# Contributory Shackles to Unsustainable Public Borrowing Appetite of Ghana and Its Impact on Economic Growth

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**DOI: https://doi.org/10.51584/IJRIAS.2026.110400051**

**Received: 24 April 2025; Accepted: 05 May 2025; Published: 02 May 2026**

## ABSTRACT

A triangular socio-economic contributory shackle to Ghana's fiscal management practices is observed. Notably, a National, Institutional and Community level socio-economic shackles are systemic in the democratic governance structures and found to have very profound negative effect on Annual Tax Revenues and GDP Growth. Total Public Debt was found to have both long-run positive (0.10%) and negative (0.12%) effect on GDP using Variable Selection and Stepwise Least squares (VARSEL) model. Proposed radical solutions to the contributory shackles could free significant fiscal space for phenomenal economic investments that are more likely to make Ghana exit its structural developmental gaps over a decade. The essay concludes by postulating an optimal total debt level of 30% of GDP; a reorganization of the national parliament, employment of technology in revenue collection, critical investments in effective transport network, agriculture, education and reliable national internet connectivity.

**Key Words:** public finance, public debt, fiscal space, fiscal sustainability

## INTRODUCTION

Both macro and micro economic turbulence has characterized Ghana's economy from 1991 to 2023 as manifested in the relatively low and inconsistent GDP growth, low tax revenues, unsustainable debt and high inflation. For the past 33 years, the country has recorded an average GDP growth rate of 5.24%; average annual tax revenue of 13.85%; average total public debt of 48.78% and average annual inflation rate of 19.06%.

Juxtaposing the 33 years average economic growth rates and the last eleven years (2013 to 2023) average economic growth rates, Ghana's GDP has declined by 0.36 percent whiles inflation has decreased by 2.85 percent. Also, total public debt has increased in the same period by 13.17 percent.

In addition, Ghana is borrowing 3.5 times its tax revenue, thus, a dangerous fiscal unsustainability trend. On average, the country is collecting 18.3 billion Ghana cedis from Tax Revenues but spending an average of a gigantic sum of 91 billion Ghana cedis per annum on the Parliament of Ghana alone.

Inherent factors that fuels the unsustainable public borrowing appetite of Ghana are described as triangular socio-economic shackles in this study. Revenue leakages, public corruption, and non-enforcement of the law are among the main issues characterizing the triangular socio-economic level shackles. In summary, when public debt, inflation and corruption are increasing, GDP seem to be decreasing.

## BACKGROUND

The literature has revealed a relatively reducing public investments in critical productive sectors of Ghana's economy over the last three decades. Taking agriculture for instance as the major source of employment, Ghana still imports tomatoes, garlic, onions, rice, chicken and so on. The under investment in agriculture resulting in recurring food price hikes contributes to a bigger portion of the high inflation crisis. The challenges in agriculture are interlinked with under investment in roads infrastructure, manufacturing and education thereby undermining micro and macroeconomic stability.

ISSN No. 2454-6194 | DOI: 10.51584/IJRIAS |Volume XI Issue IV April 2026

The 'debt trap' has been the major limiting factor of the rapidly dwindling public investments in the national economy. As the debt service cost is increasingly growing, the gains in revenue generation are eroded and further borrowing triggered. Therefore, If the current rate of borrowing continues, there may be no ending sight in the recurrent IMF bailouts in Ghana.

Ghana is among eight (8) low income or developing countries ranked as "in debt distress" by the World Bank Group in 2024. Both internal and external debt sustainability analysis (DSA) about Ghana reveals a gloomy unsustainable public debt stock. The questions begging for answers include whether or not the previous IMF bailouts in Ghana changed its economic fortunes? Will the seventeenth time IMF bailout in Ghana make any difference? Is Ghana's fiscal policy leading to its bankruptcy?

**Justification of the Study**

Unfortunately, government fiscal space has been decreasing from 1993 to 2021 due to a myriad of factors. Total debt service cost as a ratio of total revenue and grants has constantly increased from 1993 to 2021 (Quartey P. et all 2023a). According to Quartey P. et al (2023b), 'total debt-service cost rose from 27 percent of total revenue and grants in 1993 to 72.4 percent in 2000. In 2007, the total debt service cost decreased to 17.9 percent due to debt reliefs. The debt-service ratio from 2008 to 2012 became relatively stable in response to the positive impact of the debt cancellation but debt-service cost after 2013 gradually increased and eventually reaching 70.1 percent of total revenue and grants in 2020.

In the findings of Quartey P. et all (2023c), 'Ghana's total revenue as a ratio of GDP stands at only 15.8 percent (lowest among 33 African countries over 32 years), averages for sub-Saharan African, middle income, and all developing economies stand at 20.5 percent, 22.0 percent and 22.6 percent respectively. Ghana's spending on compensation is 36.3% as a ratio of total revenue from 1993 to 2020 and remain the highest among the 33 African countries and in the world'. Therefore, a decreasing revenue trend and an increasing cost curve trajectory of Ghana's national accounts statistics is dangerous to its economic future which is evident in its steadily reducing public investments from 1993 to 2021.

In a bid to address Ghana's socio-economic arduous challenges, specific recommendations based on empirical research has been made. Among these proposals, the Ghana Compact Study recommends reduction in public compensation but failed to indicate how the reduction should be done. A review of some studies including relevant IMF working papers about Ghana's economic recovery proposed a reform of its revenue administration in order to increase its total revenue but the implementation of this recommendation since 2009 (as captured in the Ghana Revenue Authority Act, Act 791) has not made any significant change today. The purpose of this study therefore is to understand the systemic weaknesses (shackles) undermining Ghana's revenue expansion and cost reduction objectives on the national economic growth and propose unique solutions.

**Objectives**

1. To conduct an examination of Ghana's public debt on national economic growth and ascertain unique ways of increasing government fiscal space.
2. To identify the shackles contributing to Ghana's public borrowing appetite and ascertain innovative methods of exiting the debt trap.

**Hypothesis**

1. Total Public Debt (percentage of GDP) have no significant interconnection with economic growth (GDP).
2. GDP Growth Rate have significant interconnection with Total Public Debt Rate.

## METHODOLOGY

Research Design: Both qualitative and quantitative approach were employed to analyze the data using the

ISSN No. 2454-6194 | DOI: 10.51584/IJRIAS |Volume XI Issue IV April 2026

Variable Selection and Stepwise Least squares (VARSEL) model, descriptive statistics and political economics theory.

**Data**

The data from 1991 to 2023 were mainly obtained from the International Monetary Fund (IMF), World Bank Group and CEIC database. Covering all the 33 African countries, GDP Growth Rate, Annual Inflation Rate, Debt to GDP Rate, and Annual Tax Revenue to GDP were downloaded on excel format respectively.

