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Article

Foreign Aid and External Debt–A Bane or a Boom to the Ghanaian Economy? New Insights

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Abstract: Over recent years, the Ghanaian economy has struggled to find its feet on the ground despite rising public debt and unending inflows of foreign aid. Against this backdrop, this study employs the Vector Error Correction Model (VECM) estimation technique on data from 1970 to 2020 to test the usefulness of the debt overhang hypothesis and the dependency theory in the special case of Ghana. The results confirm evidence of the debt overhang hypothesis and the center-periphery wisdom of the dependency theory in Ghana. The findings depict that an increase in external debt stock and total debt service on external debt have both short and long-run growth-limiting effects on the Ghanaian economy. Similarly, foreign aid catalyzes growth only in the short run and later suppresses rather than stimulates economic growth in Ghana over the long run. The study recommends that harnessing domestic resources, maintaining fiscal discipline by cutting down unproductive expenditures, enhancing an effective tax system, and promoting institutional capabilities to counteract corruption and openness to trade are better ways to fast-track growth development in Ghana.

Keywords: foreign aid; external debt; debt overhang; dependency theory; Ghana; VECM

1. Introduction

With a weak tax system, undeveloped structures, and poor institutional capability, many developing countries, particularly in Africa including Ghana find it difficult to mobilize domestic resources for growth and development. In this light, many developing countries resort to grants and external debt financing for major development projects and poverty alleviation programs. However, the question remains whether grants (foreign aid) and external debt stimulate growth and development in these nations. Ogunmuyiwa, (2010) argued that when tax revenue is limited and a fiscal vacuum is created, external debt-financing becomes the only available option for governments to raise a substantial amount of money and foreign capital to provide infrastructure for their citizens. This argument stem from the fact that printing more money to finance development projects could have severe economic consequences and undermine macroeconomic stability. Likewise, domestic borrowing as a source of financing for major development projects can lead to rising interest rates, increase domestic savings, low consumption, and investment, and consequently crowd the private sector out of business. Nevertheless, excessive reliance on external debt and inappropriate debt management can lead to a drawdown of a country's foreign reverses and calls for a greater portion of a country's revenue to service the debt (Wijeweera et al., 2005), and this certainly has economic, social and political implications.

Ghana's debt profile witnessed an astronomical surge after the adoption of the Economic Recovery Program (ERP) and the Structural Adjustment Programs (SAPs) in the early 1980s (World Bank, 2010). The structural adjustment programs were aimed at revitalizing Ghana's economy to strengthen institutional capacities, reduce rent-seeking and corruption and alleviate poverty. However, in almost every country where the SAPs were undertaken, there appeared to be an increase in rent-seeking, corruption, and slow growth

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(Harriss-white, 1996). By the year 2000, the government of Ghana has borrowed to such an extent that the country was in debt distress. Ghana's public and publicly guaranteed debt was US$6 billion, including arrears of US$81 million at the end of 2000. At the time, Ghana was at the tipping point in debt levels, forcing the country to subscribe to the Heavily Indebted Poor Countries (HIPC) initiative of the Internal Monetary Fund (IMF) and World Bank. As a result of this, a chunk of Ghana's external debt of over US$4 billion was scrapped by foreign creditors. As such, the country's debt stock by the end of the HIPC initiative in 2006 stood at US$780 million (25% of GDP). Notwithstanding, Ghana's total public debt has since ballooned to a tune of about 7000% (US$54billion), approximately 78% of the country's gross domestic product (GDP) as of the early period of 2022. A figure which is well above the average value (60%) for developing countries (Adu Owusu, 2022).

The previous empirical literature on foreign aid vis-a-vis eternal debt and growth nexus reveals mixed and inconclusive results. Arguably, the reasons for such differing outcomes could be the result of different methodological approaches employed, differences in datasets, and heterogeneity among countries. Notable among past empirical studies in which external debt was found to stimulate economic growth include: (Bourne, 1983; Frimpong & Oteng-Abayie, 2006; Owusu-Nantwi & Erickson, 2016; Schclarek & Alfredo, 2004; Siddique et al., 2016). On the contrary, (Adubofour Isaac et al., 2021; Asteriou et al., 2021; Bal & Rath, 2014; Fejzaj et al., 2021; Fosu, 1996; Law et al., 2021; Maitra, 2019; Manasseh et al., 2022; Pegkas, 2018) found that external debt has a detrimental impact on economic growth. Against this backdrop, this study uniquely attempted to explore the external debt and growth nexus in the special case of the Ghanaian economy which is dwindling amid high public debt coupled with the deleterious effects of the COVID-19 pandemic.

