JASAB Journal of Applied Science, Arts and Business

Published by Christian Service University, Kumasi (Ghana)

Volume 1 (1) 47-70, May 2025 | ISSN: 3093-4540 (Online); 3093-4559 (Print)
The article is published with Open Access at: https://jasab.csuc.edu.gh/index.php/jasab/index.
DOI: https://doi.org/10.63882/xrck4w46

THE RELATIONSHIP BETWEEN GOVERNMENT RECURRENT EXPENDITURE AND ECONOMIC GROWTH IN GHANA

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ABSTRACT

This study set out to explore the correlation between the ongoing financial commitments of the government and the economic advancement in Ghana, utilizing the Johansen Cointegration model and analyzing annual time series data spanning from 1990 to 2020. The objective was to assist policymakers in formulating judicious decisions regarding public spending in Ghana. The findings revealed a substantial positive impact of government recurrent expenditure on long-term economic growth, although such a correlation did not hold true in the short term. Additionally, the study highlighted the significant influence of the Covid-19 pandemic on recurrent expenditure, with a discernible upward trend in government recurrent expenditure beyond 2019. Employing a Granger Causality Wald Test, the results demonstrated a one-way causality from government recurrent expenditure to economic growth, aligning with the Keynesian Theory of public expenditure while contradicting Wagner's Law. In light of these results, the study recommends that both the government and the Ministry of Finance evaluate such expenditures not solely based on economic returns but also consider technical, administrative, and financial feasibility. The establishment of transparent criteria for allocation decisions, along with a commitment to transparency and accountability, is crucial for effective policy-making.

Keywords: *Government Recurrent Expenditure, Economic growth, Vector Error Correction Model, Ghana, Johansen Cointegration, Granger Causality Wald Test*

Publication History
Date received: 03-02-2025
Date accepted: 16-04-2025
Date published: 13-05-2025

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1.0 INTRODUCTION

Ghana's budget deficit is critical to attaining economic and social goals such as macroeconomic stability, sustained development, and poverty alleviation. However, Ghana's and other developing nations' deficit positions have recently worsened, raising concerns about their long-term sustainability (ISSER, 2018). Since independence, Ghana's economy has had a chronic propensity toward budget deficit as a result of continually expanding government expenditure, particularly in the recurrent category, insufficient income generating ability, and rising debt levels (Kumah, 2024). In this scenario, government spending has consistently outpaced government revenue, resulting in budget deficits.

Ghana has experienced a continuous increase in its public expenditure, primarily driven by the growing demand for infrastructure and the need to make debt interest payments (Bank of Ghana, 2020). In recent years, the percentage of total expenditure in relation to the Gross Domestic Product (GDP) has experienced an increase, climbing from 18.0 percent in 2017 to 21.45 percent in 2018, as reported by the Bank of Ghana in 2019. However, Ghana's various revenue sources have proven to be insufficient due to a limited tax base, a significant amount of tax evasion, and corruption within revenue collection agencies (Bank of Ghana, 2017). Between 2017 and 2018, total government revenue to GDP stood at 14.10 percent, but fell to 12.24 percent in 2019 (Bank of Ghana, 2020). As a result, Ghana's capacity to generate growing amounts of revenue for development is limited. This has resulted in the government overspending, particularly in recurrent category, resulting in a budget deficit. Due to the government's inability to provide essential infrastructure, economic activities and productivity decline, leading to diminished economic growth, as noted by Ozili 2021 and Nyarko-Asomani et al. (2019).

The expenditure method of calculating national income takes into account the impact of government spending on the overall size of the economy. This approach recognizes that government expenditures play a crucial role in shaping economic activity. Nevertheless, it has the potential to be a double-edged sword (Aigheyisi, 2013). But then again, according to Keynes, this might enhance aggregate output, particularly in developing nations plagued by market failures and poverty traps. It may also produce inflationary shocks, particularly when economic players lack such critical information to respond. This study aims to contribute to the field by investigating the relationship between government recurrent expenditure and economic growth in Ghana. Recurrent expenditure is highlighted as it represents the largest category of government spending, and understanding its impact on economic growth can inform policymakers and optimize resource allocation decisions.