**Methods**

The time series data from 1991 to 2023 were analyzed using both qualitative and quantitative approach. A Variable Selection and Stepwise Least squares (VARSEL) model were employed to conduct various test about reliability and robustness of data. The unit root test for both GDP and Total Debt (TD) were satisfactory as indicated in table 1 and 2 respectively. This was followed by VARSEL Test Output, GDP Asymmetric Coefficient Test and TD Asymmetric Coefficient Test in table 3, 4 and 5 respectively. Robustness was checked using leverage plots as shown in appendix 1. Data was analyzed using EViews 14.

**Model Selection**

The use of a Variable Selection and Stepwise Least squares (VARSEL) model to examine the effect of public debt on GDP Growth Rate in Ghana is not much explored. Another major reason for selection is that the coefficient was positive whiles the Adjusted R square indicate that the model accurately explains 52% of the effect on the dependent variable. Above all, the values of AIC, BIC and other criterions were low (sign of goodness).

Apart from these, the following assumptions were made:

Assumptions

- All variables under this study were decomposed into I(0) or I(1) variables to ascertain the stationarity of the series for application of VARSEL.
- If the p-value of unit root test is less than 0.05 it means the series is stationary or I(0) at 5% significance level otherwise the steps must be repeated and a selection of the first difference entered.
- If p-value is less than 0.05 it means the series is stationary at first difference or I(1).
- The series is not I(1) if it is more than 0.05 and should not be entered in VARSEL model.

**Model Specification**

The Dependent variable is GDP Growth Rate whiles the independent variable is Total Debt (TD).

The Variable Selection and Stepwise Least squares (VARSEL) model are based on the asymmetric long-run regression equation as given below:

$$y_t = \beta^+ x_t + \beta^- x_t + u_t \quad (1)$$

Where; $y_t$ and $x_t$ are scalar I(1) variables, and $x_t$ is decomposed as $x_t = x_0 + x^+ + x^-$, where $.x_t^+$ and $x_t^-$ are partial sum processes of positive and negative changes in $x_t$. Also, β represents a constant and ut is an error term.

In defining the exogeneous lag variables, we have

$$x_t^+ = \sum \max (\Delta x_{8,} 0) \quad (2)$$

ISSN No. 2454-6194 | DOI: 10.51584/IJRIAS |Volume XI Issue IV April 2026

$x_t^- = \sum \min(\Delta x_{8,} 0)$ (3)

Where $x_t$ is a distributed lag variable and if $x_t^+ \neq x_t^-$, then, the distributed lag variable exhibits asymmetric effects where positive changes have less impact on the dependent variable while their negative counterparts exert larger effect.

Alternatively, when $x_t^+ = x_t^-$, the distributed lag variable exhibits symmetric effects on the dependent variable and metamorphosis to the ordinary ARDL model effect.

Since the purpose of this study is to understand only the long-run effect of Total Public Debt (TD) on GDP of Ghana, it is convenient to use the manual frequency conversion of EViews. This involves giving a series of syntax commands for decomposition of the series. In proceeding with the manual approach, there is the need to define the variables under study.

Let $y_t$ = GDP, $x_t$ = TD, and $\beta$ = c

Rearranging the equation;

$GDP_t = C + TD_t + ut$ (4)

The asymmetric long-run regression equation will calculate the partial sum processes of positive and negative changes in gdp and td after decomposition of the data [genr dgdp=gdp-gdp(-1), genr dtd = td-td(-1), genr pos = dtd>=0, genr dtd_p = pos*dtd, genr dtd_n = (1-pos)*dtd, genr td_p = @cumsum(dtd_p), genr td_n = @cumsum(dtd_n)]. The resulting cumulative sums are partial sum of positive and negative changes in total debt, which is represented by td_p and td_n, respectively.

The next step is the variable selection and stepwise least squares as shown in the syntax command below:

d(gdp) c gdp(-1) td_p(-1) td_n(-1) dependent variable

dgdp(-1 to -4) dtd_p(-0 to -4) dtd_n(-0 to -4) fixed regressors

Calculation of Long-run Coefficients based on the output of the above syntax command;

td_p Long-run coefficient = value of td_p coefficient/value of gdp coefficient

td_n Long-run coefficient = value of td_n coefficient/value of gdp coefficient

Long-run cointegrating equation:

$GDP = td\_p + td\_n + U_t$

## LITERATURE REVIEW

Public finance is the outcome of an explicitly specified political process (Persson, T., & Tabellini, G. 2002). This means 'the adoption of any system of governance in a sovereign nation or country and the decisions made from the governance system pertaining to revenues and expenditure are the boundaries of public finance. Therefore, fiscal policy may vary according to governance processes and or political regimes. In effect, the tone of political authority and leadership style to a greater extent determines how public debt is managed and its implications for fiscal sustainability.

There is no doubt that the COVID-19 pandemic has impacted negatively on national debt levels across the world. 'Public debt levels have significant implications for the stability of public finance and the economy as a whole' (OECD 2021). The consequences of unsustainable public debt levels include loss of market access and higher borrowing costs (Hakura, 2020a). In the view of Hakura (2020b), it is only prudent for national economies to borrow when the expected returns from the potential debt can ultimately pay off the loan principal and interest.

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**Public Finance Dynamics across the World**

In the view of Baum, A. et al (2012), a non-linear dynamic threshold panel methodology analysis of 12 European countries suggest a statistically positive significant effect of debt on GDP growth in the short run but decreases to zero and loses its significance beyond public debt to GDP ratio of 67 percent. A case study for Tunisia using the Vector Error Correction Model (VECM) suggest that public investment and inflation reduce the value of public debt whiles real interest rate, budget deficit, and trade openness increase the value of public debt (Belgutth, S. O. and Omrane, H. 2017).

In the case of Lebanon, Ibrahim, C. (2021), found out a non-existence of a co-integrating interconnection via unsustainability of the Lebanese public debt whiles better primary fiscal performance and a higher economic growth rate leads to a reduction in the level of the Lebanese public debt. In emerging economies, a 10 percent increase in the initial debt to GDP ratio corresponds with a reduction in annual real per capita GDP growth of 0.2 percent per year but slightly lower in advanced economies (Kumar, M. S & Woo, J. 2010).

Adeniyi, O. I. & Ifaka, J. O. (2023) employed the General Linear Model (GLM) in the study of Nigeria Debt burden and found out that for every 0.97 unit increase in external debt, GDP increase by 1 unit. Between low- and middle-income countries from 1990 to 2007, the study suggest that public debt has a negative effect on economic growth until it assumes 90 percent of GDP (Presbitero, A. F. 2012). In Pakistan, external debt as a percentage of GDP and debt servicing as a percentage of exports have a significant negative interconnection in the short run whiles domestic debt has no significant effect on per capita GDP in the short run (Akram, N. 2011).

**Public Finance Dynamics in Ghana**

One-third of Ghana's total revenues is spent on only interest payments on contracted loans whiles the total public debt level is most unlikely to fall below the safe 55% of GDP threshold until 2026 (Estevao et al 2019a). With the current trend of low government revenue mobilization and steadily increasing interest payment bills as at 2024, the projections of the IMF/World Bank as stated in Estevao et al (2019b) study may be far from reach.