Similarly, foreign aid, otherwise known as grants or Official Development Assistance (ODA) is often been given to developing countries by developed countries' governments to enable them to finance or undertake certain development projects and alleviate poverty. About 90% of foreign aid comes in the form of grants which does not require repayment from developing countries, while the remaining 10% loans at low-interest rates. Most of this aid is planned, and only a small proportion comes as emergency aid to victims of disasters such as earthquakes or tsunamis (Keeley, 2012). Besides, aids are not given without strings or conditionalities, and the growth and development benefits are often negated with such many strings. It is undeniable that development co-operation has improved the lives of millions of people over the years, for instance, against malaria and COVID-19. However, it is also clear that it does not work always. Moreover, while developing countries such as Ghana have witnessed incoming aid surges over the years, they generally account for only a small proportion of their economies (Keeley, 2012). At the same time, poverty persists, and developing countries continue to experience poor growth and development. Consequently, this study tries to uncover the true effects of foreign aid on the growth of the Ghanaian economy.

Furthermore, from the empirical point of view, foreign aid has had differing effects on the growth and development of many countries around the world. Studies such as (Asteriou, 2009; Chowdhury & Das, 2011; Clemens et al., 2012; Fashina et al., 2018; Gomanee et al., 2005; Hussen & Lee, 2020; Kitessa, 2018; Mekasha & Tarp, 2013; Museru et al., 2014; Nwaogu & Ryan, 2015) have found that foreign aid promotes growth and development. On the other hand, studies by (Ali & Isse, 2005; Appiah-Otoo et al., 2022; Boateng et al., 2021; Fatima, 2014; Feeny, 2005; Khan & Ahmed, 2007; Kourtellos et al., 2007; Liu et al., 2014) also reveal that foreign aid suppressed rather than stimulated growth in the majority of developing countries. However, Lessmann & Markwardt (2012) demonstrated that foreign aid significantly enhances economic growth in centralized developing countries and it is insignificant or even harmful to growth in decentralized developing countries. Also, Tang & Bundhoo (2017) show that foreign aid in itself has no significant impact on the growth of the economies of Sub-Saharan African countries, it is only effective in growth when complemented with a good policy index.

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In all, the current study contributes to the existing literature on foreign aid vis-à-vis external debt and growth linkages by exploring the causal relationship among the variables through the adoption of the Vector Error Correction Model (VECM) on data from 1970 to 2020. The study further contributes to the literature by testing the dependency theory and the debt overhang hypothesis for the special case of the Ghanaian economy. The rest of this paper is structured as follows: the second section presents the related theoretical and empirical literature on the relationship between foreign aid, external debt, and economic growth; the third section outlines the methods, variables, and sources of data; whiles the fourth section highlight the estimation strategies. The fifth section presents the empirical results; whereas the sixth section discusses the results. The last section presents the conclusion and implications for policy directions.

2. Literature Review

This section reviews the related theoretical and empirical literature on foreign aid vis-à-vis external debt and growth nexus to enable us to better understand the dynamics involved and to proffer a better way of analyzing this subject matter in the context of Ghana.

2.1. Theoretical Review

In this section, the study employs the debt overhang hypothesis and the dependency theory to explain the linkages between external debt, foreign aid, and economic growth.

2.1.1. Debt Overhang Hypothesis

Myers (1977) propounded the debt overhang hypothesis in which he relates the present value of a firm's debt or borrowing to the future investment prospect of the corporation. He demonstrated that corporate borrowing is inversely proportional to the market value accounted for by real options. Thus, an indebted firm will find it difficult to undertake new investment opportunities because future cash flows or proceeds from such new investment will be transferred to the creditor in the form of interest payments or debt services, also called promised payments, and this will by far create a disincentive to invest. Myers's theory was first applied to corporations; however, it has since been used to explain the debt and output nexus of countries over sometimes now, see, example (Imbs & Ranciere, 2005; Shah et al., 2016; Sundell & Lemdal, 2011).

Following the Keynesian model Y=C+I+G, where Y is output growth, C is household consumption expenditure, I is investment expenditure, and G is government expenditure. Holding other factors constant, an increase in any of the variables on the left-hand side of the equation would increase Y and vice versa. Here, the expectation is that an indebted country finds it difficult to meet future investment and consumption patterns since the expected rewards from future investments would be shifted to the creditor and not itself in the form of promised payments. This consequently would lead to a fall in the overall output growth of the country. Krugman (1988) contends that there is a significant difference between a country's revenue streams, the current and future investments to that of a corporation. A firm will have a probability distribution of future revenue streams, and debt can be serviced from these revenues. On the other hand, a country has a similar probability distribution, but the difference is that firms can devote all of their revenue streams to debt servicing, whereas countries can only devote a portion of their national income to servicing the debt. Moreover, governments would always have to give precedence to the interests of the citizens and other indispensable commitments to keep the country stable.

Furthermore, because no one has statutory authority over a country, a default could occur without expropriation in favor of creditors. However, when a company defaults, it enters into bankruptcy proceedings, in which creditors are paid back as much of the debt as possible. On the other hand, a sovereign nation cannot be compelled to service its debts or be turned into insolvency. But defaulting has adverse implications for countries (Sundell & Lemdal, 2011). A defaulting nation would lose the trust of international

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creditors. Meanwhile, trust is an essential component of lending, and if a nation defaults, its future access to financing may be restricted and its assets abroad may also be seized. This, therefore, creates a situation where an indebted country finds it difficult to undertake future investments due to the promised payments, thereby causing a reduction in overall output growth. Governments can also borrow internally to finance the promised payments; however, this is also costly as it could crowd the private sector out of business.

