



External Debt-Economic Growth Nexus: The Sierra Leonean Case (1973-2021)

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Abstract: The study investigates the nexus between external debt and economic growth in Sierra Leone for the period spanning between 1973 and 2021. In many developing countries, huge external indebtedness has been seen as a strong break on the road to economic growth and development. Indeed, the study focuses on both external and internal factors that are responsible for the external debt problem in Sierra Leone. Data employed in this study are secondary and were collected from various sources including the Central Bank of Sierra Leone and the Ministry of Finance. Key macroeconomic variables such as external debt to Gross Domestic Product (GDP) ratio, external debt service to export earnings ratio and terms of trade were specified in the model and tested for stationarity using unit root tests. The study also employed the ordinary least square (OLS) technique for the purpose of estimating the relevant parameters of the model. Various diagnostic tests are carried out to appraise the robustness of the estimated growth equation using appropriate econometric criteria. The study empirically reveals a negative nexus between external debt and economic growth in Sierra Leone for the period under study signifying that debt accumulation impacts adversely on the country's long-run growth trajectory which confirms debt "overhang" problem in Sierra Leone. This is clearly evident in the coefficients of the variables representing debt as a ratio of GDP, debt service as a ratio of export earning and terms of trade. The study, therefore, proffers certain recommendations in line with the findings.

Keywords: External Debt, External Debt Accumulation, Debt Overhang, Indebtedness, Debt Service, GDP, Economic Growth

1. Introduction

External debt, also called foreign debt, refers to disbursed and outstanding debt owed to non-residents. It could also be referred to as the total public and private debt payable by a government or country in foreign currency, goods or services, to a foreign country or institution. External debt is categorised into three; multilateral, bilateral and commercial debt.

Foreign debt has been a problem for debtor countries since at least the 1960s when the Pearson Commission emphasised the need for increased foreign aid and debt relief.

There is a wide range of causes of debt crisis of the Third World. That notwithstanding, the evolution of debt problem of Sub-Saharan African countries can be attributed to the following factors during the 1970s: the increase in international lending to developing countries, the oil price shocks, public expenditure expansion, transitory commodity

price booms, expanded access to private finance and other trade credit following the 'recycling of the Organisation of Petroleum Exporting Countries' (OPEC) surplus.

The proximate causes of the debt crisis of developing countries in the 1980s were largely the slowdown in economic growth and the sharp increase in international interest rates as a result of monetary contractions in some industrialised countries. In 1982, international debt became a 'crisis' for the creditor banks as they faced writing-off loans. While the banks have coped, many developing countries remained burdened by high levels of foreign indebtedness. The new developments in the 1980s included world recession and further terms of trade deterioration, high interest rates, delayed adjustment programmes and drought (Krumm, 1985) [19]. Other factors included terms of trade shocks (Brooks, 1998) [5] and imprudent debt management policies.

In the 1970s and 1980s, developing countries were encouraged to undertake external borrowing so that they can

create a safe and friendly environment for the accommodation of foreign investment in the bid to boost economic growth. Debtor countries, in the process, paid little attention to the liabilities side of the current account deficit which resulted in an astronomical rise in their external indebtedness until Mexico, despite being an oil exporter, declared in August 1982 that it could not service her debt and had to have them rescheduled. This declaration by Mexico was soon followed by a host of other developing countries. Since then, the issue of external debt and its servicing has become critically significant, and has led to the introduction of the 'debt crisis' debate. Since the onset of the debt crisis in August 1982, the issue of developing countries' external debt has been given considerable attention regarding the debt burden, governments' debt service ability and economic growth, among others.

Between 1980 and 1990, there were about 300 multilateral debt relief agreements. The World Bank identified 25 low income countries, almost all in Africa, as being 'severely indebted'. A further 20 middle income countries, 12 of them in Latin America, are also classified as 'Severely indebted'. The debt crisis was, and to some extent remains, confined to Africa and Latin America- although by 1993 in Latin America, rates of economic growth were beginning to recover and the continent was able to re-enter international capital markets. African countries are primarily indebted to official donors (bilateral and multilateral) while Latin American countries are most heavily indebted to international banks.

Debt relief initiatives beyond mere rescheduling have generally been agreed upon for the heavily indebted poor countries particularly in SSA in the bid to obtain a turnaround in the performance of their economies and also combat poverty. In the late 1990s, the international community considered 'deeper, broader and faster' foreign debt relief- the highly indebted poor countries (HIPC) debt initiative. To benefit from this initiative, countries needed to be eligible based on factors such as ability to translate the given resources into better prospects for the poor, good track record of reforms and pursuance of sound policies (IMF 2001a [16] and 2001b [17]). By the end of June 2001, debt service relief amounting to \$34 billion benefitted 23 countries, 19 of them in Africa (IMF 2001b).

Despite the tremendous improvement made in the debt situation of most middle-income debtor countries, a group of low income countries identified as heavily indebted poor countries (HIPC_s) has continued to experience serious difficulties in managing the servicing of their relatively large levels of external debt. Out of 41 countries classified as HIPC_s, 33 (or 80%) including Sierra Leone are in Sub-Saharan Africa.

Foreign indebtedness is not bad in itself. Also, heavy foreign debt does not automatically hinder growth. What is bad for many countries is their inability to service the debt. In addition, many developing countries lack the necessary information on the structure, type and composition of their foreign debts.

Sub-Saharan Africa is still plagued by its heavy external debt burden. The debt crisis, compounded by massive poverty and structural weaknesses of most of the economies of these countries has made the attainment of rapid and sustainable growth and development difficult.

Basic concerns have been expressed regarding adequacy of the debt reduction, eligibility, length of completion period, performance criteria and possible conflict of interest arising from World Bank and IMF, both of which are creditors (ECA, 1999) [11].

Debt 'overhang' itself is a phenomenon that posits that huge debt in least developed countries (LDC_s) is interpreted by potential investors to be huge tax in a bid to service the debt. Huge debt crowds out investment, which in turn hinders growth. Debt 'overhang' is a constraining factor because debt service absorbs profits that otherwise could have been re-invested in capital accumulation. Also when debt 'overhang' becomes too big enough, the source of foreign savings dries up.

Total debts for Sub-Saharan Africa (SSA) increased from United States Dollars (\$) 84.1 billion in 1980 to \$226 billion in 1985 with a debt service ratio of 14.5% (up from 9.8% in 1980), Debt to Gross National Product (GNP) ratio of 83.1% (up from 30.6% in 1980) and a debt to export ratio of 241.7% (up from 91.7% in 1980) (World Bank, 1997) [38].