Previous research seems to focus on capital expenditure component more than the recurrent component of government expenditure and the link between economic growths in Ghana. For example, Adukpo, (2025) utilized the method of disaggregation to explore the connection between capital and recurrent expenditure. The study further differentiated recurrent expenditure into interest and non-interest payments. Both capital expenditure and non-interest payments were found to positively impact economic growth in the long term. Conversely, interest payments negatively affected long-term economic growth. However, both components of recurrent expenditure had a positive influence on economic growth in the short term. Although these findings raised some concerns, the researcher emphasized the significance of the short-term relationship and called for further investigations to address any doubts.

Hence, this study's main aim is to analytically explore the relationship between government recurrent expenditure and economic growth in Ghana over the period from 1990 to 2020. To fulfill this objective, the study seeks to attain the following goals:

1. To examine the extended association between government recurrent spending and economic growth in Ghana during the timeframe spanning from 1990 to 2020.
2. To analyze the trajectory of government recurrent expenditure and economic growth in Ghana from 1990 to 2020.

3. To investigate the causal direction between government recurrent spending and economic growth in Ghana.

2.0 LITERATURE REVIEW

2.1 Theoretical Review

Numerous scholarly inquiries have delved into diverse economic theories, aiming to illuminate the intricate relationship between government expenditure and economic growth. Among these theories are the Keynesian Model, Wagner's Law, the Feedback View, the Solow Growth Model, and the Peacock and Wiseman theory on public expenditure. In this particular investigation, emphasis was placed on scrutinizing government expenditures, leading the researchers to specifically explore the Keynesian Theory and Wagner's Law. These two theories intricately delve into the various facets of government spending and their consequential impact on economic growth. Furthermore, the study also considered the Feedback View, amalgamating concepts from both Keynesian and Wagner, to reinforce the inclusion of these pivotal theories.

2.1.1 Keynesian Theory

The causal relationship between government spending and economic growth remains a contentious issue within the academic discourse of economics, with the Keynesian school of thought playing a pivotal role in shaping the debate. According to Keynesian theories, government policies can actively manage a country's economic growth. Keynesian macroeconomic concepts propose that government expenditure can have a positive impact on economic growth through aggregate demand.

The theory upholds the notion that government intervention can be effective irrespective of the government's size or strength. The rationale behind the Keynesian support for government expenditure during an economic downturn is not rooted in ideology but rather in technical considerations. Firstly, government expenditure can directly address unemployment by generating job opportunities. Conversely, increased private spending does not necessarily result in job creation. Secondly, private sector investments entail financial risks for businesses. During a recession, many businesses exhibit reluctance to invest due to the fear of incurring financial losses.

2.1.2 Wagner Theory

Wagner's law asserts that with the augmentation of a nation's per capita income, there is a concurrent increase in the proportion of public sector expenditure to the Gross National Product (GNP). Wagner attributes the expansion of the public sector to three factors. Firstly, with industrialization and modernization, there is a shift from public to private activities. As society becomes more complex, the need for public protection and regulation increases. Moreover, the heightened division of labor and urbanization linked to industrialization necessitate augmented spending on contractual enforcement and the maintenance of law and order to guarantee the seamless operation of the economy.

Adolf Wagner posited that the escalation in national revenue determines public expenditure, rendering it an endogenous element. Consequently, the growth of national income is the driving force behind the upsurge in public spending. It is crucial to recognize that this correlation is a long-term occurrence, and as a result, economic interpretations and statistical findings gain more precision with extended time-series periods (Celotta 2021).

2.1.3 The Feedback View

Based on the perspective of feedback, there is a mutual stimulation between government expenditure and economic growth. Mazloum, 2020 support this feedback perspective. In their study Rana, Alam, and Gow (2020) discovered a bidirectional relationship between GNP and government administration and health costs, which are considered recurrent expenditure. This finding provides further evidence for the two theories being discussed.

Overall, previous research supports Keynes' (1936) assertion that government spending stimulates economic growth and development (Nyarko-Asomani, 2017). Therefore, to determine the direction of causation between government recurrent expenditure and economic development in Ghana, the feedback model's theoretical perspective will be necessary to fulfill the study's objective.

2.2 Empirical Review

Numerous studies are carried out to determine the connection between government spending and economic expansion. There have been some differences in their conclusions, nevertheless. The effect of public spending on the expansion of national economies is a topic on which many academics differ. Numerous studies demonstrate that public spending on healthcare, education, and infrastructure boosts human potential and productivity, which in turn spurs growth. After reviewing the body of research on the topic, Nyasha and Odhiambo (2019) discovered that the majority of studies concluded that there was a positive correlation between government spending and economic growth. A 2019 research by Uremadu et al. further supports this finding that government expenditure has a beneficial impact on economic growth. However, Eunice (2018) found that government spending that is not productive leads to negative economic development.