2.1.2. Dependency Theory

The nexus between foreign aid and economic growth can well be explained within the ambit of the so-called dependency theory. The dependency theory is one of the famous theories within the social sciences used to explain the economic development of nations. The theory was developed primarily by liberal reformer Ral Prebisch, director of the United Nations Economic Commission for Latin America (UNECLA), and development economist Hans Singer in the late 1950s. The theory is also associated with famous Marxist scholars: Andre Gunder Frank, Paul Sweezy, and Paul A. Baran, as well as world-systems theorists, such as Immanuel Wallerstein. Dependency theory tries to explain and analyze the basis of development and underdevelopment within the international system. The theory emerged as a critique of both the theory of trickle-down effect and the modernization theory.

The trickle-down theory posits that rapid economic growth inevitably reduces social inequalities as income trickles down from the rich to the poor (Arnd, 1983). Similarly, the modernization theory predicts nations' unilinear and progressive development by holding industrialization at the center of development (Regmi, 2018). The dependency theory, on the other hand, contends that development is not unidirectional, nor does economic growth in advanced nations automatically lead to development in developing countries. The dependency theory rather postulated that underdevelopment is caused by barriers erected by the advanced nations, also called 'the center nations' through the integration of the less developed countries or the 'peripheries' into the global capitalist ideologies, resulting in the periphery's economic reliance on the center nations.

Nevertheless, the persistence of uneven development and rising poverty and income inequality among developing countries has resulted in a stir in the academic literature regarding the usefulness of the dependency theory in explaining today's global disparities in development. The current study argues that, despite shifts in the global economic order that have caused a reduction in the prominence of the dependency theory, the theory is still relevant in explicating economic and power relationships between nations in the globalized world of the 21st century. The manifestation of unequal and exploitative relationships between countries in the Global North and Global South can be seen in many spheres, including economic, political, military, and ideological relations (Galtung, 1971).

In contemporary times, the dependency theory is well exemplified through the lens of the IMF austerity measures or conditionalities given to third-world countries particularly Africa, as a prerequisite for lending or borrowing and or assistance. The IMF's financial assistance is conditional on the fulfillment of certain economic policy conditions, such as trade and financial liberalization, privatization, deregulation, devaluation, and other market liberalizing reforms. The Structural Adjustment Programme (SAP) aims to ease the advancement of the capitalist system and the incorporation of third-world countries into the global capitalist economy. Although the imposition of SAP as a sine qua non for acquiring IMF financial assistance has long been criticized, the rationale behind such conditions and its deleterious effects on developing countries in contemporary times are consistent with the fundamental tenets of the dependency theory.

Moreover, despite having 190 member countries, the IMF is managed by the imperialist capitalist, as evidenced by its governing structure. For example, the IMF quota formula takes into account each country's GDP, economic variability, international reserves, and openness (Jha & Saggar, 2000). Likewise, the IMF makes decisions through weighted voting, and this is reflected by each country's quota (Mayer & Napel, 2020). This

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presupposes that the IMF's decisions are primarily motivated by the interests of the imperial capitalists. The Bretton Woods Institutions, particularly the IMF, have always granted funds as loans and aid based on political considerations as well as the interests of the imperial capitalists who arguably control these institutions. When developing countries seek aid and loans from these institutions, the imperial capitalists use their influence to secure favorably and desired economic policy decisions from the poor states. All these neocolonialist strategies are intended to make the periphery nations, particularly African countries more dependent on the center nations as demonstrated in the dependency theory.

2.2. Empirical Review

In this section, the current study reviews past empirical literature on the linkages between external debt and economic growth and also the nexus between foreign aid and economic growth.

2.2.1. Relationship Between External Debt and Economic Growth

The relationship between external debt and economic growth has been mixed and inconclusive in the empirical literature. While some researchers reported a positive impact of external debt on economic growth, others report a negative relationship, and yet still, few other researchers found an inverted U-shaped relationship between external debt and economic growth. This is majorly due to different methods of estimations, country-specific analysis, and the heterogeneity among countries, as every country has its unique peculiarities. Previous studies such as : (Bourne, 1983; Frimpong & Oteng-Abayie, 2006; Owusu-Nantwi & Erickson, 2016; Schclarek & Alfredo, 2004; Siddique et al., 2016) have found that external debt significantly stimulates economic growth. In contrast, (Adubofour Isaac et al., 2021; Asteriou et al., 2021; Bal & Rath, 2014; Fejzaj et al., 2021; Fosu, 1996; Law et al., 2021; Le & Phan, 2022; Maitra, 2019; Makun, 2021; Manasseh et al., 2022; Pegkas, 2018) have also shown that external debt has adverse repercussion on economic growth and developing, in most especially developing countries.