In 1990, total outstanding debt for Africa stood at \$270 billion of which SSA accounted for \$163 billion (Mistry, 1997) [24]. In 1993, the foreign indebtedness of developing countries was almost \$1.5 trillion- most of it owed to private creditors. By 1996, the total African debts had increased to \$321 billion. World Bank (2014) [39] declared SSA's total external debt to be \$333.1 billion in 2012. By 2018, the total debt rose to \$364.5 billion.

External debt was not a problem in Sierra Leone until mid1970s. Since then, the country has been experiencing a build-up of external debt stock.

Sierra Leone's total debt, by 1985, rose to the level of \$709.56 million and its export earnings amounted to \$127.01 million. The fall in the world prices for the country's main exports considerably reduced the economy's capacity to earn foreign exchange. This situation greatly affected the capacity of the country to service its debt. Arrears then accumulated rapidly. More debts were incurred by the government in a bid to clear these arrears.

2. Proximate Determinants of External Debt Problem in Sierra Leone

The factors responsible for the external debt problem in Sierra Leone are two-fold: external and internal (domestic). Ajayi (1991) [3], however, argued that the division of the factors into external and internal is not correct because external factors impinge crucially on what happens domestically and vice versa. That notwithstanding, the causes/determinants of Sierra Leone's external debt problem can be attributed to both external and internal factors. The

external factors are outside the control of the domestic authorities as they arise from the international economy while the internal factors are usually within their control.

2.1. External Factors

Association of stiff conditions with short-term loans: Short-term loans usually have short repayment periods to the extent that the repayment will not be made. This induces the country to borrow more to finance the outstanding debt thus increasing its debt problem.

The oil price shocks in the 1970s: The first oil price shock was in 1973. The oil price increase led to deterioration in terms of trade leading to balance of payments (BoP) deficits. The oil shock also contributed to a tremendous increase in the availability of international credit to developing countries at very low interest rates. This encouraged oil importing developing countries (including Sierra Leone) to borrow abroad to pay the higher oil bills (Sachs and Larraine, 1995) [28]. The 1979/80 (the second oil price increase) also coincided with the hosting of the Organisation of African Unity (OAU) summit in Sierra Leone in which case large external debt was contracted at non-concessional interest rates with short repayment periods to meet the OAU related expenses. This led to debt accumulation hence debt problem of Sierra Leone.

The subsequent increase in the interest rate after a period of low interest rate: It is worthy to note that if the interest rate on the loan is too high, there will be difficulty in the debt repayment. For the country to clear the old debt, new loans will be contracted hence accumulation of debt.

Contraction of loans on the basis of spreading ideologies.

Sierra Leone has been contracting certain loans as a way to spread the ideologies of other institutions failing to pay attention to the debt-servicing capacity of the country. The wake of International Monetary Fund (IMF) in the country is a way out to spreading capitalism. Once this is done, IMF would easily give out loans enabling the country to accumulate debt.

The declining terms of trade against the exports of developing countries: A term of trade is the exchange of exports for imports. Declining terms of trade could mean the value of export not enough to import as a result of a fall in the world market prices of the country's main exports. The decline in the terms of trade resulted in a sharp increase in Sierra Leone's debt service-export ratio. On this basis, the government contracted more loans to service the outstanding debt.

2.2. Internal (Domestic) Factors

Large government budget deficit: Government budget deficit occurs when the government expenditure exceeds government revenue. This is characteristic of LDCs of which Sierra Leone is a member. The constraint of the revenue being less than the expenditure is called finance gap. To clear this gap, foreign flow of resources is required. The government of Sierra Leone through domestic monetary

accommodation mainly financed the persistent large deficit and excessive borrowings from external sources will cause debt accumulation hence debt problem. Budget deficit, generally, has been blamed for low investment, high inflation and debt crisis in LDCs at least in the SSA countries.

Lack of appropriate debt management strategy in the country: Even with the knowledge that some projects are economically unviable, they are embarked upon for political reasons.

The hosting of the OAU summit in 1980: Huge expenditure was associated with this summit which is considered to have set the stage for Sierra Leone's external debt problem. The government contracted foreign loans and entered into agreements with short repayment periods in order to meet the related expenses of the summit like hotel bills, street lighting, the purchase of OAU Mercedes Benz (280 SEL) for the diplomats, services etc. Most of the structures the loans were contracted for are not functioning today.

The eleven years civil war: The issue of the eleven years civil war in Sierra Leone cannot be over-emphasised as everyone is fully aware of the consequences it left on the economy. The country contracted several foreign loans to import military equipment and food instead of importing capital equipment for productive purposes. If capital goods were imported instead, export goods necessary for economic growth would have been produced. Massive importation of military equipment against capital equipment during the war incapacitated the economy to engage in development programmes. Foreign borrowing used on the military aggravated the debt problem of Sierra Leone.

Implementation of weak agricultural policies: The country's agricultural policies were so weak that they did not address the problem of agricultural productivity in the country. Local production of agricultural products was not encouraged. The staple food, which is rice, is one such product. One reason for low rice production is the uncultivation of a vast area of land that is good for the production of rice. The quantum of rice produced was, therefore, inadequate. As rice is extremely essential, it had to be imported and even today, it is imported. As foreign exchange was insufficient, external loans were contracted at non-concessional terms to facilitate the rice importation. This has been one of the causes of Sierra Leone's external debt problem.

Exchange rate misalignment (mostly overvaluation of the currency): The exchange rate policy the government adopted then aggravated the debt problem. The Leone was overvalued. Overvaluation is the case when the exchange rate, defined as, domestic currency per foreign currency, is set below the fundamental level, that is, the level dictated by the forces of demand for and supply of foreign currency. Overvaluation of the domestic currency reduces both the cost of imports and exchange earnings. The effect is that it is a subsidy to importers and a tax to exporters. This reduces the export volume over import volume leading to deterioration of trade balance. Balance of payments is thus deteriorated. The

outcome of this is the balance of payment deficit. The government through foreign borrowing largely financed this deficit. This led to debt accumulation.

Improper record of investment: There have not be well defined procedures for the operation of investors. The country did not have central investment institution through which all investment types should go. Such an institution serves for registration, evaluation and monitoring of investment activities. A number of underground projects have been operating in the country and as such, huge government revenue is lost as tax evasion is characteristic of these unregistered projects. An alternative source of revenue has been external borrowing. The fiscal position and hence debt problem of the country have been exacerbated by the above institutional problem.

Lack of foreign exchange: One reason for lack of foreign exchange is that exports are neither expanded nor diversified. Another reason is the elastic nature of the country's exports in the international market. A slight increase in the price of the exports will lead to a more than proportionate decrease in their demand hence low foreign exchange earnings. The size of foreign exchange available to import capital goods is less than that required. This creates what is called foreign exchange gap. To clear this gap, foreign finance is needed hence recourse to foreign borrowing.