In a bid to adopt a common currency, the West African Monetary Zone (WAMZ) set a 3 percent of GDP as the acceptable fiscal deficit level for member countries but Ghana between 1992 and 2021 achieved this target only in 2005 (Quartey et al 2023d). Despite the Ministry of Finance of Ghana's own fiscal deficit target of 5 percent of GDP as stated in the 2018 Fiscal Risk Statement under the Fiscal Responsibility Act 2018 (Act 982), the average deficit ratio of 6.9% of GDP between 2017 and 2021 is still above target (Quartey et al 2023e). This means Ghana's fiscal deficits have severely worsened over the last 33 years.

Using a threshold autoregressive model, Awadzie et al (2022) found that public debt level below 57.09 percent can positively derive economic growth. In the use of an Ordinary Least Squares technique and generalized method of moment technique, there is a non-linear statistically stronger negative interaction between public debt and economic growth; capital formulation, population growth and openness of trade exerts a stronger positive interaction effect with economic growth, and inflation and government consumption expenditure have a statistically stronger negative interaction with economic growth (Lartey, E. Y. et al 2018).

Furthermore, using Johansen cointegration and vector error correction model, Owusu-Nantwi, V. and Erickson, C. (2016) study reveal a positive and statistically significant interconnection between economic growth and public debt. A bounced approach Non-linear Autoregressive Distributed Lag (NARDL) study also revealed that a positive shock to public debt has a statistically small effect on national economic growth both in the short and long run whiles a negative shock to public debt produces a significant negative effect in the short run and a positive insignificant effect in the long run (Abille, A. B, and Kilic E. 2023).

Irrespective of short run or long run, public det was found to have a significant positive effect on inflation (Akingbade U. et al 2021). To cite Frimpong B. et al (2024), a rise in public infrastructure investment by 3.1 percent increases external debt by 1.3 percent whiles a 1 percent increase in public spending results to a 2.06 percent rise in public infrastructure investment thereby indicating a positive interconnection between foreign

ISSN No. 2454-6194 | DOI: 10.51584/IJRIAS |Volume XI Issue IV April 2026

debt and infrastructure investment in the long and short run under the Non-linear Autoregressive Distributed Lagged (NARDL) model.

Interestingly, using a Granger Causality Model under the Autoregressive Distributed Lag (ARDL), Hilton, S. K. (2021) found out no causal relationship between public debt and GDP in the short run, a unidirectional Granger causality operating from public debt to GDP in the long run, investment spending having a negative bi-directional causal interconnection with GDP in the short run and a positive bi-directional interconnection in the long run. In contrast, an ARDL based research by Amankwa, G. et al ((2018) reveal that Ghana is solvent and its public debt was sustainable. Also, Forson, C. A. B. (2019) suggest that public debt has a negative effect on economic growth in Ghana under both the short run and long run from ARDL estimates.

**Findings**

Objective 1

Unit Root Test were conducted separately for GDP and Total Debt (TD) in order to determine the suitability of the data and to inform the model selection. We can see from table 1 below that all the Augmented Dickey-Fuller Unit Root Test on GDP reveals a rejection of the null hypothesis [prob(F -statistics = 0.001386)]. The p-value of 0.0013 is less than the 0.05 confidence interval thereby satisfying I(0) or I(1) condition and an indication of stationarity.

Table 1: Augmented Dickey-Fuller Unit Root Test on GDP

Null Hypothesis: GDP has a unit root Exogenous: Constant

Lag Length: 0 (Automatic - based on t-statistic, lag pval=0.1, max lag=8)

| t-Statistic | Prob.* | | | |
|---|---|---|---|---|
| Augmented Dickey-Fuller test statistic | -3.523929 | 0.0137 | Test critical values: 1% level | -3.653730 |
| | | | 5% level | -2.957110 |
| | | | 10% level | -2.617434 |

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation Dependent Variable: D(GDP)

Method: Least Squares Date: 12/05/24 Time: 03:26 Sample (adjusted): 2 33

Included observations: 32 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| GDP(-1) | -0.599930 | 0.170245 | -3.523929 | 0.0014 |
| C | 3.114778 | 0.996231 | 3.126563 | 0.0039 |
| R-squared | 0.292754 | Mean dependent var | | -0.074432 |
| Prob(F -statistics) | 0.001386 | | | |

A separate Augmented Dickey-Fuller Unit Root Test on TD was conducted and also reveals a rejection of the null hypothesis [prob(F -statistics = 0.000250)] as shown in table 2 below. The p-value of 0.00025 is less than the 0.05 confidence interval thereby satisfying I(0) or I(1) condition and an indication of stationarity.

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Table 2: Augmented Dickey-Fuller Unit Root Test on D(TD)

Null Hypothesis: D(TD) has a unit root Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on t-statistic, lag pval=0.1, max lag=8)

t-Statistic Prob.*

Augmented Dickey-Fuller test statistic -4.747471 0.0033 Test critical values: 1% level -4.284580

5% level -3.562882

10% level -3.215267

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation Dependent Variable: D(TD,2)

Method: Least Squares Date: 12/05/24 Time: 03:31 Sample (adjusted): 3 33

Included observations: 31 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| D(TD(-1)) | -0.916091 | 0.192964 | -4.747471 | 0.0001 |
| C | 0.777031 | 3.811049 | 0.203889 | 0.8399 |
| @TREND("1") | 0.045169 | 0.199624 | 0.226270 | 0.8226 |
| R-squared | 0.446967 | Mean dependent var | | -0.352437 |
| Prob(F-statistic) | 0.000250 | | | |

The main VARSEL test output is shown in table 3 below. The Coefficients of the dependent and independent variable in lag one are GDP (-1.866363); TD_P (-0.187797) and TD_N (-0.234402). These are short-run negative coefficients that will be used to formulate the long-run cointegrating equation.

Table 3: VARSEL Test Output

Dependent Variable: D(GDP) Method: Variable Selection

Date: 12/05/24 Time: 08:49 Sample (adjusted): 6 33

Included observations: 28 after adjustments Number of always included regressors: 4 Number of search regressors: 14 Selection method: Stepwise backwards

Stopping criterion: p-value forwards/backwards = 0.5/0.1

| Variable | Coefficient | Std. Error | t-Statistic | Prob.* |
|---|---|---|---|---|
| C | 10.67577 | 2.081636 | 5.128548 | 0.0001 |
| GDP(-1) | -1.866363 | 0.385140 | -4.845928 | 0.0002 |