At the same time, Ndoricimpa (2020) found that lower external debt levels are growth neutral in lower and middle-income countries, whiles higher foreign debt is detrimental to growth. On the other hand, Panizza & Presbitero (2014) demonstrated that external debt has no significant negative impact on economic growth in the OECD countries and that the negative correlation between external debt and economic growth does not justify that external debt impacted growth negatively. Moreover, Schclarek & Alfredo (2004) also found that lower external debt levels promote economic growth, while the negative effect of public debt on economic growth at higher levels is driven by external debt.

2.2.2. Relationship Between Foreign Aid and Economic Growth

The nexus between foreign aid and growth has also been mixed and inconclusive, and the reasons are not far-fetched from that accounting for the disparity in the relationship between external debt and growth. Prominent past empirical studies which found a positive relationship between foreign aid and economic growth include: (Asteriou, 2009; Chowdhury & Das, 2011; Clemens et al., 2012; Fashina et al., 2018; Gomanee et al., 2005; Hussen & Lee, 2020; Kitessa, 2018; Mekasha & Tarp, 2013; Museru et al., 2014; Nwaogu & Ryan, 2015). Contrary to these findings, studies such as (Ali & Isse, 2005; Appiah-Otoo et al., 2022; Boateng et al., 2021; Fatima, 2014; Feeny, 2005; Khan & Ahmed, 2007; Kourtellos et al., 2007; Liu et al., 2014) also reveal that foreign aid negatively affects economic growth and development in developing countries.

More so, Lessmann & Markwardt (2012) have shown that foreign aid significantly enhances economic growth in centralized developing countries and it is insignificant or even harmful to growth in decentralized developing countries. Similarly, Tang & Bundhoo (2017) indicated that foreign aid in itself has no significant impact on economic

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growth in Sub-Saharan African countries and that the effect is only positive and significant when it is complemented with a good policy index.

3. Methods, Variables, and Sources of Data

This study employs the Vector Error Correction Model (VECM) on data spanning the period 1970 to 2020 to explore the impact of external debt and foreign aid on the Ghanaian economy. The dependent variable is the log of Gross Domestic Product measured at current prices, representing growth; while the primary independent variables include external debt and foreign aid. In this study, however, interest payments on external debt, as well as total debt services are all incorporated into the model to ascertain the true impact of external debt on growth in Ghana. Besides, grants or Official Development Assistance (ODA) excluding technical cooperation is used as a proxy measure of foreign aid. This is so because, about 90% of foreign aid comes in the form of grants, while only 10% or less comes as loans at low-interest rates. Two other control variables related to the Structural Adjustment Program (SAP) such as trade openness and net inflows of Foreign Direct Investment (FDI) are included in the model to observe their confounding effects on growth in Ghana. Table 1 provides a summary of the variables and their data sources.

Table 1. Variables Description and Data Sources.

Variable	Description	Source
GDP	Gross Domestic Product (Current US dollars)	https://data.worldbank.org/indicator (Accessed on September 10, 2022)
Trade	Trade (% of GDP)	
FDI	Foreign Direct Investment, Net Inflows (% of GDP)	
EDS	External Debt Stock (Current US dollars)	https://databank.worldbank.org/data/source/international-debt-statistics/preview/on (Accessed on September 10, 2022)
IPE	Interest Payments on External Debt (Current US dollars)	
DSE	Debt Services on External Debt, total (Current US dollars)	
GT	Grant or Official Development Cooperation (Current US dollars)	

Source: Researcher's Construct

4. Estimation Strategies

Generally, previous studies have had differing outcomes regarding the impact of external debt and foreign aid on growth. The different results are mostly due to methodological differences and sometimes omitted variable biases. The current study tries to capture the main indicators of external debt and foreign aid together with the variables associated with the SAPs program to avoid the omitted variable problem.

The study begins with a modified specification of the growth equation estimated by (Frimpong & Oteng-Abayie, 2006) for Ghana. As such, the following linear long-run equation in its log-log form is specified for modeling the impact of external debt and foreign aid on the growth of the Ghanaian economy.

$$\ln GDP_t = \beta_0 + \beta_1 \ln GT_t + \beta_2 \ln EDS_t + \beta_3 \ln DSE_t + \beta_4 \ln IPE_t + \beta_5 FDI_t + \beta_6 Trade_t + \varepsilon_t \quad (1)$$

Where $\ln GDP_t$ is the log of GDP representing growth of the Ghanaian economy; $\ln GT_t$ is the log of total grants (ODA) received per year excluding technical assistance; $\ln EDS_t$ is the log of total external debt stock; $\ln DSE_t$ is the log of total debt service; $\ln IPE_t$ is the log of interest payments on external debt; FDI_t is the annual percentage net inflows of foreign direct investment; $Trade_t$ is the trade openness indicator; β_0 is the constant intercept term; β_1, β_2, ……, β_6 represent the long run coefficients of all the explanatory

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variables respectively. Finally, ε_t denotes the idiosyncratic error term which is expected to $\varepsilon = N{\sim}(0, \sigma^2)$ and t=time.