Corruption: Corruption has been seen as one of the main causes of Sierra Leone's external debt problem.

3. Literature Review

3.1. Theoretical Literature

There is no unified theoretical explanation for the external debt- economic growth relationship. Some theoretical propositions reveal a positive relationship between external debt and economic growth while others show a negative relationship. However, the majority of the theoretical propositions reveal a negative relationship.

Several hypotheses or channels through which external debt negatively affects economic growth in developing countries have been advanced by economists over time.

First, Debt Laffer Curve theory: This theory shows the relationship between debt accumulation and growth, depicting the optimal level or threshold of debt that promotes growth. Beyond that threshold, further increases in debt impede growth. Krugman (1989) [18], Elbadawi et al. (1996) [12] and Pattillo et al. (2002) [25] support the view of this theory.

Second, Debt Overhang Hypothesis: This hypothesis, as postulated by Sachs (1989) [27] for developing countries, is a phenomenon that posits that large debt stock of an economy is interpreted by potential investors to be huge tax in a bid to service the debt. Investors, therefore, expect an increase in tax on their returns to investment to service the debt. This expectation consequently reduces their investment levels in order to avoid higher future taxes on their income. The huge debt, therefore, crowds out investment which in turn hinders

growth. Debt 'overhang' serves as a constraining factor as profits which could have otherwise been re-invested in capital accumulation can be absorbed by debt service.

Third, Crowding out of public investment: Debt service burden on government reduces public spending as debt servicing involves the use of resources which could have been used by the government for productive investments such as investments on education, health and physical infrastructures which are crucial for economic growth. The debt servicing resources crowd out public investment which dampen growth (Serieux and Yiagadeesen, 2001) [32].

Fourth, Credit Argument: Another view is that huge debt is an indication of high probability of default. This is because when the size of the loan is high, it becomes more difficult to repay. In this case, the probability of getting more loans for productive investment is slim. Hence, high debt stock causes low levels of loans which could be used to complement domestic savings necessary for investment purposes. This will impede economic growth.

Todaro (1989) [33] commenting on the origins of the third world debt crisis stated that developing countries can be held at least partially responsible for the massive accumulation of debt, although the adverse economic conditions that faced them were often beyond their own control which contributed to aggravating the debt crisis in 1980s. He supported the view that this adverse economic climate was in fact precipitated by the industrialised countries' own economic stabilisation policies.

Mansoorian (1991) [21] states that in the 1970s a number of developing countries accumulated huge debts following their discoveries of natural resources. Prominent among these were Mexico and Venezuela. He observed that the amount of debt incurred by these countries was so large that they were forced to undergo stringent measures in order to be able to pay the interests on their debts. According to him, the policies of these countries were such that much of the heavy borrowing did not finance investment at all. It was used instead to finance current consumption spending as well as capital fight by private sector.

From 1979, a growing number of countries began to experience difficulties in meeting their obligations (World Bank Economic Review, 1989) [37]. The increasing difficulty was brought to an alarming point in August 1982 when Mexico, suffering from a sharp decline in export earnings, announced a moratorium on amortisation to commercial creditors. The banks responded quickly by drawing in short term credits and sharply curtailing medium and long-term lending. Most of the low-income countries in Africa were seriously affected by the downturn in the world trade and the weaknesses of the commodity prices.

Sandbrook (1985) [30] suggests that the personalised, neo-patrimonial nature of rulership in many Sub-Saharan African countries has led to the accumulated debts. He points out that in many of these countries, the political systems have often tended to develop among ethnic/regional lines with political factions securing support through means of patronage. Given that the state mechanism represents the greatest single

resource in many African countries, there is a tendency for it to become the focus of a spoilt system in which different factions compete for the control of national finance in order to fund their patronage work. This style of rulership leads itself to the misuse of the state funds, thus aggravating tendencies towards indebtedness.

Some views place the responsibility for the debt crisis not only on debtors, but also on creditors, creditor governments and international agencies. Borrowing from commercial sources in the 1970s assumed disproportionately big role in causing debt problems (United Nations Conference for Trade and Development (UNCTAD) Report, 1988) [35]. Despite the fact that banking can be undermined by unanticipated shrinkage of borrowers' debt servicing capacity, banks zealously competed with one another, thus adding to developing countries' debts. The competition was on the basis of deposit base enlarged by the reserve accumulation of oil exporting countries. The banks did so through the device of syndicate without attention to debtors' debt-servicing capacity.

Corbo and Hernandez (1996) [9] explain debt crisis of 1982 as being precipitated by a sudden reduction in capital inflows at a time when highly indebted countries were facing a slowdown of the world economy, large increase in international interest rates, and a sharp loss in terms of trade. The cut-off of capital inflow forced a quick and steep increase in the size of the external transfer thereby sharply reducing domestic expenditure and imports, undermining investment role and economic growth. Furthermore, weak economic institutions in many developing countries exacerbated the effects of these shocks.

According to the Economic Commission for Africa (ECA) report (1999) [11], heavy borrowing undertaken outside the framework of a properly analysed macroeconomic sector and institutional capacity framework, and which was not accompanied by productive investment, has been a root cause of debt problems for African countries as well as their creditors. Furthermore, many public sector investment projects financed with borrowed foreign funds did not achieve rates of return expected at appraisal, thus contributing more to debt burden than output. Had the borrowed funds financed investments with high returns and growth in income significantly exceeded interest rates, the problem might not have arisen. Additionally, had those funds underwritten necessary structural changes, African countries could have survived the downturn in international economic conditions in 1970s like Korea did, pursuing that strategy while its debt increased nine-fold.

Sachs (1989) [27] states for developing countries that large debt stock negatively impacts on investment and growth because it reduces investors' incentives due to high anticipated tax on their future incomes and returns to investment toward servicing accumulated debt.

Cohen (1993) [8] states that when debt is large, its servicing has crowding out effect on investment, a channel through which external debt flows directly hamper growth. The more the current debt service, the less the resources are

available to finance investment.

In the case of Sierra Leone, a host of factors including the oil price shocks, declining terms of trade and the inappropriate macroeconomic policies, are the key elements responsible for the debt accumulation.

The aforementioned literature suggests that excess debt can jeopardise economic growth in developing economies, more so when debt cannot be sustained amidst weak macroeconomic, social and political environment. Such environment is not uncommon in the case of Sierra Leone, typical of any poor developing country.

3.2. Empirical Literature

Several empirical studies have been conducted to investigate the causes of external debt and to ascertain the impacts of external debt accumulation on economic growth in developing countries.