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| | | | | |
|---|---|---|---|---|
| TD_P(-1) | -0.187797 | 0.047026 | -3.993447 | 0.0010 |
| TD_N(-1) | -0.234402 | 0.060805 | -3.854953 | 0.0014 |
| DTD_P | -0.121125 | 0.077864 | -1.555584 | 0.1394 |
| DTD_N(-3) | 0.298464 | 0.091314 | 3.268537 | 0.0048 |
| DTD_P(-1) | 0.352074 | 0.098847 | 3.561790 | 0.0026 |
| DGDP(-3) | 0.354742 | 0.193748 | 1.830947 | 0.0858 |
| DGDP(-1) | 0.979390 | 0.296031 | 3.308406 | 0.0044 |
| DGDP(-2) | 0.733755 | 0.264728 | 2.771732 | 0.0136 |
| DTD_P(-4) | 0.193133 | 0.099819 | 1.934833 | 0.0709 |
| DTD_P(-2) | 0.092227 | 0.100259 | 0.919880 | 0.3713 |
| R-squared | 0.754233 | Mean dependent var | | -0.043301 |
| | | Prob(F-statistic) | | 0.003587 |

Calculation of Long-run Coefficients;

td_p Long-run coefficient = value of td_p coefficient/value of gdp coefficient

td_p Long-run coefficient = -0.187797/-1.866363

Therefore, td_p Long-run coefficient = 0.100621

td_n Long-run coefficient = value of td_n coefficient/value of gdp coefficient

td_n Long-run coefficient = -0.234402/-1.866363

Therefore, td_n Long-run coefficient = 0.125593

Long-run cointegrating equation:

$GDP = 0.100621td\_p + 0.125593td\_n + U_t$

Implication

An increase of 1 percent point in total public debt rate corresponds to 0.10 percent point increase in GDP of Ghana and a decrease of 1 percent point in total public debt rate corresponds to 0.12 percent point decrease in GDP of Ghana in the long-run. The negative large effect is explained by high interest and debt service cost in the long-run that decrease fiscal space and undermines public investment.

To test for reliability of the model, asymmetry coefficient test was conducted for both GDP and TD as shown in table 4 and 5 below: Decision: Clearly, the null hypothesis of equality is rejected as p-value is less than 0.05. Wald test indicates that there is asymmetry in the long run effect of total public debt on GDP growth in Ghana.

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Table 4: GDP Coefficient Test

| Wald Test: Equation: Untitled | | | |
|---|---|---|---|
| Test Statistic | Value | df | Probability |
| F-statistic | 12.01188 | (2, 16) | 0.0007 |
| Chi-square | 24.02377 | 2 | 0.0000 |
| Null Hypothesis: C(2)=C(3)=C(4) Null Hypothesis Summary: | | | |
| Normalized Restriction (= 0) | | Value | Std. Err. |
| C(2) - C(4) | -1.631961 | | 0.340448 |
| C(3) - C(4) | 0.046605 | | 0.019900 |
| Restrictions are linear in coefficients. | | | |

Table 5: TD Coefficient Test

| Wald Test: Equation: Untitled | | | |
|---|---|---|---|
| Test Statistic | Value | df | Probability |
| F-statistic | 14.98013 | (2, 16) | 0.0002 |
| Chi-square | 29.96026 | 2 | 0.0000 |
| Null Hypothesis: C(1)=0, C(3)=2*C(4) Null Hypothesis Summary: | | | |
| Normalized Restriction (= 0) | | Value | Std. Err. |
| C(1) | 10.67577 | | 2.081636 |
| C(3) - 2*C(4) | 0.281007 | | 0.077299 |
| Restrictions are linear in coefficients. | | | |

**Asymmetric Cointegration test:**

Before drawing any conclusion regarding the estimated coefficients, one needs to check if variables are co-integrated. The coefficients would be bias if variables are not cointegrated. For testing cointegration, Shin at al (2014) recommended the use of joint null hypothesis level (non-difference) variables in comparison with the critical values of bound testing in Pesran et al (2001). By doing so, if the calculated F statistics is found to be the greater than the upper critical value then there is evidence of co-integration, otherwise, then evidence of cointegration is not found.

The coefficient test for GDP reveals (F-statistics = 12.01188, p-value = 0.0007) and that of TD reveals (F-statistics = 14.98013, p-value = 0.0002). Juxtaposing these F-statistics values with values of the bounds testing of table 6 below, suggest a trend for cointegration.

Table 6 of Case III: Unrestricted intercept and no trend

| 0.100 | | | 0.050 | | 0.025 | | 0.010 | | Mean | Variance |
|---|---|---|---|---|---|---|---|---|---|---|
| *K* | *I*(0) | *I*(1) | *I*(0) | *I*(1) | *I*(0) | *I*(1) | *I*(0) | *I*(0) | *I*(1) | *I*(1) |
| 0 | 6.58 | 6.58 | 8.21 | 8.21 | 9.80 | 9.80 | 11.79 | 3.05 | 3.05 | 7.07 |
| 1 | 4.04 | 4.78 | 4.94 | 5.73 | 5.77 | 6.68 | 6.84 | 2.03 | 2.52 | 2.89 |
| 2 | 3.17 | 4.14 | 3.79 | 4.85 | 4.41 | 5.52 | 5.15 | 1.69 | 2.35 | 1.77 |
| 3 | 2.72 | 3.77 | 3.23 | 4.35 | 3.69 | 4.89 | 4.29 | 1.51 | 2.26 | 1.27 |
| 4 | 2.45 | 3.52 | 2.86 | 4.01 | 3.25 | 4.49 | 3.74 | 1.41 | 2.21 | 0.98 |
| 5 | 2.26 | 3.35 | 2.62 | 3.79 | 2.96 | 4.18 | 3.41 | 1.34 | 2.17 | 0.79 |
| 6 | 2.12 | 3.23 | 2.45 | 3.61 | 2.75 | 3.99 | 3.15 | 1.29 | 2.14 | 0.66 |
| 7 | 2.03 | 3.13 | 2.32 | 3.50 | 2.60 | 3.84 | 2.96 | 1.26 | 2.13 | 0.58 |
| 8 | 1.95 | 3.06 | 2.22 | 3.39 | 2.48 | 3.70 | 2.79 | 1.23 | 2.12 | 0.51 |
| 9 | 1.88 | 2.99 | 2.14 | 3.30 | 2.37 | 3.60 | 2.65 | 1.21 | 2.10 | 0.45 |
| 10 | 1.83 | 2.94 | 2.06 | 3.24 | 2.28 | 3.50 | 2.54 | 1.19 | 2.09 | 0.41 |

Source: Pesaran et al (2001).

Decision: since the calculated F statistics is larger than the critical value of 7.84 at 1% significance level, there is strong evidence of cointegration at 1% significance level.

To test for robustness of the model, leverage plots on graph was executed as indicted in appendix 1 of this paper. Data stability was evident in the leverage plots.

