' repatriation of profits could harm growth, according to Schoors et al (2002).

Other authors point to factors like corruption and poor management, while still others say that the degree of financial development a country has influences whether FDI has a positive or negative impact on economic growth (Alfaro 2003, Alfaro et al. 2006).

In model two, the relationship between external debt (EXD) and gross domestic product (GDP) is negative and significant (GDP). For every one percent increase in external debt, the GDP decrease is 0.2285 percent. This outcome is in accordance with the presumption.

Debt service on external obligations, as a percentage of GDP, is negatively correlated with economic growth, according to model 2. GDP will shrink by 0.09669 percent if external debt service rises by 1 percent. According to the a priori assumptions, this is what should have happened.

External debt and the servicing of external debt both have a negative impact on economic growth, as shown by the findings. Debt service on external debt, on the other hand, has a lower coefficient of correlation to GDP than external debt does. External debt stocks have a greater impact on economic growth than the repayment of external debt.

The main goal of this study was to determine the effect of external debt on economic growth, and the estimates in this chapter have helped to accomplish that goal. There were tests for multicollinearity, heteroscedasticity, and autocorrelation. There were no positive results for either model in this set of tests. As a result, the models' predictive and analytical capabilities are improved. There was also discussion of the results of estimations, and they were also presented. Summary and conclusions will be discussed in the following section.

5.1 SUMMARY, CONCLUSION AND RECOMMENDATION

This research examined the impact of Ghana's external debt on the country's economic growth from 1980 to 2014. As a result of this, two main goals were established: the first was to examine the changes in Ghanaian external debt and GDP from 1980 to 2014. Secondly, the impact of these external debts on economic growth. The first objective was achieved by presenting and analyzing recent data on Ghana's external debt and economic growth for the given time period. The study used the Solow growth model with debt variables added by me to determine the impact of external debt on economic growth. Economic growth, population and foreign direct investment (FDI), as well as external debt as a percentage of GDP and debt service on external debt (DSO) were the independent variables in the study.

The OLS estimation method was used to run a regression. In this section, two models were estimated. We wanted to know how much GDP growth is affected by both the amount of debt held by the country and the amount of debt service. The relationship between GDP and the external debt as a percentage of GDP was negative and significant, as expected a priori. The

percentage of GDP used to service foreign debt was also found to be negatively correlated with GDP. As a percentage of GDP, the debt service on external debt was higher than the stock of foreign debt was. As a result, rising external debt stock affects growth more than debt service on external debt, according to this analysis.

Majority of developing countries have relied heavily on borrowing from other countries, including Ghana. Despite the fact that these funds are frequently borrowed, they are rarely invested in a way that generates the necessary revenue to pay the interest on the debt. A large amount of external debt has been placed on the government as a result of this policy.

In addition, most of the government's expenditures are funded by outside sources. As a result of these factors, the government of Ghana has had to take on more debt.

Ghana's economic growth was found to be negatively related to the percentage of GDP that was spent on external borrowings and to the percentage of GDP that was spent on external debt repayments. However, the findings show that the stock of external debt has a greater impact on economic growth than the service of external debt. This is due to the fact that the coefficient of external debt to GDP was higher than the coefficient of debt service on external debt.. Increased taxes and other unfriendly policies to service these debts are anticipated by investors, and this has served as a disincentive to investment. As a result, the country's economic growth has been hindered by the overhang of investment plans. A negative effect of debt on investment is that it is seen as a tax on future generations. This raises the possibility of a debt overhang in Ghana's future. Additionally, the rising interest payments on external debt have had an impact on economic growth. It suggests that the country is continuing to use more of its resources to service debt interest payments as the ratio of external debt service to GDP rises. This results in lower economic growth as a result of a reduction in the resources available for development projects. This raises the possibility that Ghana is also being pushed out of the market due to the burden of its debt.