Metwally and Tamaschke (1994) [23] investigated the interaction between debt servicing, capital inflows and growth for 3 North African Countries (Algeria, Egypt and Morocco) for the period 1975-1992. Using standard OLS and the Two Stage Least Square (2SLS) methods, they examined simultaneous models. They discovered that debt servicing affected economic growth negatively.

Mbire and Atingi (1997) [22] undertook a study of the factors that influence debt accumulation in Uganda. They empirically assessed both internal and external factors influencing the country's debt accumulation and found out that worsening terms of trade negatively impacted on the economy which revealed that Uganda's debt crisis was greatly influenced by external factors.

Ajayi (1991) [3] examined the factors that influence Nigeria's debt accumulation. Both internal and external factors were estimated using regression analysis. He expressed, in his model, the debt-GDP ratio as a function of terms of trade, foreign real interest rate, fiscal performance, real effective exchange rate, growth rate of income in industrialised countries and the linear time used. He found out that the terms of trade, fiscal performance and the real effective exchange rate significantly affected Nigeria's external debt accumulation.

Clements et al. (2003) [7] investigate the relationships between external debt, investments and growth in 55 low-income countries, finding some empirical evidence in favour of the debt overhang. Estimating a simple growth model and using panel data, they find that, over a certain threshold, more debts lead to negative rates of growth. Furthermore, they show that public investments are what really matter for economic growth: a one percent increase in public investment results in a 0.2 percent increase in GDP, but the positive linkage becomes less effective as long as public investments increase, because they lead to higher deficit and to higher levels of debt, which negatively affect economic growth.

Adesola (2009) [1] examines the effect of external debt service payments on the economic growth of Nigeria using ordinary least square (OLS) multiple regression method for

his analysis. It was found that debt payments have negative impact on economic growth.

Safia and Shabbir (2009) [29] investigate the impact of external debt on economic growth in 24 developing countries from 1976 to 2003. The study applied random effect and fixed effect estimation. The results shows that debt servicing to Gross Domestic Product (GDP) negatively affected the economic growth and may leave less funds to finance private investment in such countries thereby creating crowding out effect.

Cunningham (1993) [10] examines the association between debt burden and economic growth for 16 heavily indebted nations during the period 1971-1987. It is predicted that the growth of a nation's debt burden has a negative effect on economic growth because of the impact of labour and capital on the productivity. As a nation has a significant debt burden, the debt burden needs to be serviced. This will influence how capital and labour will be used in production. This study concludes that the growth of a nation's debt burden had negative effect on economic growth during the period 1971-1987.

Elbadawi et al (1996) [12] studied the effect of debt overhang on the economies of Sub-Saharan Africa by estimating both private investment and growth equations using debt ratios, inflation, fiscal deficit, exchange rate misalignment and terms of trade and found out that the variables negatively affected investment and growth.

Greene and Villanueva (1989) [15] carried out similar study by regressing investment on percentage change in consumer price index and debt ratios, including other economic variables, and the coefficients were as expected (negative) and significant at 1% level.

Fischer, S. (1991) [13] conducting a survey as to whether macroeconomic policy matters, with respect to developing countries, discovers that foreign debt negatively affects per capita real growth.

Buffie and Krause (1989) [6] carried out a study on the economy of Mexico. They found out that lack of savings was identified as one of the major causes of debt problems of Mexico in 1982.

The empirical findings of Afxentiou and Serletis (1996) [2], for developing countries, show that there exists a negative relationship between indebtedness and national

productivity from 1980-1990. This was attributed to excess debt accumulation from 1970-1980 when foreign loans were taken to cushion the shock from oil price increases in early 1970s.

Savvides (1992) [31] claimed that debtor nations who were unable to repay their external debts would have any debt payment to be negatively linked to economic performance. The finding is suggestive that economic benefits that accrue to the debtor nation in terms of increments in output or exports is minimised due to debt servicing requirements.

Malik and Atique (2012) [20] use the autoregressive distributed lag (ARDL) to examine the impact on economic growth of external debt in Pakistan for the period between 1980 and 2010. The finding of the study shows a negative external debt- economic growth relationship.

Uzochukwo (2005) [34] investigates the impact of external debt on economic growth in Nigeria for the period spanning between 1980 and 2010 using ARDL. The study shows that external debt impacts adversely on Nigerian economy for the period under study.

Pattillo et al (2002) [25] examine the non- linear effect of external debt using a panel data of 93 countries for the period 1969- 98 applying econometric methodologies. The findings of their study suggest that the average effect of debt becomes negative at about 160- 170% of exports or 35- 40% of GDP. The study also reveals that the marginal effect of debt starts being negative at about half of these values. Were (2001) [36] in her study stated that Sub- Saharan Africa (SSA) is still plagued by its heavy external debt burden compounded by massive poverty and structural weaknesses of most of the economies, which has rendered difficult the achievement of rapid and sustainable growth and development.

4. Methodology

4.1. Model Specification and Description of Variables

The model specification for this study borrows from the works of Fischer (1991) [13], Elbadawi et al (1996) [12], and Gura and Hadjimichael (1996) [14] within the framework of endogenous growth models. Such models analyse long-term economic growth as a function of macroeconomic stability. The general form of the model is given as follows:

$$\text{GDPGR} = f(\text{EDEBTGDP}, \text{EDEBTSEREXP}, \text{EXPGR}, \text{TOT}, \text{INFL}, \text{PRINV}, \text{PRINV}_{-1}, \text{PUINV}, \text{PUINV}_{-1}, \text{FDGDP}) \quad (1)$$

Expressing the above form of the model in linear form, equation 2 is obtained below:

$$\text{GDPGR} = \alpha_1 + \alpha_2 \text{EDEBTGDP}_t + \alpha_3 \text{EDEBTSEREXP}_t + \alpha_4 \text{EXPGR}_t + \alpha_5 \text{TOT}_t + \alpha_6 \text{INFL}_t + \alpha_7 \text{PRINV}_t + \alpha_8 \text{PRINV}_{t-1} + \alpha_9 \text{PUINV}_t + \alpha_{10} \text{PUINV}_{t-1} + \alpha_{11} \text{FDGDP}_t + e_t \quad (2)$$

where all the variables are expressed in logarithmic form:

GDPGR = GDP growth rate;

EDEBTGDP_t = stock of external debt to GDP ratio;

EDEBTSEREXP_t = debt service as a ratio of export earnings;

EXPGR_t = export growth;

TOT_t = terms of trade;

INFL_t = rate of inflation;

PRINV_t = current private investment as a ratio of GDP;

PRINV_{t-1} = lagged private investment as a ratio of GDP;

PUINV_t = public investment as a ratio of GDP;

PUINV_{t-1} = lagged public investment as a ratio of GDP;

FDGDP_t = fiscal (budget) deficit to GDP ratio;

e_t = the error term;

t = time subscript;

α_i = elasticities.