**Objective 2**

Three levels of constraints or contributory socio-economic shackles exists. These contributory socio-economic shackles are the national, institutional and community level shackles as shown in figure 1 below

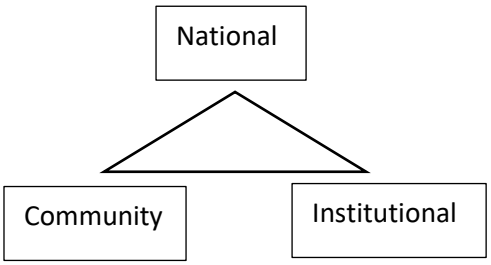



Figure 1 Triangular Socio-economic Level Shackles

**National Level Shackles**

This level of constraints are systemic central government weaknesses that are undermining both national revenue and national cost reduction objectives. Table 7 below summarizes key shackles that undermines fiscal

ISSN No. 2454-6194 | DOI: 10.51584/IJRIAS |Volume XI Issue IV April 2026

sustainability.

Table 7 Analysis of Democratic Governance Structure in Ghana

| S/N | Subject Matter | Implications |
|---|---|---|
| 1 | CDD-Ghana 2021 Survey<br><br>MPs spend 4 million Ghana cedis to campaign for both primaries and general elections while's presidential candidates spend 575 million Ghana cedis to compete in both primaries and general elections. | (a) The 4m Ghana cedis budget for MPs campaign spending is about 167% of his annual income.<br><br>(b) It is very rare for an individual to raise 575m Ghana cedis from personal income. |
| 2 | Most Financiers of political parties were found to be engaged in criminal activities ranging from national oil revenue leakages and kick-backs from corrupt public contract awards and deals. | (c) This means the current democratic governance structure is corrupt by default.<br><br>(d) There is no way the current main political parties will produce a president that can honestly fight corruption. |
| 3 | Lack of transparency and ineffective campaign regulatory oversight. | (e) The overwhelming demand to compensate political actors such as party Chairmen and executives makes the President easily vulnerable to corruption. |

Source: Ibrahim, S. M. (2024)

The above evidence clearly shows that many political parties are themselves a major shackle to fiscal sustainability. Some political actors as indicated in the CDD-Ghana survey (2021) do not only undermine GoG revenue collection effort, the scarce revenue is also abused.

**Institutional Level Shackles**

This case study focuses on three key institutions namely; the Parliament of Ghana, the Ghana Revenue Authority (GRA) and the Judicial Service of Ghana despite the fact that bribery and corruption has been institutionalized across many public institutions of Ghana. Considering table 8 below, the Government of Ghana (GoG) is spending on average 91 billion Ghana cedis on the Parliament of Ghana relative to an average revenue of 18.3 billion Ghana cedis from tax collections. This means GoG expenditure on the legislature is five times the average tax collection.

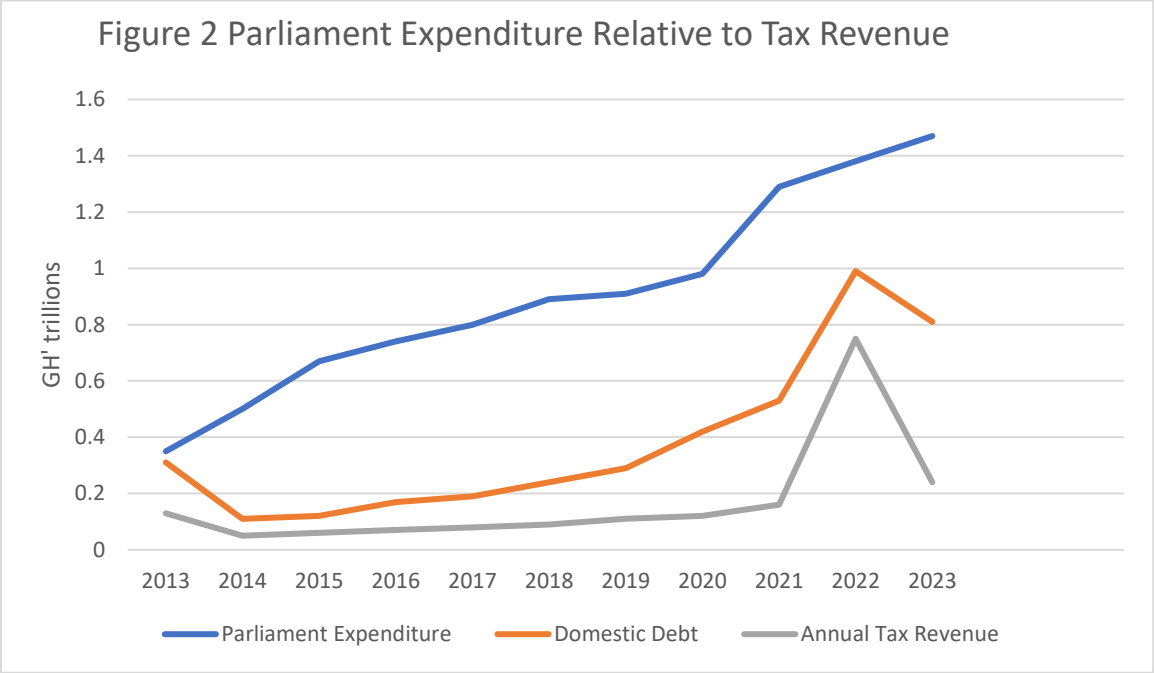
Also, the GoG is borrowing on average 46.29 billion Ghana cedis from the domestic market which is 2.5 times tax revenues per annum. In terms of percentage, Domestic debt is 290 percent of annual tax revenues whiles average annual tax revenue collections stands at 12.88 percent. Average percentage of expenditure on the legislature relative to tax is 1,774.7 percent.

Table 8 Average Parliament Expenditure Relative to Tax Revenue (2013 – 2023)

| Details | Nominal Values (GH₵) | Average Percentage (11 years) | Nominal Values (%) | Average Percentage (11 years) |
|---|---|---|---|---|
| Expenditure on Parliament (GH₵' trillions) | 9.98 | 0.91 | 17,746.65 | 1774.665 |
| Annual Tax Revenue (billions) | 187.3 | 18.3 | 128.76 | 12.88 |
| Domestic Debt to GDP (billions) | 509.23 | 46.29 | 2904.46 | 290.446 |

Source: Ibrahim, S. M. (2024)

Figure 3 below gives a pictorial view of parliament expenditure relative to tax revenues. From just 35 billion Ghana cedis in 2013, 50 billion Ghana cedis in 2014, 67 billion Ghana cedis in 2015, the expenditure on parliament rose from 98 billion Ghana cedis in 2020 to 1.29 trillion Ghana cedis in 2021, 1.38 trillion in 2022 and 1.47 trillion in 2023. The tax revenue curve is showing a downward spiral since 2023, thus, an indication of a narrowing fiscal space under an ever-growing basic developmental need for the masses.




Source: Ibrahim, S. M. (2024)

Case number 1 as shown in Table 9 below involve Centre for Freedom and Accuracy in partnership with Tiger Eye Private Investigation which reveals that in Tema port alone, Ghana is losing 1.8 billion US dollars per annum since 2013. This leakage in GRA alone is more than half the IMF bailout loan Ghana contracted in 2023. In terms of case number 2 involving JoyNews TV documentary in 2024, GRA officials were caught on tape taking bribes and allowing traders to evade tax or pay ridiculously low taxes. From 2013 to 2024 is eleven (11) years of no action either in terms of prosecution or improvement of internal controls.

