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Original Paper

Analysing the Impact of Tax Revenue on the Dynamics of the Debt-Growth Relationship. A Case of Ghana

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Abstract

This research examines the influence of tax income on the correlation between debt and economic growth in Ghana. This study employs multiple regression analysis to quantitatively examine the impact of public debt, tax revenue, inflation rates, and interest rates on GDP growth. This study utilises time-series data spanning 33 years, offering insights into the economic determinants of growth.

The results demonstrate a positive and statistically significant correlation between public debt and GDP, suggesting that a 1% rise in public debt may lead to a 97.5% increase in GDP. This discovery indicates that investments funded by debt may promote economic growth. In contrast, tax revenue exhibits a negative and large effect, whereby a 1% increase may lead to a 23.5% decline in GDP, presumably due to its distortionary influence on economic activity. The findings indicate that inflation does not significantly impact GDP, however an increase in interest rates correlates with a statistically significant 16.4% decline in GDP, underscoring the detrimental consequences of elevated borrowing costs on economic growth.

The findings have significant implications for fiscal policy, indicating the necessity for debt financing options that prioritise growth-oriented expenditures while circumventing excessive taxation. Policymakers must regulate interest rates to foster economic growth while avoiding inflationary pressures. These insights provide essential direction for formulating policies that reconcile debt management, taxation, and monetary policy to promote sustainable economic growth in Ghana.

Keywords: Debt-Growth Relationship, Public Debt, Tax Revenue, Economic Growth, Fiscal Policy

1. Introduction

In developing countries, especially in sub-Saharan Africa like Ghana, the interplay between tax income, public debt, and economic growth is crucial for fiscal management. Over the past two decades, Ghana has witnessed significant expansion in its fiscal deficit, leading to an increasing debt burden. The World Bank (2023) indicates that Ghana's governmental debt-to-GDP ratio has above 80%, which is considered unsustainable for a growing country. Simultaneously, tax revenue, the principal source of domestic income, has persistently underperformed relative to projections. In 2022, Ghana's tax-to-GDP ratio was 12.6%, markedly below the African average of 16% (IMF 2022). Given the increasing budgetary strain, it is essential to analyse the impact of tax income on the relationship between debt buildup and economic growth.

While public debt is frequently regarded as an essential tool for financing development projects, inadequate management can yield adverse consequences. These encompass the displacement of private sector investments, the limitation of the government's capacity to fulfil debt obligations, and the obstruction of long-term economic progress. This matter is especially relevant in Ghana, which has grown increasingly reliant on foreign loans to mitigate budget deficits. Nevertheless, the capacity of domestic tax revenue to mitigate these adverse effects by enhancing debt sustainability has not been sufficiently investigated in current literature. This study aims to fill the knowledge vacuum by

examining the impact of tax revenue on the relationship between debt and growth in Ghana, offering both a theoretical framework and practical recommendations for fiscal policy development.

The role of tax income as a moderating variable in the debt-growth nexus has been inadequately examined in Ghana, notwithstanding extensive research on the topic. Numerous studies, like Aryeetey (2019) and Nath et al. (2023), have examined the extensive effects of public debt on economic growth, focussing mostly on external debt and macroeconomic stability. This method neglects the intricate relationship among efficient tax revenue collection, debt sustainability, and economic growth. Aryeetey (2019) contended that Ghana's substantial dependence on foreign debt renders it vulnerable to external economic shocks, although he did not explore how domestic resource mobilisation may alleviate these risks. Nath et al. (2022) indicated that in Bangladesh, a 1% rise in external debt may result in an 8.81% decline in economic growth in the short term. Nevertheless, they neglect to comprehensively analyse how tax income could mitigate these adverse effects.

This study seeks to address this significant gap by analysing the impact of tax revenue on the correlation between public debt and economic development. It aims to improve the policy discourse about the optimisation of fiscal management strategies in Ghana, where increasing tax income remains a significant political and economic challenge.