Furthermore, since the data for this study is time series, the study first performs some a priori tests to ensure that the data represent the salient features of time series data to avoid spurious regression results. Consequently, the study check for the unit root properties of the variables by employing the standard unit root test following (Dickey & Fuller, 1979, 1981), and (Phillips & Perron, 1988). Similarly, the study also uses the Akaike Information Criterion (AIC), Schwartz Information Criterion (SIC), and the Log-Likelihood ratio to determine the optimal lag structure of the series. Likewise, the existence of a long-run relationship among the variables is also tested using the Johansen Cointegration test whiles the estimation of the Vector Error Correction Model (VECM) demonstrates the short-run dynamics of the variables.

Additionally, the short-run econometric specification of model 1 is given as in model 2:

$$\Delta\mathbf{lnGDP_t} = \beta_0 + \sum_{i=1}^{n}\beta_1\Delta\mathbf{lnGDP_{t-1}} + \sum_{i=1}^{n}\beta_2\Delta\ln GT_{t-1} + \sum_{i=1}^{n}\beta_3\Delta\ln EDS_{t-1} + \sum_{i=1}^{n}\beta_4\Delta\ln DSE_{t-1} + \sum_{i=1}^{n}\beta_5\Delta\ln IPE_{t-1} + \sum_{i=1}^{n}\beta_6\Delta FDI_{t-1} + \sum_{i=1}^{n}\beta_7\Delta Trade_{t-1} + \gamma_1 ECT_{t-1} + \varepsilon_{1t} \quad (2)$$

Where all variables are the same as defined previously; the symbol Δ is the change or difference operator, ECT_{t-1} is the one year lagged of the error correction term estimated from model 1; $\gamma_1$is the coefficient of the error correction term which measures the speed of adjustment to long-run equilibrium, and its value is expected to lie between -1 and 0.

5. Empirical Results

This section presents the results of the unit root tests, the Johansen Cointegration test for long relationships, the normalized long-run cointegration equation results, the VECM results for short-run dynamics, and finally some post-estimation diagnostics.

5.1. Stationarity Test

A time series is stationary if its characteristics: mean, variance, and covariance are time-invariant. Thus, they do not change over time. If that is not the case, then we have a non-stationary time series. If we have non-stationary time series data, its consequences are dire because analysis based on it leads to spurious results. As such, this conducted the stationarity properties of the series through the Augmented Dickey-Fuller and the Phillips-Perron test for unit root to check for robustness of either method. Here, the null hypothesis is that the variable under consideration has no unit root as against the alternate hypothesis that it has a unit root. The results as presented in Table 2 show that the null hypothesis of the absence of unit root is rejected at the 5% significance level for all the variables in their level forms. However, we failed to reject the null hypothesis of no unit roots in all the variables at their first difference forms. The conclusion is that all the variables used for this study are at most integrated at order one, I (1). Hence, analysis based on this data will not yield spurious results. This calls for the estimation of the Johansen cointegration test.

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Table 2. Unit root test results for ADF and PP.

Variables	Augmented Dickey-Fuller Statistic		Phillips-Perron Statistic	
	I (0)	I (1)	I (0)	I (1)
	Levels	First Diff.	Levels	First Diff.
lnGDP	0.207	-3.086**	0.356	-6.196**
lnGT	-2.336	-4.001**	-1.995	-10.985**
lnEDS	-0.307	-3.310**	-0.454	-6.177**
lnDSE	-0.984	-3.572**	-0.395	-7.013**
lnIPE	-0.658	-3.166**	-0.430	-7.359**
FDI	-1.537	-3.478**	-1.742	-7.052**
Trade	-1.162	-3.426**	-1.374	-6.222**

Source: Researcher's Calculation through STATA 17

Note: ** denote the absence of unit root at the 5% critical value.

5.2. Optimal Lag Order Selection Criteria

After confirming the stationarity properties of the series, we now have to decide the optimal lag selection for a model for the analysis before carrying out the Johansen cointegration test for long-run relationships among the variables. The current study employs the unrestricted VAR (p) lag order selection and the results are presented in Table 3. The results indicate different optimal lag lengths based on the different lag section criteria. However, this study chooses the optimal lag based on the Akaike Information Criterion (AIC) and the Final Prediction Error (FPE) criterion. Therefore, the optimal lag length for this study is 3. The reason is that using too many lags has dire consequences as it could lead to a decrease in the degrees of freedom, and insignificant coefficient of the variables, and also may result in multicollinearity issues. Similarly, using too few lags may result in specification errors.

Table 3. VAR Lag Order Selection Criteria.