Also, in 2013, the first judgement debt scandal involving an amount of 51 million Ghana cedis wrongfully paid to a private businessman, Wayome, came to public knowledge through whistle blowing. In 2015, another investigation by Tiger Eye reveal how twenty judges in total took various bribes from the public which resulted in their dismissal. Even though the Judicial Service of Ghana was applauded for prompt disciplinary action, nothing has changed in terms of court processes and procedures for over eleven years today.

Table 9 Catalogue of Institutional Crises of Corruption

| S/N | Name of Sector | Reference | Narration of Event |
|---|---|---|---|
| 1 | Ghana Revenue Authority | https://www.peacefmonline.com/v12/tools/printnews/news.php?contentid=166616 | Ghana is losing US 150m dollars monthly at Tema Port. Tiger Eye 14/06/2013 |

| | | | |
|---|---|---|---|
| 2 | Ghana Revenue Authority | https://www.youtube.com/watch?v=VebitB3i65I | Bribery and corruption at the borders - JoyNews Documentary (July 2024) |
| 3 | Judicial Service of Ghana | https://www.modernghana.com/news/660442/20-judges-sacked-over-anas-video.html#google_vignette | 20 Judges sacked from the Judicial Service of Ghana. Daily Guide Newspaper 08/12/2015 |
| 4 | Judicial Service of Ghana | https://www.modernghana.com/news/1337708/ghanas-judgement-debt-scandal-a-crisis-of-accoun.html<br><br>https://www.ghanaweb.com/GhanaHomePage/NewsArchive/134m-Judgement-Debt-Trafigura-starts-processes-to-seize-Ghana-s-properties-in-South-Africa-1952201 | Payment of 2.5 billion Ghana cedis in judgement debts since 2017. A separate $134m payment to Trafigura |
| 5 | Judicial Service of Ghana | https://citinewsroom.com/2020/06/government-knows-beneficiaries-of-my-ghs51m-judgement-debt-woyome/ | 51 million Ghana cedis paid to Wayomi 2013 |

**Community Level Shackles**

Using a political economics theory by Persson, T., & Tabellini, G. (2002), the income redistribution model predicts the interconnection between income distribution skewedness and the size of the general redistribution schemes as shown in the following equation:

$$r^i = \frac{e^i - e}{L_T(T^i)} \qquad \text{Equation 1}$$

Where $r^m$ = equilibrium tax rate, $r^i$ is tax rate preferred by the ith individual, $e^i$ = individual productivity, e = mean, L = labor supply, T = time.

If $L_T < 0$, it means a poor voter ($e^i < e$) prefers a positive tax rate, which is larger the poorer he is (the larger $e^i$ is in absolute value), whiles a rich voter ($e^i > e$) prefers an income subsidy ($T < 0$), financed by a lump-sum tax. Individual preferences are thus monotonous in $e^i$. It is easy to see that there is only one political equilibrium: both candidates commits to $r^m$, the policy preferred by the median voter. If any of the candidates offers a different value say $r^i$, the opposing candidate will take advantage for victory by offering a policy in the interval ($T^i$, $T^m$). Hence, the equilibrium, tax rate, $r^m$, coincides with the policy preferred by the median voter:

$$r^m = \frac{e^m - e}{L_T(T^i)} \qquad \text{Equation 2}$$

Assumptions:

i. Both candidates only care about winning elections.

ii. Both candidates maximize their expected vote share.

iii. Both candidates are subject to time constraint.

See Persson, T., & Tabellini, G. (2002) for a derivation of the equations.

The model suggests that concentration of income at the top makes income redistribution more attractive to the median voter (middle income earners), and hence, increases equilibrium tax rate whiles extreme poverty reduces the benefit of redistribution to the median voter.

Figure 3 below gives details of the government expenditure on compensation.

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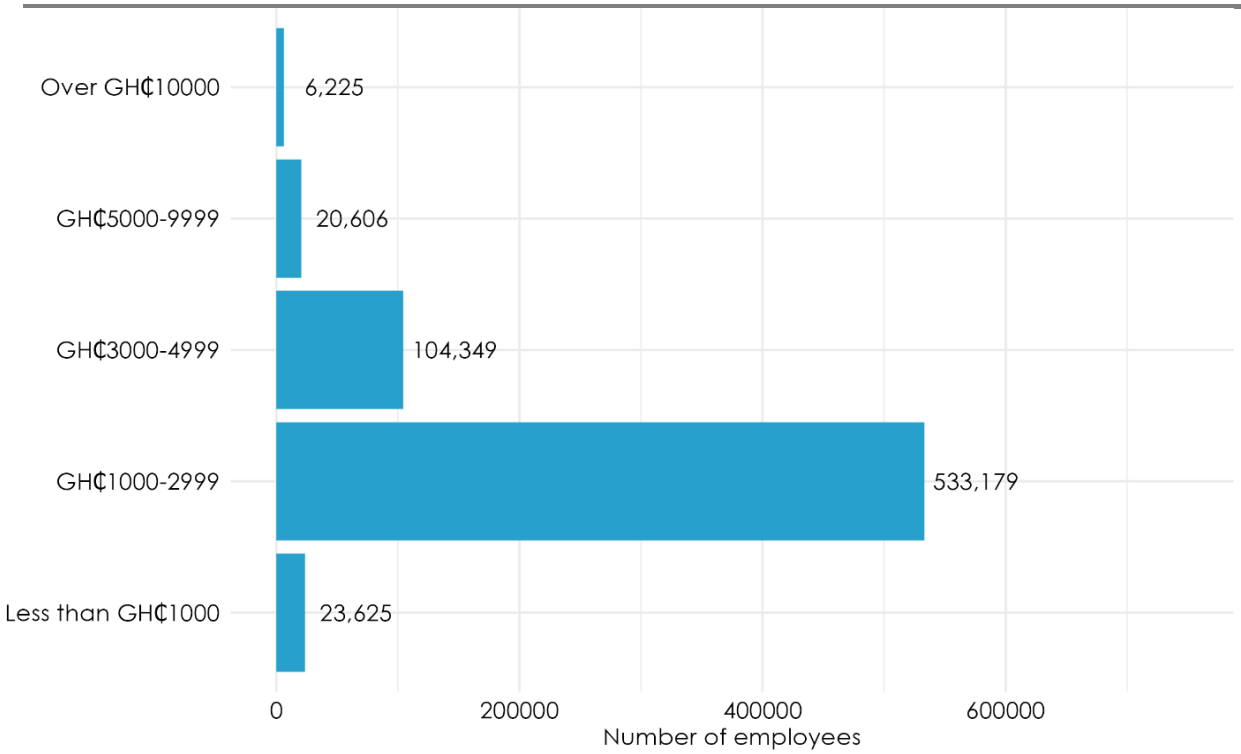


Figure 3 Number of Public Sector Employees by Net Salary

Source: Ghana Statistical Service 2023.