This study aims to analyse the impact of tax income on the relationship between debt and economic growth in Ghana. This study examines the impact of tax revenue on the sustainability of public debt and determines the ideal tax revenue level for the debt-growth relationship. This research aims to address the subsequent enquiries: What is the effect of tax income on the correlation between governmental debt and economic development in Ghana? What is the minimal tax revenue necessary to sustain growth in the context of rising public debt?

This work is significant due to its potential to influence academic discourse and financial policy formulation. Ghana, as a growing nation, confronts the dual issues of escalating debt servicing costs and inadequate domestic revenue production. Wisdom (2014) posits that augmenting tax collection may mitigate fiscal deficits, however the overarching impact of such enhancements on long-term economic growth remains ambiguous. This study provides essential insights into Ghana's capacity to balance the opposing demands of debt accumulation and sustainable economic growth by examining the moderating effect of tax income.

This study is particularly noteworthy given Ghana's current macroeconomic uncertainty, exacerbated by global economic shocks like as the COVID-19 pandemic and the conflict between Russia and Ukraine. The incapacity of politicians to adequately balance tax income and debt sustainability may lead to adverse consequences, such as slowdown in economic development and deteriorating debt metrics. This work addresses an academic gap and provides a timely policy contribution by offering evidence-based recommendations to enhance the efficacy of tax revenue in regulating debt dynamics.

Studies examining the correlation between debt and growth in Ghana have predominantly concentrated on external debt and economic volatility (Obeng et al. 2024; Sogah et al. 2024). Obeng et al. (2024) analyse the impact of external debt on economic growth and conclude that debt levels are essential for maintaining growth. Nonetheless, their study failed to consider the impact of domestic fiscal policy, particularly tax income, in this setting. Sogah et al. (2024) examine the favourable correlation between external debt and agricultural GDP development in Ghana, contrasting with the prevalent focus on debt and economic instability. They failed to account for how improved tax revenue collection could mitigate the adverse effects of rising debt.

This study differentiates itself by analysing tax income as a pivotal element in the correlation between debt and growth. This paper offers a nuanced examination of how tax revenues can stimulate growth while controlling state debt under particular circumstances. This methodology fills a notable void in the literature, as earlier research has predominantly neglected this dimension.

Ghana serves as a compelling case study due to its status as a middle-income country facing a rapid rise in public debt while maintaining consistently low tax-to-GDP ratios. The distinctive confluence of factors renders Ghana an ideal case for analysing the overarching impacts of tax income on economic performance amid rising debt levels. The findings from this study will have substantial policy

ramifications for Ghana and other developing nations with similar fiscal challenges.

2. Literature Review

2.1 Theoretical Review

This study employs Ricardian Equivalence Theory and Endogenous Growth Theory to analyse the interplay between debt, economic growth, and tax income. Ricardian Equivalence asserts that funding government expenditure via debt or taxation produces identical results, as rational agents foresee future tax increases to repay the debt and therefore opt to save instead of spend, thereby nullifying the stimulative impact of debt (Barro, 1989; Andolfatto & Martin, 2018). This theoretical paradigm posits that, without sufficient tax revenue, public debt would not promote sustainable growth, especially in emerging countries like Ghana, where institutional quality is rather poor.

The Endogenous Growth Theory emphasises the importance of internal factors, including human capital, technical innovation, and governmental economic policies, in promoting continuous economic growth (Geiger et al., 2019; Wirajing et al., 2023). This research identifies tax income as a vital internal element that might enhance growth by financing productive initiatives (Wajeetongratana, 2020). The efficacy of tax income in sustaining debt levels and fostering growth may be undermined by corruption and insufficient institutional frameworks (Nnyanzi et al., 2018). This requires a comprehensive examination of the interaction of these factors within the Ghanaian context.