Expected signs of the coefficients of the variables in the growth model.

The variable representing the stock of current debt inflow as a ratio of GDP ($EDEBTGDP_t$) is expected to have a positive sign as current inflow of debt is expected to stimulate growth to confirm the first channel through which external debt affects growth in respect of filling resource gaps (Elbadawi et al, 1996) [12].

The coefficient of the variable representing debt service to export ratio ($EDEBTSEREXP_t$) is expected to be negative. Large debt servicing has the effect of reducing resources available to finance investment which in turn crowds out investment, a channel through which external debt flows directly hinder growth (Cohen 1993) [8]. The export earnings of developing countries are often grossly inadequate to service their debts.

The variable representing export growth ($EXPGR_t$) is expected to have a positive sign since an increase in exports creates a positive impact on economic growth.

The sign of the variable representing terms of trade (TOT_t), expressed as exports divided by imports, is expected to be mixed (i.e. positive or negative). Terms of trade will be favourable if exports exceed imports hence a positive effect on the growth of the economy. The opposite is correct.

The coefficient of the variable representing inflation rate ($INFL_t$) is expected to be negative. Theoretically, the effect of inflation on growth seems non directional. Higher anticipated inflation leads to a lower real interest rate and raises real investment and growth (Tobin-Mundell effect). According to Blanchard (1999) [4], this positive effect would, however, not be realised given the underdevelopment nature of financial and capital markets in developing countries, thus higher anticipated inflation in these countries would be expected to lower private investment and growth.

The signs of the variables representing the current private investment and lagged (past) private investment to GDP ratios ($PRINV_t$ and $PRINV_{t-1}$) respectively, are expected to be positive as growth in investment facilitates faster economic growth (the accelerator principle).

The signs of the variables representing the public sector investment and lagged (past) public sector investment as ratios of GDP ($PUINV_t$ and $PUINV_{t-1}$) respectively, are expected to be mixed (that is, positive or negative). The signs are expected to be positive if the public investment (current or past) is geared towards viable/productive investments including infrastructural developments such as provision of good road network, transport, communication, education and health facilities etc. These developments impact positively in growth. On the other hand, if public investment (current or past) is not geared towards viable/productive projects, this will translate into adverse impact on economic growth. Additionally, there will be crowding out of private investment if government finances public investment through heavy borrowing from domestic financial institutions as this imposes constraints to private investment in relation to

accessing loans from these financial institutions. This limits the ability of investors in the private sector to raise funds to finance investment activities, in which case increase in public investment may be expected to impact negatively on growth via the negative impact on private investment (Clements et al, 2003) [7].

According to the conventional theory, the coefficient of the variable representing fiscal (budget) deficit as a ratio of GDP ($FDGDP_t$) is expected to be negative. This is justified through the usual methods employed to finance a growing budget deficit in many developing countries: deficit financing through monetary accommodation (i.e. printing more money) creates inflationary pressures; depleting foreign reserves leads to balance of payments problems; increasing domestic borrowing has the effect of raising domestic interest rates and crowding out private investment; and recourse to excessive external borrowing can precipitate debt crisis.

4.2. Estimation Techniques

The study first carries out unit root tests for stationarity on the time series properties of the data set. This study will employ two tests among the several stationarity tests: the Augmented Dickey-Fuller (ADF) test and the Philips-Perron (PP) class of tests for unit roots.

The traditional view of the unit root hypothesis was that current shocks only have a temporary effect and the long-run movement in the series is unaltered by such shocks. This view was challenged by Perron (1989) [26], who argues that in the presence of a structural break, the standard ADF tests are biased towards the non-rejection of the null hypothesis. Perron argues that most macroeconomic time series are not characterised by a unit root but rather that persistence arises only from large and infrequent shocks, and that the economy returns to deterministic trend after small and frequent shocks. Fluctuations are indeed stationary around a deterministic trend function. The only shocks which have had persistent effects are the 1929 crash and the 1973 oil price shock (1989, pp. 1361). Perron's (1989) [26] procedure is characterised by a single exogenous (known) break in accordance with the underlying asymptotic distribution theory. Perron's (1989) [26] unit root tests allow for a break under both the null and alternative hypotheses. These tests have less power than the standard Dickey-Fuller (DF) type test when there is no break.

Using appropriate econometric criteria, some other diagnostic tests, in addition to the tests of stationarity, are employed to appraise the robustness of the estimated growth equation. The study will employ the Ordinary Least Square (OLS) approach to estimate the relevant parameters of the specified model once the test for stationarity based on Perron (1989) [26] shows that the variables are stationary. This will be augmented with various diagnostic tests to assess the extent to which the model satisfies the key conditions of the classical linear regression. Against this backdrop, this study will employ the Jarque -Bera test statistic to test the normality of the residuals. The Lagrange Multiplier (LM) test will be employed to examine the presence or absence of serial correlation in the residuals. The study will also employ

the Durbin-Watson's (DW) statistic to assess whether the residuals are serially correlated. The LM test for Autoregressive Conditional Heteroscedasticity (ARCH) will be implemented to assess the presence or absence of ARCH effects. Finally, the Regression Specification Error Test (RESET) will be implemented to evaluate functional misspecification problems.

4.3. Data Sources

The data set used in carrying out the analysis in this study was collected from annual time series spanning between 1973 and 2021 on key macroeconomic variables including GDP growth rate, stock of external debt to GDP ratio, debt service as a ratio of export earnings.

The analysis in this study is carried out using data obtained from various sources: Ministry of Finance, Bank of Sierra Leone, Sierra Leone Central Statistics Office (Statistics Sierra Leone), International Financial Statistics (IFS), World Bank and World Debt Tables-various issues.

5. Presentation and Analysis of Results

The foremost assumption of the classical regression technique, in particular, the ordinary least square (OLS) is that the variables under consideration are 'stationary', implying that their mean, variance and covariance are time invariant (i.e. do not depend on time). This assumption does not often hold. It often turns out, in most empirical works, that almost all macroeconomic variables employed in carrying out the analysis are non-stationary. Unfortunately, a

regression carried out with such non-stationary series gives spurious results and such regression is appropriately referred to as 'spurious' or 'non-sense' regression. This study will carry out appropriate tests for stationarity in the bid to systematically address the problem of spurious correlation that arises when non-stationary series are present in regression models.