Lag	LL	LR	Df	P	FPE	AIC	HQIC	SBIC
0	-437.47				0.38617	18.9136	19.0173	19.1892
1	-157.747	559.45	49	0.000	0.000022	9.09562	9.92516*	11.3001*
2	-112.196	91.103	49	0.000	0.000029	9.24237	10.7978	13.3757
3	-42.713	138.97	49	0.000	0.000018*	8.37076*	10.652	14.433
4	6.21942	97.865*	49	0.000	0.000043	8.37364	11.3807	16.3647

Source: Researcher's Calculation through STATA 17

Note: * denote the optimal lag

5.3. Johansen Cointegration Test

Having determined the optimal lag length, we now carried out the Johansen cointegration test to determine whether there exist long-run relationships among the variables under study. The results as presented in Table 4 suggest the existence of a long-run relationship among the variables thereby necessitating the estimation of the Vector Error Correction Model (VECM). The results indicate four (4) cointegration ranks since the trace statistic is lower than the 5% critical value.

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Table 4. Johansen Cointegration Rank Test.

Hypothesized Maximum Rank	Params	LL	Eigenvalue	Trace statistic	Critical Value 5 %
0	105	-150.66492	.	203.6401	124.24
1	118	-118.15351	0.74196	138.6173	94.15
2	129	-93.30255	0.64494	88.9154	68.52
3	138	-74.093574	0.55084	50.4974	47.21
4	145	-63.475139	0.35753	29.2605*	47.21
5	150	-56.281997	0.25897	14.8743	29.68
6	153	-50.440937	0.21602	3.1921	15.41
7	154	-48.84487	0.06434		3.76

Source: Researcher's Calculation through STATA 17

Note: * denote selected rank

5.4. Normalized Long Run Growth Equation for Cointegration Test

Table 5 present the results of the normalized long-run growth equation for the cointegration test. The results reveal that there exists a long-run relationship between economic growth and all the explanatory variables used in this study, though the coefficient of grants (foreign aid) is insignificant. The results suggest that external debt stock (EDS), and total debt service on external (DSE) have a significant long-run negative impact on economic growth in Ghana. On average, a percentage increase in EDS and DSE will lead to a decrease in economic growth in Ghana by about 3.13% and 1.37% respectively, ceteris paribus. Similarly, a percentage increase in foreign aid will lead to a reduction in economic growth in Ghana by about 0.14%, holding other factors constant, albeit the effect is generally statistically insignificant. Contrary to expectations, interest payments on external debt (IPE) have long run positive impact on growth in Ghana. On average, a percentage increase in interest payments on external debt will lead to about a 4.48% increase in economic growth in Ghana. Furthermore, net inflows of foreign direct investment (FDI), and trade openness (Trade) have long-run positive impacts on the growth of the Ghanaian economy. The results show that a percentage increase in inflows of FDI and openness to trade will lead to an increase in economic growth by about 0.12% and 0.05% respectively, holding other factors constant.

Table 5. Normalized Long Run Growth Equation for Cointegration Test.

Variable	Coefficient	Standard error	Z-statistic
lnGT	0.1438	0.15895	0.90
lnEDS	3.1346	0.6022	5.21***
lnDSE	1.3713	0.5079	2.70***
lnIPE	-4.48033	0.6016	-7.45***
FDI	-0.1177	0.05182	-2.27**
Trade	-0.0521	0.008187	-6.37***
Constant	-35.4149		

Note: ***, **, and * denote statistically significant at the 1%, 5%, and 10% levels of significance respectively.

Source: Researcher's Calculation through STATA 17

5.5. Short Run Error Correction Growth Equation

Table 6 reports the results of the short-run error correction growth equation. The results do not differ so much from what was obtained in the long-run growth equation. The results indicate that both external debt stock (EDS) and total debt service on external debt

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(DSE) have negative impacts on the growth of the Ghanaian economy. On average, a percentage increase in the first and second lag of EDS and the second lag of DSE will lead to a decrease in economic growth in Ghana in the short run by approximately 0.36%, 0.47%, and 0.21% respectively, ceteris paribus. Likewise, the second lag value of interest payments on external debt (IPE) has a negative short-run impact on economic growth in Ghana, while its first lag value has a positive impact on growth, although the effects are generally not statistically significant. On the other hand, foreign aid (GT) stimulates economic growth in Ghana in the short run. The results depict that, on average, a percentage increase in the first and second lag values of foreign aid will lead to an increase in economic growth in Ghana by about 0.11% and 0.07% respectively, though only the first lag effect is statistically significant. Moving further, the results show that inflows of foreign direct investment have a short-run negative growth impact on the Ghanaian economy, though the impacts are not statistically significant. On the contrary, trade openness enhances the growth of the Ghanaian economy in the short run. On average, the results suggest that a percentage increase in the first and second values of openness to trade will lead to an increase in economic growth in Ghana by about 0.004%, and 0.008% respectively, holding other factors constant, albeit the effect only the second lag value is significant.

Table 6: Short Run Error Correction Growth Equation.