2.2 Empirical Review

Empirical and theoretical research has extensively analysed the correlation between government debt and economic growth, especially in developing nations. Reinhart and Rogoff (2010) and Yiadom and Amankwa (2019) assert that public borrowing can promote growth when allocated to productive activities; however, excessive debt beyond a specific threshold typically hinders progress by crowding out private sector investments and creating fiscal instability. Their analysis suggests that the threshold at which debt becomes detrimental is roughly 90% of GDP, though this claim has been contested by further studies.

Presbitero (2012) and Mensah et al. (2019) assert that in emerging countries, the relationship between debt and growth is shaped by a country's economic structure and institutional norms. Nations with inefficient tax collection systems, particularly in sub-Saharan Africa, face challenges in sustaining elevated debt levels while promoting economic growth. He argues that, in these economies, the minimal tax-to-GDP ratio impedes the government's capacity to manage debt, ultimately leading to economic stagnation. Nonetheless, their research failed to furnish empirical evidence to quantify the extent to which tax revenue influences this debt accumulation dynamic, especially within the African context.

The tax-to-GDP ratio is an essential metric for evaluating a country's fiscal capacity to handle debt and sustain long-term economic growth (Veiga et al., 2014). Tax revenue is generally defined by scholars as the aggregate income accrued by a government from direct and indirect taxes, expressed as a percentage of GDP (Fordelone et al., 2018; Afonso & Jalles, 2013; Mendoza et al., 1994). A growing body of research has investigated the tax-to-GDP ratio as a crucial indicator of fiscal health and debt sustainability. According to the research conducted by Putri et al. (2022), Gupta et al. (2021), and Boadway and Sato (2019), countries with elevated tax revenues are better equipped to maintain growth, even with significant public debt, as they can fulfil their debt obligations without excessive borrowing.

Numerous studies have examined the difficulties of tax revenue production and its subsequent impact on state debt management in Ghana. Amankwah et al. (2018) investigated the correlation between tax revenue and debt sustainability in the nation. Their research, employing a panel data regression model, revealed that an increase in the tax-to-GDP ratio resulted in an improved fiscal balance and alleviated the adverse effects of public debt on economic growth. These findings highlight the necessity of enhancing domestic revenue generation to maintaining manageable national debt levels. Nevertheless, their inquiry failed to examine the essential tax income threshold required for sustained growth, a deficiency in information that the present study aims to rectify.

Public debt denotes the total financial responsibilities of a government, including both external and

internal liabilities. The assessment of economic growth often entails quantifying the rise in a nation's GDP over a designated period. The correlation between these two variables has been thoroughly examined in Ghana, where government debt has significantly increased in recent years, exceeding 80% of GDP (World Bank, 2023). A thorough examination by Aryeetey (2019), Mawutor et al. (2019), and Aimola and Odhiambo (2021) investigated the enduring effects of public debt on Ghana's economic advancement. His findings indicate that moderate debt levels can enhance infrastructure development and promote growth, whereas excessive borrowing hinders progress by elevating debt servicing costs and diminishing fiscal resources for productive expenditures. Aryeetey's research, however, failed to consider tax income as a potential mitigating component in the debt-growth link, hence constraining the practical policy implications of his findings.

Yiadom and Amankwa (2019), Ehikioya et al. (2020), and Boakye and Oduro (2020) investigated the relationship between debt and economic development in Ghana, emphasising external debt and variations in commodity prices. Their research shown that fluctuations in global commodity prices intensify the debt burden and induce fiscal instabilities, particularly in countries reliant on poverty, such as Ghana. Their research offers valuable insights into external factors affecting debt sustainability but overlooks the significance of internal elements, such as tax revenue and institutional quality, in mitigating these risks.

Institutional quality denotes the efficacy of legal, regulatory, and governance frameworks in maintaining transparency, accountability, and the rule of law (Nguyen et al., 2021; Gugler et al., 2013). Conversely, corruption, characterised by the exploitation of public positions for personal benefit, undermines institutional integrity and diminishes public trust (Thompson 2018). Numerous studies highlighted the significance of robust institutions in improving the efficiency of tax revenue collection and fostering fiscal responsibility (Baum et al., 2017; Ackerman & Truex, 2013). Ndikumana and Boyce (2011) and Nnyanzi et al. (2018) contend that nations with robust institutions and minimal corruption are more adept at mobilising domestic resources, such as tax revenue, and managing public debt without hindering economic growth.