Here, consideration is also taken of the fact that current shocks tend to have temporary effects when structural breaks are present. In such a circumstance, the standard Augmented Dickey-Fuller (ADF) class of tests are biased towards the acceptance of the alternative hypothesis. To do away with this problem, the study will compare the results obtainable from the ADF test without taking into consideration structural breaks to those obtained from Perron's (1989) [26] approach which takes account of structural breaks in the data. The approach by Perron (1989) [26] made use of a modified version of the Dickey-Fuller (DF) unit root test. Perron (1989) [26] employs a simulation approach in implementing the unit root test when structural breaks are suspected to be the main cause of non-stationarity. In following Perron's approach, a major structural break was detected in the data set for the year 1997 which partly can be explained by the military interregnum that resulted in very serious macroeconomic instability following the ousting of the democratic government of the late President Ahmed Tejan Kabbah. The Perron (1989) [26] unit root test takes into account both an innovative outlier (IO) and an additive outlier (AO). The results for both the Augmented Dickey-Fuller (ADF) and Perron (1989) [26] tests are shown in Table 1.

Table 1. Results of the Stationarity Tests for the Time Series Variables.

SERIES	ADF test with a drift and trend (no structural breaks accounted for)	Perron (1989) test with structural breaks accounted for.(Year of break =1997)	Critical Values ADF test		Critical Values Perron (1989) test	
			5%	1%	5%	1%
LGDPR	-2.9683	-4.6693**	-3.4437	-4.4417	-3.2239	-4.4112
LDEBTGDP	-2.7249	-4.5924**	-3.4418	-4.4439	-3.3018	-4.4023
LDEBTSEREXP	-2.9916	-4.9287**	-3.4119	-4.4435	-3.4122	-4.4319
LEXPR	-2.6387	-3.9722*	-3.4881	-4.4522	-3.5188	-4.4426
LTOT	-2.9899	-4.3814*	-3.3273	-4.3712	-3.3227	-4.4111
LINFL	-2.8286	-3.3148*	-3.3326	-4.3267	-3.3429	-4.3149
LPRINV	-2.9428	-3.3008*	-3.2274	-4.3018	-3.2009	-4.4327
LPUINV	-2.8612	-4.8104**	-3.2432	-4.3164	-3.2557	-4.4356
LFDGDP	-2.7659	-4.1146*	-3.3365	-4.4013	-3.4784	-4.4488

Where (**) implies rejecting the null hypothesis of non-stationarity at 5% and 1% respectively.

Despite the inclusion of a drift and a trend in the test, the unit root results based on the ADF test indicate that all the variables employed in running the regression are non-stationary in levels. The fact remains that the standard ADF test for unit roots does not account for the presence of structural breaks which resulted to the non-rejection of the null hypothesis of unit roots at both the 5% and 1% levels of significance.

On the other hand, when the Perron's (1989) [26] approach that takes into account structural breaks emanating from exogenous shocks is implemented, the results from the unit root test show that all the variables are stationary with a major

break in 1997. This is because the null hypothesis of the unit root is rejected at least at the 5% level of significance for the Perron (1989) [26] unit roots test. Thus, the results from the unit roots test as presented in table 1 show that the series are stationary when exogenous breaks are taken in account. This, therefore, guarantees the use of the OLS in carrying out the estimation of the specified model since non-stationarity in levels as indicated by the ADF test could only be attributed to a major structural break that occurred in 1997.

The study deemed it fit to carry out the estimation of the parameters of the specified model using the Ordinary Least Square (OLS). This is because, the fact that the variables

involved in the analysis have been proved to be stationary when structural breaks are accounted for, the issue of spurious regression resulting from non-stationary series has implicitly been addressed.

In running the OLS regression, Professor Hendry's general- to- specific approach which involves two steps is followed. In the first step, we include all the variables that

are being specified in the model and examine the significance of the parameter estimate of each variable using the usual t-test. In the second step, we drop all those variables that are not significant in the first regression to arrive at a model where all the parameters are significant at least at the 10% level of significance. The results using the Hendry's general- to- specific modelling approach are presented in Table 2.

Table 2. Results from the Ordinary Least Square Regression with GDP growth rate (GDPGR) as the dependent variable.

Variable	Panel A	Panel B
Constant	6.3122 (1.96)*	7.7469 (2.13)**
LDEBTGDP	-0.2613 (-2.08)**	-0.2736 (-2.15)**
LDEBTSEREXP	-0.2566 (-1.96)*	-0.3154 (-2.07)**
LEXPGR	0.1193 (0.48)	-----
LTOT	-1.1518 (-2.10)**	-1.3217 (-2.12)**
LINFL	0.8502 (0.88)	-----
LPRINV	-1.5955 (-1.06)	-----
LPRINV_1	-0.4334 (-1.64)	-----
LPUINV	0.6699 (2.02)**	0.6912 (2.08)**
LPUINV_1	-0.2224 (-0.49)	-----
LFDGDP	-0.0178 (-0.33)	-----
Diagnostic Tests	$R^2 = 0.8342$ AR 1–2F(2, 27)=2.8243 [0. 0919] ARCH 1 F(1, 27) = 0.0281 [0.9505] Normality χ^2 (2) = 4.9216 [0.0896] X^2 F(12, 11) = 0.8631 [0.7225] DW (6, 38) = 1.8942 RESET F(3, 27) = 0.8736 [0.3942]	$R^2 = 0.8110$ AR1–2F(2, 27) = 2.8243 [0. 9904] ARCH 1F(1, 27)= 0.0278 [0.9901] Normality χ^2 (2)= 4.8271 [0.0998] X^2 F(12, 11)= 0.8631 [0.7307] DW (6, 38)= 1.9142 RESET F(3, 27)= 0.9845 [0.4927]

Where figures in parenthesis are t-values and *(**) and (***) imply significance at the 10%, 5% and 1% respectively.

Panel A shows the results from the regression that included all the variables specified in the model where it could be observed that the parameters of the following variables- LEXPGR, LINFL, LPRINV, LPRINV_1, LPUINV_1 and LFDGDP are all insignificant and were, therefore, dropped from the final regression represented by Panel B.

The diagnostic tests summary results of Panel B revealed the following:

1. There is no problem of residual non-normality since the test for normality based on the Jarque-Bera statistic does not reject the null hypothesis of normality of the residuals.
2. The test based on the Lagrange Multiplier (LM) showed that there is no serial correlation in the residuals.
3. The test based on the Durbin-Watson's (DW) statistic supports the LM test above (i.e. the residuals are serially uncorrelated).
4. The LM test for Autoregressive Conditional Heteroscedasticity (ARCH) indicated the absence of ARCH effects.
5. Finally, the RESET revealed the absence of functional mis-specification problem.
6. The results from the above diagnostic tests confirm that the estimated growth equation is quite robust.
7. The interpretation of results will only be focused on Panel B where parameter estimates are significant.