Many scholars have been interested in how government expenditure affects economic growth, but disagreements over their conclusions lead to more uncertainty than useful knowledge (Nyasha & Odhiambo, 2019). Wiksadana & Sihaloho (2021) found that government expenditure in the fields of health, education, and the military had a favourable and noteworthy impact on the economic well-being of inhabitants in 20 Asian nations. According to the study, government spending on health has the most influence on spending on education and the military right after (Wiksadana & Sihaloho, 2021). Uremadu et al. (2019) looked into the relationship between government spending and economic growth in Nigeria. The findings showed that while transfers had little effect on growth, government spending on public debt repayment and administration in Nigeria produced significant economic growth. Chu et al. (2018) found that depending on a country's degree of development, both productive and non-productive government spending had varying effects on economic growth. Current expenditure as a percentage of GDP has a beneficial impact on growth rates in emerging nations but a negative one in industrialized nations.

Contrary to the notion that capital spending is more important to economic growth than recurrent expenditure, Paudel's (2023) research findings indicate that the combination of capital and recurring expenditures did not significantly affect economic growth. Additionally, the study discovered that capital or current investments in education would boost economic expansion.

It was shown that taxes and recurrent government expenditure hurt economic growth, contrary to projections. The study's short-term analysis, which looked at how transfer payments and government investment relate to one another, also produced positive results. Nevertheless, there was no longer any appreciable relationship between taxes and government spending on consumption.

3.0 METHODOLOGY

To empirically examine the correlation between the economic growth of Ghana and government recurrent expenditure, this research utilized a similar approach to previous works by Lucas (1988), Appiah (2014), and Ackah et al. (2014). These authors modelled Ghana's economic growth function as follows:

$$Y_t = A_t K_t^{\alpha} L_t^{\beta} \quad \text{..... (1)}$$

This function represents the Aggregate Production Function developed from the Solow Growth Model. In this equation, labor and capital inputs are indicated by K and L, respectively, while real GDP per capita is given by Y_t. Total Factor Productivity (TFP), represented by the vector A_t, is a collection of additional independent variables that have been shown to influence the dependent variable Y_t in both theoretical and empirical studies. Total factor productivity (TFP) is a function that depicts the

connection between the quantity of inputs used in an economy and its overall output or production. The coefficients α and β denote the influence of labor and capital, respectively.

The current research, therefore, enhances A_t by incorporating the variable of focus, which is government recurrent expenditure, along with other explanatory variables as controls. This is based on the Keynesian Multiplier process, which explains that an increase in government spending sets off a series of processes. These processes generate employment, facilitate efficient operations in government ministries, agencies, and institutions, and ultimately increase the earning potential of employees. As a result, the total production function for the current study may be expressed as follows:

$$A_t = f(GREXP, INFL, BRMS) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (2)$$

Equation (2) uses the terms GREXP (government recurrent expenditures as a percentage of GDP), INFL (inflation) to denote inflation, and BRMS (broad money supply). Equation (1) therefore becomes Equation (3) when equation (2) is replaced with equation (1).

$$Y_t = K_t^{\alpha} L_t^{\beta} GREXP_t \; INFL_t \; BRMS_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (3)$$

By applying the natural logarithm to both the dependent and independent variables in equation (3), we can derive a log-log equation. Consequently, the current research outlines the econometric representation of Ghana's economic growth model as follows:

$$lnY_t = \beta_0 + \beta_1 lnK_t^{\alpha} + \beta_2 lnL_t^{\beta} + \beta_3 lnGREXP_t + \beta_4 lnINFL_t + \beta_5 lnBRMS_t + \varepsilon_t \ldots\ldots\ldots\ldots \quad (4)$$

$$lnRGDP_t = \beta_0 + \beta_1 lnK_t^{\alpha} + \beta_2 lnL_t^{\beta} + \beta_3 lnGREXP_t + \beta_4 lnINFL_t + \beta_5 lnBRMS_t + \varepsilon_t \ldots\ldots\ldots\ldots \quad (5)$$

where, $\beta_0, \beta_1, \beta_2, \beta_3, \beta_4,$ and β_5 are the slope coefficients and ε_t denotes the error term. All variables in the model except ε_t are defined by time (t). Hence, equation (4) delineates the equilibrium equation in the long run (cointegration). With additional explanatory variables serving as controls, this formula elucidates the relationship between real gross domestic product per capita and government recurrent expenditures.