Ankomah (2022) and Manasseh et al. (2022) did a study investigating the impact of institutional quality and corruption on public debt sustainability in Ghana. The results indicate that inadequate governance frameworks and pervasive corruption reduce the ability of tax income to alleviate the growth-restraining impacts of debt. In countries characterised by elevated corruption, studies demonstrate that tax revenue is often misappropriated or embezzled, exacerbating budget deficits and obstructing economic growth (Halkos et al., 2020). Nonetheless, Ankomah's study lacked a quantitative assessment of the relationship among tax collection, institutional quality, and economic development, hence indicating a need for further research in this domain.

Despite prior studies investigating the separate impacts of public debt, tax income, and economic growth, a deficiency persists in comprehending how tax revenue mediates the relationship between debt and growth, especially in Ghana and other developing nations. Aryeetey (2019) and Boakye and Oduro (2020) concentrate on debt and external shocks, but Osei-Assibey and Ohene-Manu (2020) emphasise the significance of tax income without demonstrating a moderating effect. Furthermore, studies examining the joint influence of institutional quality and corruption on the effectiveness of tax revenue in fostering sustainable growth are few. This study seeks to fill information gaps by examining the moderating effect of tax income, its interaction with institutional quality, and the possibility of corruption to compromise fiscal sustainability in Ghana.

3. Methodology

3.1 Research Design

This study employs a quantitative research design, concentrating on statistical analysis to assess the influence of tax income on the debt-growth connection in Ghana. Quantitative research is especially appropriate for this topic, as it facilitates objective measurement and analysis of the correlations between variables (Creswell, 2014). This study utilises a multiple regression model to examine the correlation among tax revenue, public debt, and economic growth. In contrast to qualitative approaches, quantitative methods offer the accuracy and generalisability necessary to evaluate economic linkages

throughout time (Saunders, Lewis, & Thornhill, 2019). Prior research in Ghana and other developing nations has employed analogous econometric models to examine macroeconomic variables. Osei-Assibey and Ohene-Manu (2020) utilised panel data regression to analyse the influence of tax income on debt sustainability in Ghana, whereas Aryeetey (2019) conducted a time-series analysis to assess the effect of public debt on economic growth. These methods are frequently utilised as they provide rigorous statistical analysis of variable connections, providing insights that might inform policy suggestions.

3.2 Model Specification

This study employs a multivariate regression model to examine the correlation between tax revenue (independent variable), public debt (independent variable), and economic growth (dependent variable). The multiple regression model was chosen for its capacity to incorporate several independent variables and their possible interaction effects, rendering it suitable for the intricate economic interactions examined in this work (Wooldridge, 2016). The regression model can be articulated as follows:

$$GDPt = \beta_0 + \beta_1 TaxRev_t + \beta_2 Debt_t + \beta_3 Inflation_t + \beta_4 InterestRate_t + \varepsilon_t \quad (1)$$

Where:

GDPt represents economic growth at time *t* proxied by the growth rate of Gross Domestic Product (GDP).

$TaxRev_t$: tax revenue as a percentage of GDP at time *t*.

Debt. public debt as a percentage of GDP at time *t*.

$Inflation_t$ represents the inflation rate at time *t*, which is used as a control variable to account for price-level changes.

$InterestRate_t$: represents the interest rate at time *t* included to control for the cost of borrowing.

where β0 is the intercept term.

β1, β2, β3, and β4 are coefficients representing the effect of each explanatory variable on economic growth.

This model allows for an analysis of how changes in tax revenue and public debt influence economic growth, controlling for other macroeconomic factors.