First, it could be observed that the sign of the variable representing the debt to GDP ratio (LDEBTGDP) is negative and significant at the 5% level of significance. The coefficient of this variable indicates, in terms of relative effects, that a 10% rise in Sierra Leone's debt to GDP ratio

will decrease economic growth by a margin of approximately 2.7%. Although the result is not consistent with the model's expectation, it should not be surprising because, based on the debt-overhang hypothesis, the levels of private investment and growth are expected to be lower if the country's debt to GDP ratio rises beyond a reasonable threshold. It can be argued that a continuous increase in the country's debt will scare away potential investors as they anticipate increases in tax burden in the bid to service the debt. This finding is consistent with the studies by Krugman (1989) [18] and Elbadawi et al (1996) [12] who noted that there is a limit to which debt accumulation stimulates growth which is line with the theory of the "Debt Laffer Curve".

Second, the coefficient of the variable representing debt service as a ratio of export earnings (LDEBTSEREXP) is negative which is consistent with the expected sign in the specified model and also significant at the 5% level of significance. In terms of relative effects, the coefficient of this variable indicates that a 10% increase in debt service as a ratio of export earnings will induce a decline in economic growth in Sierra Leone by approximately 3.1%. This result is not surprising because the ability of a country to service its debt from export earnings will decline as the ratio of debt service to export earnings rises. This finding is consistent with the study by Metwally and Tamaschke (1994) [23] who discovered that debt servicing affects economic growth negatively. If this situation is not addressed, the tendency for the country to face a debt crisis may likely arise. When this happens, economic growth will be adversely affected in a similar way in which increase in debt to GDP ratio may affect economic growth as discussed in the previous paragraph.

Third, the coefficient of the variable representing terms of trade (LTOT) is negative and also significant at the 5% level of significance. In terms of relative effects, the coefficient of this variable shows that a 10% deterioration in the terms of trade will retard economic growth in Sierra Leone by approximately 13.2%. This result is not surprising because Sierra Leone, a small open economy, largely depends on the export of raw materials particularly minerals and agricultural products. A significant amount of the country's export goes without value addition. This finding is consistent with the studies by Mbire and Atingi (1997) [22], and Ajayi (1991) [3] who noted that worsening terms of trade negatively affects growth.

Fourth, the coefficient of the variable representing public sector investment (LPUINV) is positive and also significant at the 5% level of significance. In terms of relative effects, the coefficient of this variable reveals that a 10% increase in public sector investment will induce Sierra Leone's economic growth by a margin of approximately 6.9%. This result supports the fact that public sector investment especially in the area of infrastructural development is important in promoting a country's economic growth. This finding supports the study by Clements et al (2003) [7] who discovered that over a certain threshold, public sector investment impacts positively on economic growth.

6. Summary, Policy Discussion and Conclusion

6.1. Summary

Following the works of Elbadawi et al (1996) [12], Gura and Hadjimichael (1996) [14], and Fischer (1991) [13] who made use of endogenous growth models to analyse long-term economic growth, this study attempted to investigate the impact of external debt on the Sierra Leone economy. The methodology adopted in this study takes cognizance of the importance of analysing the time series properties of the data set used in carrying out the analysis. On that note, the study followed a more robust approach of testing for unit roots based on Perron (1989) [26]. This approach made use of a modified version of the Dickey-Fuller (DF) unit root test. On the basis of this test, all the variables utilised in carrying out the regression were found to be stationary with a major structural break identified in 1997. An estimation procedure based on the ordinary least square (OLS) using secondary time series data for the period 1973-2021 was employed as a result of the encouraging results from the unit root tests. The period was deemed to be sufficient in producing robust estimates. Furthermore, the estimation approach employed made use of the Hendry's general-to-specific modelling procedure which resulted in arriving at a congruent model that provides significant parameter estimates explaining the key drivers of economic growth in Sierra Leone.

First, the debt as a ratio of GDP is observed to have a significantly adverse effect on the Sierra Leone economy for the period under study. This result supports the proponents of

debt "overhang" hypothesis who argue that the higher the country's debt to GDP becomes, the lower the level of private investment and hence growth. In particular, Sachs (1989) [27] argues that for developing countries, large debt stock negatively impacts on private investment and growth because it reduces investors' incentives due to high anticipated tax on their future incomes and returns to investment toward servicing accumulated debt. This finding is in line with the studies by Krugman (1989) [18] and Elbadawi et al (1996) [12] who noted that there is a limit to which debt accumulation stimulates growth.

Second, the study indicated that a rise in debt service as a ratio of export earnings has a significantly adverse effect on economic growth in Sierra Leone. This finding corroborated the study by Metwally and Tamaschke (1994) [23] who noted that debt servicing negatively affects economic growth.

Third, the study further showed that deterioration in the country's terms of trade negatively affects economic growth in Sierra Leone for the period under study which reflects the extent to which the country is dependent on its export of unprocessed raw materials including minerals and agricultural products. This finding further revealed the extent to which the Sierra Leone is vulnerable to external shocks, particularly those related to the country's export sector. This finding is consistent with the studies by Mbire and Atingi (1997) [22], and Ajayi (1991) [3] who noted that worsening terms of trade negatively affects growth.

Last, the study also showed that public sector investment has positive impact on economic growth in Sierra Leone which demonstrates the significant role of public sector investment particularly in the area of infrastructural development as viable strategy to promote economic growth in Sierra Leone. This finding corroborated the study by Clements et al (2003) [7] who discovered that over a certain threshold, public sector investment impacts positively on economic growth.

6.2. Policy Discussion

This study has provided empirical evidence that external debt accumulation has impacted negatively and significantly on the economic growth in Sierra Leone for the period under study as indicated by the negative coefficients of the variables representing debt as a ratio of DGP, debt service as a ratio of export earnings and terms of trade. The coefficient of the variable representing public debt to GDP ratio is, however, positive.

The study implicitly suggests that higher levels of public debts as a ratio of GDP has significantly adverse effects on growth in Sierra Leone. By way of recommendation, it is important to note that public sector debt currently poses a seriously adverse effect on the country's long run growth trajectory. With a view to reverse its adverse effect on growth in Sierra Leone, there is a stronger need to review the country's debt management strategy in order to introduce more robust measures that will ensure long term productivity of public debt. This can be achieved by introducing a system of debt management that will ensure that external borrowing

will not be concentrated on financing short term government recurrent expenditure but to finance long term public investment objectives. Short term government recurrent expenditure should be tied to revenue generated from taxes, grants and other government revenue sources.