Debt repayment obligations should be constantly monitored by the authorities in charge of managing Ghana's external debt, and the debt should not be allowed to exceed a maximum limit in order to avoid debt overhang. In order for the government to ensure that funds are used for their intended purpose, they must conduct regular audits.

To add to this, the government of Ghana should concentrate on other strategic areas of the economy. Investing in infrastructure and agriculture has a high multiplier effect, so they should be prioritized. Debts accumulated from various sources will be reduced as a result of this.

Even though Ghana cannot solely rely on foreign debts, external or foreign debts should be discouraged, as they have a negative impact on growth. Consequently, if there is a need for additional financing outside of the fiscal regime, the government should compare their economy to the fiscal discipline that governs its operations.

REFERENCES

1) F. S. and F. O. Ayadi (2008). Nigeria and South Africa's comparative economic strength in light of their respective countries' high levels of external debt Vol. 10, No. 3, 2008: Journal of Sustainable Development in Africa

2) D. G. Borensztein (1998). In what ways does foreign direct investment contribute to the economy? 115–135 in the Journal of International Economics

3) P. Farhana and N. M. Chowdhury (2014). In Bangladesh, the impact of foreign debt on growth is examined using economic models published in International Journal of Developing and Emerging Economics, Volume 2, Number 4, Pages 1-24

4) "The Effect of External Debt on Economic Growth in Sub-Saharan Africa," Fiagbe, A. K. (2015). At the University of Ghana in Accra. http://ugspace.ug.edu.gh

5) Fosu, A. K., "The Impact of External Debt on Economic Growth in Sub-Saharan Africa," 1996. Articles 93-118 in the Journal of Economic Development, Volume 21, Number 1, Spring 1993.

6) Oteng-Abeyie E. F. and Frimpong, J. M. (2006). Economic Growth in Ghana: A Cointegration Analysis of External Debt Applied Physics A, Vol. 73, No. 3. On May 1, 2010, dspace.knust.edu.gh/dspace was accessed.

7) Geiger. T. (1990). JDA, Vol. 24, No. 2 (January 1990), Pp. 181-194 'Debt and Economic Development in Latin America',

8) The Gujarati, D. (2004). Applied econometrics, 4th edition, by McGraw-Hill

9) In this study, Ishola, S. A., Olaleye, S. O., Ajayi, E. O., and Giwa, A. B. examined the effects of adolescent smoking on adolescent brain development (2013). External debt and Nigeria's economy: an empirical investigation. Journal of the International Society for the Advancement of Humanities and Social Sciences

10) External Debt and Economic Growth: A Case Study of Tanzania, Advances in Management & Applied Economics, Vol. 3, No. 4, 2013, pp. 59-82, by F. Kasidi and S. A. Makame (2013)

11) S. Korhmarz is the author of this article (2015). Turkey's Debt to GDP Ratio, Department of Economics, Faculty of Economics and Administrative Sciences, Balikesir University, Turkey

International Debts and Implications on Ghana's GDP Growth. Annual time series data (1980-2014)

12) Financial financing vs. debt forgiveness: Krugman, (1988). Bureau of Economic Analysis of the United States 2486 is the number of the working paper

13) Patilo C, Poirson H, and Ricci L (2004). 'What are the ways in which external debt impacts growth?' IMF Working Paper 04/15, Washington, D.C.

14) Both Saibu and Abogan have published papers in the field of pharmacokinetics (1970-2004). Macroeconomic Factors Affecting Nigeria's Debt Burden (1970-2004).

15) 12th edition of 'Economic Development' by Todaro, M. P. and Stephen CS Pearson

16) S. Ugwuegbe, I. G. O. Ugochukwu, and C. A. Akarogbe are the authors of the study (2016). 'The Impact of External Borrowing and Foreign Aid on Nigeria's Economic Growth' Vol. 6, No. 4 of the International Journal of Academic Research in Business and Social Sciences

17) External Debt and Economic Growth in Kenya: An Empirical Assessment, 2001, M. Were (ed.). UNU/ WIDER Discussion Paper No. 2001/120, Helsinki.