3.3 Data Collection and Sources

This research utilises secondary data, chiefly sourced from the World Bank and International Monetary Fund (IMF) databases, encompassing the years 2000 to 2020. To strengthen the analysis, statistics on tax income, public debt, and economic development will be supplemented with information from Transparency International regarding corruption and institutional integrity. A multiple regression model was used due to its ability to evaluate the marginal effect of each independent variable on economic growth. In contrast to the threshold model, which emphasises pinpointing important junctures that alter connections (Hansen, 2000), the multiple regression model is more adept at delineating the continuous impacts of tax revenue and debt. Furthermore, the widespread application of this approach in analogous investigations increases comparability with prior research (Osei-Assibey and Ohene-Manu, 2020).

4. Presentation of the Result

4.1 Descriptive Statistics

Table 1 displays the descriptive statistics for both the dependent and independent variables. The GDP growth rate served as an indicator of economic growth. Public debt and tax income served as independent variables. Inflation and interest rates were utilised as control variables. The descriptive statistics of the data are organised into six columns: the first column lists the variables, followed by mean, standard deviation, minimum, median, maximum, skewness, and kurtosis.

Table 1. Descriptive Statistical Result

	GDP	PDEBT	TAR	INFR	INTR
Mean	0.053006	0.457081	10.79285	19.39625	23.86068
Median	0.047700	0.473600	12.12062	15.46500	22.41667
Maximum	0.140500	0.821200	21.75211	59.46000	45.00000
Minimum	0.005100	0.185100	0.000000	4.870000	12.66667
Std. Dev.	0.024967	0.178895	6.426433	13.03034	9.750078
Skewness	1.364962	0.231307	-0.619039	1.442689	0.867739
Kurtosis	6.163936	2.358173	2.536305	4.421010	2.726826
Observations	32	32	32	32	32

Table 1 illustrates the notable disparities among the analysed economic metrics. The GDP growth rate averages 5.3%, fluctuating between 0.5% and 14%, reflecting phases of economic stagnation and vigorous prosperity in Ghana. The average public debt is 45.7%, ranging from 18.5% to 82.1%, indicating differing degrees of budgetary pressure and worries regarding debt sustainability. The mean tax revenue is 10.79%, with a range from 0.00% to 21.75%, suggesting erratic revenue collection procedures. The inflation rates demonstrate a significant average of 19.39%, fluctuating between 4.87% and 59.46%, indicating considerable price volatility. The average interest rate is 23.86%, ranging from 12.67% to 45%, underscoring the fluctuations in borrowing costs and challenges in monetary policy.

Table 2. Results of Unit Root tests with ADF and P.P.

	Augmented Dickey-Fuller (ADF)		Phillips-Perron (P.P.)	
Variables	**Level**	**P. Value**	**Level**	**P. Value**
GDP	3.669963	0.0098	3.658915	0.0101
PDEBT	1.181852	0.6695	1.378693	0.5797
TAR	1.963711	0.3004	2.048417	0.2658
INFR	3.505584	0.0146	3.547712	0.0132
INTR	4.943507	0.0006	1.208073	0.6582

Table 1 displays the unit root test outcomes from the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests, elucidating the stationarity properties of the variables. The findings indicate that Gross Domestic Product (GDP) and inflation rate (INFR) are stationary at their levels, as demonstrated by p-values below the 0.05 significance threshold for both the ADF (0.0098 and 0.0146, respectively) and PP (0.0101 and 0.0132) tests. The lack of unit roots indicates that these variables are appropriate for investigation in their present condition. The interest rate (INTR) exhibits stationarity as per the ADF test, which reports a p-value of 0.0006; conversely, the PP test suggests non-stationarity, with a p-value more than 0.05 (0.6582), resulting in contradictory conclusions on its stationarity.

In contrast, public debt (PDEBT) and tax revenue (TAR) demonstrate non-stationarity at the level in both tests, with ADF p-values of 0.6695 and 0.3004, and PP p-values of 0.5797 and 0.2658, respectively. The data indicate that PDEBT and TAR necessitate differencing to attain stationarity, essential for rigorous time-series modelling and subsequent econometric analysis.