In Ghana, because the middle classes are relatively poor, equilibrium redistribution is large due to concentration of high income at the top (see figure 3).

## DISCUSSIONS

### Impact of Public Debt on Economic Growth

An increase of 1 percent point in total public debt rate corresponds to 0.10 percent point increase in GDP of Ghana and a decrease of 1 percent point in total public debt rate corresponds to 0.12 percent point decrease in GDP of Ghana in the long-run. The negative large effect is explained by high interest and debt service cost in the long-run that decrease fiscal space and undermines public investment. The drivers of unsustainable public debt may include uncontrollable cost, corruption, lower tax collection, and uncontrollable inflation.

Uncontrollable cost are expenses incurred by top management in the corporate world or in the case of government, it is expenditure incurred by policy makers. Policy makers include the executive, law makers and judiciary. Understanding the behavior of uncontrollable cost in government expenditure lays the foundation for effective cost control. Effective cost control strengthens fiscal sustainability. The consequences of poor public finance choices is reflected in table 10, 11 and 12 as follows.

Table 10 Analysis of Public Uncontrollable Cost in Ghana

| S/N | Subject Matter | Implications |
|---|---|---|
| 1 | Ghana Statistical Service 2023 Income Inequality Study:<br><br>According to the Ghana Statistical Service (GSS), four (4) out of every 5 public sector worker receives a monthly income of less than GH₵3,000 which is uneconomical based on the cost of living. | (a) This means less than 20% of the public employees made of the executive and top civil servants receives more than 80% of government compensation budget.<br><br>(b) It is extremely difficult to control management expenditure both in the corporate |

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| | | |
|---|---|---|
| | | world and public sector. |
| 2 | Quartey P. et al (2023) Ghana Compact Study:<br><br>Ghana's spending on compensation is 36.3% as a ratio of total revenue from 1993 to 2020 and remain the highest among the 33 African countries and in the world. | (c) It is not feasible to cut wages of those earning GH₵3k and below.<br><br>(d) Public investments are already steadily dwindling over the last 3 decades. |
| 3 | Quartey P. et al (2023) Ghana Compact Study:<br><br>Ghana's total revenue as a ratio of GDP stands at only 15.8 percent (lowest among 33 African countries), averages for sub-Saharan African, middle income, and all developing economies stand at 20.5 percent, 22.0 percent and 22.6 percent respectively. | (e) The main formulators of policy (politicians) are already complicit in illegally diverting state revenues from the national coffers.<br><br>(f) Sustainable economic recovery will depend on cutting cost on the legislature and executive. |

Table 11 Average Growth Rates of Key Indicators from 2013 to 2023

| Details | Average Percentage (11 years) | Optimal Target (%) | Variance (%) |
|---|---|---|---|
| GDP Growth (%) | 4.88 | 10 | -5.85 |
| Total Debt to GDP (%) | 61.95 | 30.00 | -31.95 |
| External Debt to GDP (%) | 30.86 | 20.00 | -10.86 |
| Domestic Debt to GDP (%) | 31.09 | 10.00 | -20.09 |
| Annual Tax Revenue (%) | 12.88 | 20.00 | -7.12 |
| Annual Inflation (%) | 16.21 | 3.00 | -13.21 |

Source: Ibrahim, S. M. (2024)

In Table 11 above, an average GDP growth of 4.9% over eleven years period instead of 10% means the rate of economic growth is relatively slower to population growth. Average public borrowing also stands 61.95% thus, 31.95% above optimal target whiles average tax revenue over the same period stands at 12.88% instead of 20% optimal target (thus 7.12% below the optimal target). Inflation is 13.21% above the optimal target. This means for the past 10 years; prices have increased by 265.35% and the currency has decreased in value by 72.63% according to World Bank calculations.

Table 12 Average Growth Rates of Key Economic Indicators from 1991 to 2023

| S/N | Name of Country | GDP Growth Rate | Annual Inflation Rate | Annual Tax Revenue Rate | Total Debt to GDP Rate |
|---|---|---|---|---|---|
| 1 | Benin | 4.68 | 4.06 | 14.17 | 34.02 |
| 2 | Burkina Faso | 5.41 | 3.22 | 18.16 | 36.78 |
| 3 | Cape Verde | 1.41 | 3.28 | 26.02 | 84.03 |
| 4 | Cote d'voire | 3.64 | 3.59 | 11.01 | 50.65 |

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|---|---|---|---|---|---|
| 5 | Ghana | 5.24 | 19.06 | 13.85 | 48.76 |
| 6 | Guinea | 4.46 | 11.33 | 13.35 | 62.56 |
| 7 | Guinea-Bissau | 3.47 | 12.13 | 9.32 | 115.25 |
| 8 | Liberia | 4.48 | 10.67 | 10.34 | 194.35 |
| 9 | Mali | 4.53 | 2.79 | 13.01 | 36.87 |
| 10 | Mauritania | 4.69 | 5.30 | 0 | 48.72 |
| 11 | Niger | 4.19 | 3.19 | 15.47 | 37.35 |
| 12 | Nigeria | 4.02 | 13.14 | 15.28 | 32.61 |
| 13 | Senegal | 3.82 | 3.02 | 17.07 | 46.50 |
| 14 | Sierra Leone | 3.01 | 18.95 | 0 | 49.02 |
| 15 | The Gambia | 3.25 | 6.49 | 9.71 | 70.8 |
| 16 | Togo | 3.50 | 3.88 | 11.93 | 56.83 |

Source: Ibrahim, S. M. (2024)

Based on World Bank data from which Table 12 was calculated, Ghana's average GDP growth rate is lower than all the 16 West African countries excerpt Burkina Faso; it also has the highest inflation among 16 nations; and lower tax collection rate but slightly higher than 5 out of the 16 West Africa nations. Furthermore, Benin, Burkina Faso, Mali, Mauritania, Niger, Nigeria, and Senegal all performs better than Ghana in terms of public debt management. Ironically, Ghana is relatively endowed with much resources than these nations.

Despite this abysmal economic growth pattern over 33 years, Ghana is borrowing 3.5 times its tax revenue, thus, a dangerous fiscal unsustainability trend. Borrowing 3.5 times the country's revenue means the nation has mortgaged both present and future resources for the benefit of outsiders. In table 10 above, Ghana's average GDP over 33 years is 5.24 percent which is higher than the average GDP of 4.88 percent for the last eleven years. It is an indication that economic growth has rather declined by 0.36 percent in the last decade. Inflation has also increased by 2.85 percent whiles total public debt has increased by 13.17 percent in comparing the averages of the two periods.

The evidence from the data also shows that Ghana has the highest inflation in West Africa. In disaggregating the annual rate of inflation, food inflation accounts for more than half of the annual inflation (CPI, 2023) and has remained so for the past two decades. This means the under investment in agriculture contributes to the high inflation rate. As a result of the high inflation, cost of production increases alongside the cedi depreciation and SMEs are unable to thrive thereby affecting their ability to pay taxes and resulting into a lower tax collection rate (13.85%) by government among its peers.