Variables	Coefficient	Standard Errors	t-value	P-value
$\Delta \ln GDP_{t-1}$	-0.211	0.214	-0.98	0.325
	0.299	0.226	1.32	0.185
$\Delta \ln GT_{t-1}$	0.111	0.061	1.82	0.069*
	0.071	0.05	1.41	0.158
$\Delta \ln EDS_{t-1}$	-0.357	0.188	-1.90	0.058*
	-0.468	0.222	-2.10	0.035**
$\Delta \ln DSE_{t-1}$	-0.007	0.099	-0.07	0.942
	-0.211	0.105	-2.02	0.044**
$\Delta \ln IPE_{t-1}$	0.185	0.129	1.43	0.153
	-0.07	0.121	-0.58	0.561
ΔFDI_{t-1}	-0.033	0.021	-1.61	0.107
	-0.003	0.018	-0.16	0.875
$\Delta Trade_{t-1}$	0.004	0.003	1.31	0.192
	0.008	0.003	2.38	0.017**
Constant	0.066	0.035	1.90	0.057*

Note: ***, **, and * denote statistically significant at the 1%, 5%, and 10% levels of significance respectively.

Source: Researcher's Calculation through STATA 17

5.6. Diagnostics Tests

In this section, the study carries out three VECM diagnostic tests to verify the validity and reliability of the findings obtained in this current study. The diagnostics tests include tests for autocorrelation, normality, and stability condition of the models.

5.6.1. Test for Autocorrelation

The study utilizes the Lagrange-Multiplier (LM) test for autocorrelation. The null hypothesis of the LM Test is that there is no autocorrelation in the residuals. Based on the results presented in Table 7, we failed to reject the null hypothesis of no autocorrelation in the residuals even at the third lag.

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Table 7: Lagrange-multiplier test.

Lag	Chi2	df	Prob>Chi2
1	24.974	49	0.998
2	46.246	49	0.585
3	30.698	49	0.981

H_0: No autocorrelation at lag order

Source: Researcher's Calculation through STATA 17

5.6.2. Test for Normality

The study also checks the normality of the residuals by conducting the Jarque-Bera test for normality. The results as presented in Table 8 confirms that our key model of interest which is the growth equation is normally distributed. However, taking all the models together, the results depict the absence of normality in the residuals.

Table 8. Jarque-Bera test.

Equation	Chi2	df	Prob>Chi2
D.lnGDP	1.178	2	0.555
D.lnGT	1.665	2	0.435
D.lnEDS	3.799	2	0.150
D.lnDSE	2.669	2	0.263
D.lnIPE	0.448	2	0.799
D.FDI	0.006	2	0.997
D.Trade	140.889	2	0.000
All	150.654	14	0.000

H0: the presence of normality in the residuals

Source: Researcher's Calculation through STATA 17

5.6.3. Test for Stability Condition of the Models

Besides, the study also carries out a test to examine the stability condition of the models employed in this study. The results as reported in Table 9 reveals that our model(s) satisfies the stability condition since the VECM specification imposes at most 6-unit moduli.

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Table 9. Results for Stability Condition of the VECM Specification.

Eigenvalue	Modulus
1	1
1	1
1	1
1	1
1	1
1	1
0.3871321 + 0.6821849i	0.784377
0.3871321 - 0.6821849i	0.784377
-0.2066763 + 0.7460131i	0.774113
-0.2066763 - 0.7460131i	0.774113
0.5586005 + 0.3452368i	0.656676
0.5586005 - 0.3452368i	0.656676
-0.6341796	0.63418
0.621395	0.621395
-0.136342 + 0.5480293i	0.564735
-0.136342 - 0.5480293i	0.564735
-0.4928805	0.49288
-0.2970842 + 0.3879936i	0.48867
-0.2970842 - 0.3879936i	0.48867
-0.4442711	0.444271
0.2732661	0.273266

Note: The VECM specification imposes 6-unit moduli

Source: Researcher's Calculation through STATA 17

6. Discussion of Results

This study employs the VECM estimation strategy on data over the period 1970 to 2020 to investigate the impact of foreign aid and external debt on economic growth in Ghana. The main aim of this paper was to test whether the debt overhang hypothesis and the dependency theory hold for Ghana. The findings acquiescently confirm our initial expectations.

The results suggest that growth in external debt stock and debt service on external debt have significant short and long-run negative impacts on the growth of the Ghanaian economy. These findings corroborate the debt overhang hypothesis that an indebted country will find it difficult to undertake future investment projects since returns from any future investment would be diverted to the creditor in the form of promised payments (debt servicing) thereby creating a disincentive to invest and hence poor growth and development. The results of this study are also in tandem with the findings of previous empirical studies (Adubofour Isaac et al., 2021; Asteriou et al., 2021; Bal & Rath, 2014; Fejzaj et al., 2021; Fosu, 1996; Law et al., 2021; Le & Phan, 2022; Maitra, 2019; Makun, 2021; Manasseh et al., 2022; Pegkas, 2018) in which external debt stock and total external debt services were found to have significant adverse effects on economic growth in both the short and long run.

However, (Frimpong & Oteng-Abayie, 2006; Owusu-Nantwi & Erickson, 2016) and a few other researchers carried out similar studies in Ghana and found a positive relationship between external debt and economic growth. Nevertheless, they also found that total debt services on external debt have a detrimental impact on the growth of the Ghanaian economy, and this vindicates the debt overhang hypothesis evidenced in this current study. On the contrary, interest payments on external appear to have a long-run significant positive impact on economic growth in Ghana and a short-run insignificant negative impact on growth. This implies that interest payments on external debt alone do not have

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a disastrous impact on the growth of the Ghanaian economy. However, the total external debt service which constitutes the interest payments plus the principal and other publicly guaranteed payments adversely affects economic growth in Ghana.