Table 3. Results of Unit Root tests with ADF and P.P. - (1st Difference)

	Augmented Dickey-Fuller (ADF)		Phillips-Perron (P.P.)	
Variables	**Level**	**P. Value**	**Level**	**P. Value**
PDEBT	5.728730	0.0000	5.726612	0.0000
TAR	4.616950	0.0009	4.602053	0.0009

4.2 Regression Analysis

Table 4 displays the comprehensive results of the regression analysis for the variables, elucidating their interrelationships and statistical significance. The results provide a thorough assessment of each variable's influence on the dependent variable, emphasising the key factors.

Table 4. Regression Results

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	8.115230	1.904689	4.260660	0.0002
PDEBT	0.974854	0.431197	2.260808	0.0320
TAR	-0.234627	0.110444	-2.124402	0.0429
INF	-0.009982	0.005741	-1.738670	0.0935
INTR	-0.163809	0.054798	-2.989340	0.0059
R-squared	0.288013	Mean dependent var		2.765085
S.E. of regression	2.192415	Akaike info criterion		4.550485
F-statistic	2.730511	Durbin-Watson stat		1.675986
Prob(F-statistic)	0.049833			

Table 4 displays the regression results, providing a comprehensive analysis of the effects of public debt, tax income, inflation rate, and interest rate on GDP, revealing significant insights into the interactions among these economic factors. The analysis indicates that public debt exerts a positive and statistically significant impact on GDP, with a coefficient of $\beta = 0.975$, a t-value of 2.261, and a p-value of 0.032, confirming statistical robustness at the 5% significance level. A 1% increase in public debt correlates with approximately a 97.5% increase in GDP, implying that in Ghana, public debt may act as a catalyst for economic growth, potentially owing to the government's ability to leverage debt for productive investments, including infrastructure development or social services. Nonetheless, this positive correlation may also underscore the necessity for judicious debt management techniques to guarantee long-term sustainability, considering the hazards linked to excessive dependence on debt funding.

Conversely, tax income exhibits a negative and statistically significant effect on GDP, with a coefficient of $\beta = -0.235$, a t-value of -2.124, and a p-value of 0.043. A 1% increase in tax revenue correlates with a 23.5% decline in GDP. This inverse link indicates that high tax rates may impede economic growth by perhaps deterring private sector investments or diminishing household expenditure. This observation corresponds with literature suggesting that elevated taxation can induce economic distortions, while also highlighting challenges inherent to Ghana's tax policy and administration, where an augmented tax burden may hinder economic activities, especially given the constraints of limited fiscal space and significant informality.

The analysis of the inflation rate's impact on GDP indicates a negative albeit statistically insignificant correlation, characterised by a coefficient of $\beta = -0.009$, a t-value of -1.739, and a p-value of 0.094.

This indicates that the impact of inflation on economic growth is not sufficiently strong to be considered statistically significant at the standard 5% threshold. The negative coefficient supports the notion that high inflation can reduce purchasing power and hinder economic performance; however, the absence of statistical significance suggests that the relationship between inflation and GDP in Ghana may be influenced by other factors or thresholds, beyond which the correlation becomes clearer.

The findings indicate that the interest rate has a negative and statistically significant effect on GDP, with a coefficient of $\beta = -0.164$, a t-value of -2.989, and a p-value close to the 5% significance level ($p = 0.059$). The findings indicate that a 1% increase in the interest rate results in a 16.4% decrease in GDP, suggesting that elevated interest rates may hinder economic growth by raising borrowing costs and deterring investment. This finding highlights the delicate equilibrium policymakers must maintain when setting interest rates to control inflation without hindering economic growth. The results underscore the imperative of synchronised fiscal and monetary policies in Ghana, necessitating meticulous management of public debt, taxing measures, and interest rate adjustments to promote economic growth while alleviating any negative impacts.