In addition, the relatively low average total public debt of 48.76 percent over the 33 years is mainly due to debt relief measures by World Bank and IMF rather than prudent fiscal management. The debt relief under the HIPIC and MDRI between 2007 to 2012 and the current debt relief under IMF bailout in 2023 accounts for the slightly lower total public debt of Ghana. The data also shows that many countries with evidence of public corruption, higher debt ratios and higher inflation are mostly associated with lower GDP ratios as revealed in the case of Cape Verde, Cote d'ivore, Ghana, Guinea, Guinea Bissau, Liberia, Mauritania, Senegal, Sierra Leone, The Gambia and Togo.

**Effect of Contributory Shackles to Economic Growth**

The levels of contributory shackles to economic growth include; national, institutional and community level. Significantly, issues that were identified at the national level include lack of transparency on political party funding and misplaced priorities in government spending. At the institutional level, poor governance and corruption was key. In the case of the community level, majority of voters or households were interested in enjoying free government services but against payment of taxes. This is why taxation was a major political campaign issue in Ghana's 2016, 2020 and 2024 national elections.

The New Patriotic Party (NPP) won the 2016 and 2020 elections due to a manifesto pledge of moving from taxation to production. Contrarily, the realities of large welfare payment programmes such as LEAP, Free SHS Policy, Capitation grant for JHS, School Feeding and the 'debt trap' that requires more taxes because of huge debt service cost was a major factor that undermined the realization of that objective. The subsequent imposition of multiple high taxes by the NPP government rather seem to crippled SMEs and their ability to pay taxes.

The main or largest political opposition party in Ghana before the 2024 general election, the National Democratic Congress (NDC) having realized that the median voters are attracted to welfare payment programmes reshaped their 2024 manifesto revealing more welfare payment programmes and subsequently won the 2024 national elections. In fact, welfare payment programmes, taxation and inflation seem to have become the main political drivers of winning national elections in Ghana today.

Economically, investment in infrastructure and for that matter production is a prerequisite to achieve fiscal sustainability since more viable economic enterprises will increase government revenues and its subsequent ability to sustain welfare payment programmes. However, the community level shackle of high preference for welfare payment programmes compels political parties to overrule this economic logic by giving preference to welfare payment instead of production but with less fiscal space.

## CONCLUSIONS

This study has found out that as public debt, inflation and corruption increases, GDP decreases. An earlier research evidence also shows a fundamental connection for share of agriculture in GDP and a genuine transparency especially in revenue collection as main drivers of tax revenue growth (Ghura, D. 1998a). The IMF Working paper further suggests that GDP growth increases as inflation and corruption declines (Ghura, D. 1998b).

Interestingly, whiles Ghana's tax revenue is relatively low, it has the highest cost or expenditure on compensation in Africa. Borrowing 3.5 times the country's tax revenue means the nation has mortgaged both present and future resources for the benefit of outsiders. Having one of the highest rates of inflation in West Africa makes Ghana's business climate unfriendly over 33 years.

Finally, an increase of 1 percent point in total public debt rate corresponds to 0.10 percent point increase in GDP of Ghana and a decrease of 1 percent point in total public debt rate corresponds to 0.12 percent point decrease in GDP of Ghana in the long-run.

## RECOMMENDATIONS

(a) Electing Members of Parliament (MPs) from constituencies must be jettisoned and replaced with election of Metropolitan, Municipal, District Chief Executives (MMDCEs) who will become both MPs for the Parliament of Ghana as well as well as administrate heads of their respective assemblies. In this case, the MMDCEs will receive only one salary from their respective districts.

(b) The Parliament of Ghana can use zoom virtual meeting, google meet or any technology platform for its proceedings. It is only MPs in the national capital who will be obliged to be physically present at the chamber of parliament. Committees of parliament will also meet virtually unless there is an urgent need to meet physically.

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(c) There is no need for appointment of Regional Ministers since elected MMDCEs will play that role rotatively. Beginning from the Metropolitan Chief Executives, followed by the Municipal and District Chief Executive in every region, each elected person will act as a Regional Minister for six months rotatively. No additional salary or allowance for acting as Regional Minister.

(d) Appointment of ministers of state must be made without deputies and should not exceed 25 persons.

(e) Appointment of board members or directors of State-Owned Enterprises (SOEs) must be based on merit and their allowances or salaries must be reduced by 50%. It should not be an obligation of the state to provide vehicles to board members.

(f) Re-appointment of CEOs of State-Owned Enterprises (SOEs) must be solely based on performance.

(g) The GRA internal and external procedures for revenue collection must be thoroughly reviewed and the human interface must be eliminated or reduced to the barest minimum. If technology is employed in the collection of property rates alone in the major cities of Ghana, it will increase fiscal space significantly.

(h) A thorough examination of the judicial process involving all courts must be made and employment of technology in place of human interface where possible.

(i) Public prosecution must be re-organized, strengthened and made independent in order to enforce the law through quick adjudication of corruption cases.

(j) The savings on the proposed cost reduction must be spent to ensure a comprehensive accessible tared road network across the country, good irrigation infrastructure, reliable and affordable internet connectivity and technology-based education.

(k) Establishment of a technology and industry revolving fund of 500,000 Ghana cedis in each technical university. The purpose of the fund will be for specified purchases of materials for technology and innovation projects. For instance, government gives a challenge to technical universities to produce 500 refuse containers that are suitable for lifting by zoom lion trucks. The same applies to trailers and ploughs for tractors etc (challenges must move from simple to complex). As government purchases the end products after production, students will be having the golden opportunity for learning on the job whiles the proceeds are saved in the revolving fund waiting for further challenges.

(l) The proposed reforms in education will require huge investment in capacity building of the teachers and potential teachers. Two options are available; government can contract external experts to come and teach or train the teachers (which is cheaper and will cover many beneficiaries) or sponsor them to go for training abroad. This will avoid the situation in which many of the teachers themselves do not know how to apply certain technology teaching tools, equipments and or skills.

(m) Total Public Debt to GDP ratio must not exceed the optimal target of 30 percent under a prudent public finance policy. Loans should not also be contracted for welfare payments or consumption unless very strategic economically viable projects capable of paying back the loans.

(n) A thorough review of the extractives industry must be carried out in order to ensure that the GoG in the worst-case scenario, receives 50% of all proceeds from minerals, gas and oil. It is useless discovering more oil fields if the quantum of revenues goes outside.

(o) These ten (10) years proposed economic investment and recovery plan can best be implemented by a radical independent political candidate and not a political party. A radical independent presidential candidate will be free from political parties funding pressures that leads to corruption. There will be no need to buy V8s for political party chairmen across the country, no need to compensate thousands of party executives using dubious means and so on. Above all, the leader will ensure rule of law and genuine fight of corruption.

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