3.1 Data Sources

The study employed secondary data that was pre-existing and properly gathered by a very reputable organization affiliated with the World Bank. Data was sourced from the WDI (World Development Indicators) spanning a period of 30 years to enhance proper time-series analysis. Data was gathered on the variables of interest, which covered Ghana from 1990 to 2020 and included recurrent expenditure, GDP, inflation, capital formation, labor force participation, and broad money supply. To help Ghanaian policymakers make better-informed decisions, a more recent time series study of the correlation between government recurrent expenditure and economic growth was considered using this 30-year dataset.

3.2 Estimation Procedure

3.2.1 Unit Root Test

Because it is essential for precise estimates, the researchers in this study made sure to look at the time series data's stationarity. They used the Phillips-Perron Test and the Augmented Dickey-Fuller (1979) unit root test to achieve this. These tests are suitable since they reveal the degree of integration and establish if the variables are stationary. Using the Augmented Dickey-Fuller test, the stationarity of both endogenous and exogenous variables was examined as the initial stage in the investigation. As seen in equation (6) below, this test estimates an equation of a certain form and aids in determining the stationarity of the variables. The researchers made sure the data they utilized for their calculations was appropriate and trustworthy by carrying out these procedures.

$$\Delta Y_t = a_0 + \beta_1 Y_{t-1} + x_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (6)$$

In the regression model in equation (6) above, the time series vector was denoted by Y_t at a specific time point ***t.*** The estimator Δ represents the difference, while the parameters a_0, and β_1 need to be

estimated. Additionally, x_t is the term for error correction. The hypothesis put forth by the ADF unit root test can be described as follows:

$$H_0 : \beta_1 = 0; \quad H_1 : \beta_1 > 0$$

where;
H_0: Non-stationary series with a unit root.
H_1: Stationary series with no unit root.

The main objective of the ADF technique is to estimate the value of β_1. If the ADF statistics surpass the critical values in absolute terms, then we reject the null hypothesis and conclude that there is no unit root, demonstrating that the series is stationary, in accordance with the decision rule. On the other hand, if the ADF test statistics are smaller than the critical values in absolute terms, we cannot rule out the null hypothesis and must infer that there is a unit root and the variable is non-stationary. It is implied that Y_t at I(0) or order zero, is steady and integrated when the alternative explanation is accepted and the null hypothesis is rejected. Similar to how the initial difference becomes stationary and the variable becomes order one integrated, or I (1), if the null hypothesis is rejected. Before moving further with the estimate procedure, Engle and Granger (1974) state that the goal of this unit root test is to ascertain if the independent variable of interest integrates I (1), or order one integration.

3.2.2 The Johansen Cointegration Test

The test known as cointegration may be used to assess whether or not a group of non-stationary series is cointegrated (Enders, 2014). The Johansen Cointegration Maximum Likelihood Technique, developed by Johansen (1988), was used to compute the number of cointegrating vectors in the current study. In the investigation, the maximum eigenvalue test and the trace test were both applied. This test's purpose is to generate data with a 5% level of significance. If the obtained data are inconsistent, the researchers will examine if they provide identical conclusions with a significance threshold of 10%.

Positive results with a 10% significance level will be accepted by the researchers. If the tests continue to produce inconsistent results at a 10% level of significance, the researchers will rely on the maximum eigenvalue test, which Ender (2004) feels is the most reliable method for determining the number of co-integrating vectors. If the researchers identify co-integration of the variables of interest after the test, they will estimate the vector error correction model using known techniques and diagnostic tests. In this situation, the researchers will estimate the error correction models using the I(0) variables that were not included in the cointegration tests.