5. Discussion

This study analyses the impact of tax income on the link between debt and growth in Ghana, providing insights into the implications of fiscal policy on economic performance. The examination of the results reveals the intricate relationships among public debt, tax income, inflation, and interest rates in influencing the nation's economic growth path. The results suggest that public debt may substantially facilitate economic growth, likely owing to its function in financing infrastructure and development projects that enhance economic advancement. This observation aligns with research indicating that debt can promote growth in poor countries when investments are strategically directed towards productive industries (Kumar and Woo, 2010). This conclusion raises concerns regarding debt sustainability, as excessive borrowing may result in future fiscal limitations and hinder private sector investment (Reinhart & Rogoff, 2010).

Conversely, the inverse correlation between tax revenue and economic growth highlights potential inefficiencies in Ghana's taxation system or the configuration of tax policies that may obstruct economic activity. This result corroborates Asher's (2012) assertion that elevated tax burdens can hinder growth by diminishing disposable income and deterring investments. This indicates that, although tax revenue is essential for funding government spending, its existing structure in Ghana may hinder growth, maybe due to regressive tax policies or difficulties in tax administration and compliance.

The findings regarding inflation and interest rates augment our comprehension of Ghana's economic dynamics. The statistically negligible effect of inflation on growth indicates that during the study period, inflation did not significantly hinder economic performance. This result may indicate that the inflation rate was within a controllable range and that its impact on economic activity was minimal. This outcome contradicts the traditional perspective that inflation adversely affects growth by diminishing purchasing power (Barro, 1995), suggesting a potential nonlinear relationship in which inflation becomes damaging only beyond specific thresholds.

The inverse relationship between interest rates and GDP growth aligns with macroeconomic theory, suggesting that elevated borrowing costs might reduce investment incentives and hinder economic growth (Blanchard 2009). This study in Ghana highlights the necessity of enacting interest rate policies that promote borrowing for productive investment, thus facilitating economic growth while ensuring monetary stability. This analysis enhances the literature by elucidating the interaction between Ghana's fiscal and monetary policies and economic growth, highlighting the necessity for balanced strategies that optimise the advantages of public debt and tax income while alleviating potential disadvantages. These results offer direction for policymakers aiming to enhance budgetary strategies for sustainable economic development.

6. Conclusion

This study examines the intricate relationship among economic growth, tax revenue, and public debt in Ghana. The results indicate that while borrowing can foster growth by financing development

initiatives, an overdependence on debt may jeopardise long-term fiscal stability. The negative effect of tax revenue on growth highlights the necessity for reforms aimed at improving the efficiency and equity of the tax system, potentially addressing fundamental issues that hinder economic progress. Additionally, the impact of interest rates on growth underscores the significance of sound monetary policies that reconcile borrowing costs with economic growth. Ultimately, the research advocates for a comprehensive fiscal strategy that utilises public debt for productive investments, reforms tax policies to encourage growth, and sustains favourable interest rate conditions to facilitate sustainable economic development in Ghana.

Theoretical Implication

This study's findings hold substantial theoretical implications, especially concerning Ricardian Equivalence Theory and Endogenous Growth Theory. This study demonstrates a significant correlation between public debt and GDP, indicating a 97.5% increase in GDP for each 1% rise in debt. This observation is consistent with the Ricardian perspective, which asserts that government borrowing enhances economic activity via increased public spending, as individuals foresee future tax obligations (Barro 1974). The adverse effect of tax revenue on GDP contradicts the assumptions of Endogenous Growth Theory, which asserts that fiscal policies ought to foster investment and innovation. The findings indicate that elevated tax burdens could impede economic growth, underscoring the necessity for a balanced fiscal strategy that promotes investment while sustaining manageable debt levels (Romer 1986).

Practical and Policy Implication

This study's findings hold considerable implications for fiscal management in Ghana, affecting both practical applications and policy development. Policymakers ought to prioritise the implementation of long-term debt strategies that utilise public borrowing to facilitate growth-enhancing investments, while concurrently alleviating excessive tax burdens. Moreover, the careful regulation of interest rates to promote economic stability can support development while avoiding inflationary pressures.

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