Moreover, this study also empirically examines the relevance of the dependency theory in Ghana by incorporating foreign aid into the growth dynamics. The results of the normalized long-run growth equation for cointegration test validate the basic tenets of the dependency theory in Ghana. The results show that foreign aid suppresses rather than improves economic growth in Ghana over the long run, albeit the effect is generally statistically insignificant. This finding convincingly agrees with the center-periphery wisdom of the dependency theory and world system theory in which the center nations obstruct development in the peripheries and make them more dependent or reliant on the dictates of the imperial capitalist for development. The strings or conditionalities together with the austerity measures given to African countries whenever they need aid or assistance from the IMF bear ample proof to this reasoning. This study argues that foreign aid is nothing but a neocolonialist weapon used by the imperial capitalists to sell their ideologies and make the peripheral nations, particularly Africa more dependent on them and also for them to continue their exploitation. The findings of this study are in agreement with past empirical studies (Ali & Isse, 2005; Appiah-Otoo et al., 2022; Boateng et al., 2021; Fatima, 2014; Feeny, 2005; Khan & Ahmed, 2007; Kourtellos et al., 2007; Liu et al., 2014) which found foreign aid to have a detrimental impact on economic growth, despite differences in methodology and geographical locations. Nonetheless, foreign aid appears to positively influence economic growth in Ghana over the short run.

Additionally, the study also captures two other control variables which were carefully selected in line with the Structural Adjustment Program (SAP): Trade openness and inflows of foreign direct investment (FDI). The study found that both openness to trade and inflows of FDI accentuate economic growth in Ghana over the long run. In the short run, however, only openness to trade has a positive and significant impact on economic growth. The growth effect of FDI inflows is negative in the short run, although it is generally not statistically significant. The results suggest that openness to trade and foreign direct investment inflows are important ingredients for the growth of the Ghanaian economy as they could increase the product value chain, increase competition in the Ghanaian market, enhance economies of scale and create more avenues for employment of the teaming masses of unemployed graduates in the country.

7. Conclusion and Recommendations

Ghana's public debt stock was quite sustainable (25% of GDP) at the end of the HIP program in 2006. Since then, the country's debt stock has witnessed an astronomical increase reaching its highest at 78% of GDP in the early periods of 2022. Despite the high public debt stock, the country continues to experience poor growth, rising poverty, and income inequality. Consequently, this attempted to re-examine the impact of external debt and foreign aid on economic growth in Ghana and test the hypothesis of debt overhang and the dependency theory. As such, the study utilizes the VECM estimator on data from 1970 to 2020 to perform the estimations. The results reasonably conform with our initial expectations as the study found strong evidence of the debt overhang hypothesis and the predictions of the dependency theory. The findings reveal that increase in external debt stock and total external debt services have severe short and long-run repercussions on the growth of the Ghanaian economy. In the same vein, interest payments on external debt have short-run insignificant growth limiting and long-run significant growth-enhancing effects in Ghana. Similarly, the study found that foreign aid catalyzes growth in the short run and later imposes a deleterious impact on economic growth in Ghana over the long run. Besides, both net inflows of FDI and trade openness have long-run growth-stimulating effects, while only openness to trade has a short-run growth-enhancing effect in Ghana.

Based on the above findings, the study made the following recommendations to help turn the narratives around. First, the study recommends that the government of Ghana or those in the realms of affairs should focus more on harnessing domestic resources for development rather than relying heavily on external borrowing and or foreign aid financing of major development projects since this rendered negative short- and long-term effects on the Ghanaian economy. Second, there is a need for the Ghanaian government to devise innovative means to enhance the effectiveness of the tax system to have a broader tax base. This policy perspective will complement domestic resources and enable the government to generate a substantial amount of tax revenues (both direct and indirect taxes). Third, the government needs to cut down on unproductive expenditures and reduce the elephant size government to a reasonable unit to be able to fill the already created fiscal vacuum. Fourth, enhancing institutional capacity to counteract corruption, and creating an enabling environment for private sector growth and development, openness to trade, just to mention but a few are effective ways to fast-track the growth and development of the Ghanaian economy. Lastly, well-functioning and effective regulation principles should be put in place to check the activities of foreign companies in the country and contracts should be well negotiated. This will help to curb all illicit financial activities by foreign firms in the country such as tax dodging, repatriation of profits, and trade mis-invoicing, among others which could have severe long-run consequences on the growth and development of the economy of Ghana.

Data Availability Statement: The data used for this study can be accessed through the following links: https://data.worldbank.org/indicator (Accessed on September 10, 2022); https://databank.worldbank.org/data/source/international-debt-statistics/preview/on (Accessed on September 10, 2022)

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