Similarly, increased debt service to export earnings retards efforts to boost economic growth. In line with the existing literature, higher external indebtedness, if not well managed, will affect growth through several channels including crowding out effect on private sector investment. By way of recommendation, it is high time the country adopted export expansion and diversification away from traditional exports since there have been limited measures to achieve this goal. Development activities could also be financed through increased export earnings spearheaded by an export-led growth strategy. As part of the broader strategy to assist HIPC countries out of the debt crisis, the international community should provide a conducive environment for exports from low income countries including Sierra Leone. Efforts to increase exports have been frustrated by protectionist strategies adopted by industrialised countries, quota system and low prices for LDCs' products.

Deteriorating terms of trade significantly retard efforts to boost economic growth. With the view to reverse this situation, the government should also promote export growth by expanding and diversifying exports. Exports should be in excess of imports.

Since the study reveals that public sector investment has a growth promoting effect on the Sierra Leone economy, it is recommended that a high proportion of debt be directed towards public sector investment particularly towards enhancing the development of the country's infrastructure which through boosting private sector investment will mitigate the adverse effects of external debt on economic growth. As noted by a number of studies, the question is not the stock of external debt but rather the way and manner it is being managed. If a greater proportion of external debt is directed towards financing recurrent expenditure, this will leave little room for external debt to be productive in the long run through public sector investment. However, as noted earlier, if a higher proportion of debt is directed towards public investment to create the enabling environment for private sector investment, then external debt can be a blessing rather than a curse.

Other relevant policy recommendations are as follows:

Maintenance of political stability: The government of Sierra Leone should continue maintaining political stability in the country. For growth to take place, government should provide the private investors with a conducive business environment. If there is political instability, investors will be discouraged from investing in such environment and this will impact negatively on the country's economic growth.

Implementation of strong agricultural policies: The government should implement strong agricultural policies which will increase the country's capacity to produce essential commodities such as rice (the country's staple food) in substituting for their importation. The government should

utilise the uncultivated arable land to produce rice instead of importing. If this is done, external borrowing to import these commodities will be reduced.

Extraction of crude oil: High oil price is recognised as one of the main external causes of external debt problem in Sierra Leone hence its balance of payments problem. But the country has been discovered to have deposits of crude oil. I, therefore, recommend that the government undertakes an oil-extraction programme so that oil bottlenecks on the balance of payments will be eliminated.

Abolition of corruption: Corruption which is one of the internal causes of debt crisis in the country must be completely wiped out. The government should ensure that accountability, good governance and transparency exist in all sectors in the country.

Receipt of non-debt foreign exchange: The government should encourage the receipt of non-debt foreign exchange such as that from tourism. To achieve this, government should create enabling environment for tourist attraction.

Debt rescheduling and cancellation: The government should involve in thorough debt rescheduling negotiations and should appeal for debt cancellations and arrange for debt-buy-backs and debt-equity-swaps.

Prudent and efficient debt management: What matters in the treatment of debt problem is not debt abolition but rather its prudent and efficient management. Therefore, the debt management office in Sierra Leone should improve its efficiency with which debt policies are formulated and implemented. The office should ensure effective control and surveillance of external borrowing and keep comprehensive and accurate data on foreign borrowing. Against this backdrop, legislation regarding debt should be revisited with the view to stopping individuals from contracting loans on behalf of the government. Well informed and capable personnel should be employed to evaluate the effects of external borrowing from time to time and provide policy advice to the government on the implications of debt accumulation.

Establishment of an effective, efficient and politics free central investment institution: The government should establish a central investment institution in the country that is effective, efficient and devoid of political influences which can serve as the main channel through which all types of investment must pass for the purposes of registration, evaluation and monitoring. This step will enhance the keeping of accurate data on existing investment by the government. This will reduce or eliminate tax evasion as it serves as an efficient tax collection system, and will increase government revenue hence recourse to external borrowing will be reduced.

Adoption of a realistic exchange rate system: Government should adopt a realistic exchange rate system coupled with macroeconomic policy that avoids inflation in the country.

Debt reduction strategies: A sustainable debt and debt reduction strategies should be implemented and accompanied by a favourable macroeconomic and healthy financial environment. Appropriate frameworks in this direction

should be in place to avoid high inflation rates, maintain exchange rate stability and enhance investors' accessibility to domestic credits. Efforts should be made toward promoting a developed capital market to strengthen the financial system of Sierra Leone.

6.3. Conclusion

The primary concern of this study was to examine the impact of external debt on economic growth in Sierra Leone for the period spanning between 1973 and 2021. The study also examined Sierra Leone's external debt structure, type and magnitude. A colossal proportion of the external debt of Sierra Leone comprises official debts contracted from multilateral sources such as IMF and World Bank. Both external and internal factors were identified to be the determinants of Sierra Leone's external debt problem.

The empirical findings in this study revealed that debt "overhang" adversely and significantly impacted on Sierra Leone's economic growth for the period under study which is in acceptance of the debt "overhang" hypothesis in the literature [Krugman 1989 [18] and Sachs 1989 [27]]. This signifies that excessive external debt accumulation reduces current investment which consequently jeopardises growth. Put another way, large accumulated debt stock would signal to investors that their future returns to investments and incomes will be heavily taxed and as a result, current investment by both domestic and foreign investors will be discouraged and economic growth dampened.

As indicated by the negative coefficient of the debt service as a ratio of export earnings, the external debt service has impacted negatively and significantly on the Sierra Leone economy. The way government services its debt obligations largely determines the relationship between debt and growth which is in respect of the methods it uses to raise fiscal revenue to finance external debt. Financing external debt obligations through monetary accommodation is inflationary in consequence and financing debt through domestic borrowing crowds out private sector investment. The debt reduction initiatives pursued in the country under the guidance of multilateral institutions like the IMF and World Bank did not prove successful in reversing the trend in the country's economic fluctuation. These institutions rather seemed to have augmented the debt stock and problem of Sierra Leone as their assistance was in the form of disbursing more loans once their conditionalities were accepted, some of which may have been counter-productive (Elbadawi et al, 1996) [12].

Unit roots test and diagnostic tests such as Lagrange Multiplier test, Jarque-Bera test statistic, and LM test for Autoregressive Conditional Heteroscedasticity were carried out in this study. The results that have emerged from this study show that borrowed funds were perhaps not prudently managed and realised returns from investment may have fallen short of expected incomes.

It can, therefore, be concluded that accumulated external debt adversely and significantly impacted on the economic growth in Sierra Leone for the period under study. This

clearly revealed that there is a negative nexus between external debt and economic growth in Sierra Leone for the period under consideration.

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