3.2.3 Method of Estimation

The ECM Model (Error Correction Model) generated with the lags of two periods and incorporates short-run fluctuations with the long-run growth function can be expressed as follows:

$$\Delta Y_t = \sigma + \sum_{i=1}^{k-1} \gamma_i \Delta Y_{t-i} + \sum_{j=1}^{k-1} \eta_j \Delta X_{t-j} + \sum_{m=1}^{k-1} \xi_m \Delta R_{t-m} + \sum_{n=1}^{k-1} q_n \Delta P_{t-n} + \sum_{e=1}^{k-1} \varrho_e \Delta Z_{t-e} + \sum_{d=1}^{k-1} \Phi_d \Delta Q_{t-d} + \lambda ECM_{t-1} + u_{it} \ldots\ldots (7)$$

$$\Delta RGDP_t = \sigma + \sum_{i=1}^{k-1} \gamma_i \Delta RGDP_{t-i} + \sum_{j=1}^{k-1} \eta_j \Delta GREXP_{t-j} + \sum_{m=1}^{k-1} \xi_m \Delta INFL_{t-m} + \sum_{n=1}^{k-1} q_n \Delta BRMS_{t-n} + \sum_{e=1}^{k-1} \varrho_e \Delta L_{t-e} + \sum_{d=1}^{k-1} \Phi_d \Delta K_{t-d} + \lambda ECM_{t-1} + u_t \ldots\ldots (8)$$

In the equation, the lag time, *k-1* is reduced by one. The short-run dynamic coefficients of the model's adjustment to long-run equilibrium are denoted by γ_i, η_j, ξ_m, q_n, ϱ_e,, and Φ_d . The speed of adjustment parameter's negative sign is denoted by λ. ECM_{t-1} denotes the error correction term; u_{it} is the residual (stochastic error term); and Δ denotes the model's variables in differenced form.

Stata (version 15.1) will automatically select the most suitable number of lags (specifically, lag 1) by utilizing the Schawarz Bayesian Criterion (SBC) to determine the value of "p". The empirical

model that is the most efficient and concise will be chosen based on the lowest SBC value when there is no autocorrelation, as measured by the Durbin-Watson statistics.

3.2.4 Diagnostic and Stability Test

In econometric research analysis, post-estimation or diagnostic tests are required to ensure the research model's reliability. The researchers conducted diagnostic tests to ensure that the estimations and model were consistent. The Jarque-Bera normality test was used to confirm that the calculated vector error correction model followed a normal distribution. Additionally, time series estimations often encounter issues of autocorrelation, where the variations in the dependent variables are influenced by their own previous values. This may increase bias and provide unreliable outcomes. The Langrange-Multiplier test was used to verify that the model was autocorrelation-free.

3.2.5 Granger Causality Wald Test

The Keynesian Theory and the Wagnerian Theory, two opposing views on government expenditure, served as the study's inspiration. An increase in government spending leads to economic growth according to Keynesian Theory, meaning that causality flows from government spending to economic growth. Wagner's Law, on the other hand, implies that economic growth impacts government spending, meaning that causation extends from economic growth to government expenditures. Given these competing hypotheses, the study's goal is to experimentally determine whether hypothesis is correct in the example of Ghana.

The Granger Causality Wald Test is the primary estimate method for achieving this goal. A statistical hypothesis is used in this approach to examine the causal link between variables and the direction of causation. The following model in this study illustrates the direction of the causal relation between real GDP per capita and government recurrent spending. In the model, RGDP is used to represent economic growth, while GREXP is used to represent the proxy government for recurrent expenditure.

$H_0: \sum_{t=1}^{n} \beta_{2i} - 0 \ \ and \ \ \sum_{t=1}^{n} \alpha_{2i} - 0$

$H_1: \sum_{t=1}^{n} \beta_{2i} \neq 0 \ \ and \ \ \sum_{t=1}^{n} \alpha_{2i} \neq 0$

The following equations were used to estimate the test:

$lnY_t = \ \beta_0 + \sum_{t=1}^{n} \beta_{1i} + lnY_{t-i} + \sum_{t=1}^{n} \beta_{2i} \, GREXP_{t-i} + U_t$ ……. (9a)

$GREXP_t = \alpha_0 + \sum_{t=1}^{n} \alpha_{1i} \ GREXP_{t-1} + \sum_{t=1}^{n} \alpha_{2i} \ lnY_{t-i} + \eta_t$ …….. (9b)

According to equations (9a) and (9b), the error terms are assumed to meet certain criteria: $E(U_t) = E(\eta_t) = E(U_t U_s) = E(\eta_t \eta_s) = 0$ and $(U_t U_s) = \ \sigma_u^2$, $E(\eta_t \eta_s) = \ \sigma_\eta^2$. In other words, the causation in equation (9a) must flow from government recurrent expenditure (GREXP) to real GDP (lnY_t). On the other hand, if real GDP and government recurrent expenditure (GREXP) are the causative variables in equation (9b), then the lagged coefficient of real GDP (lnY_t) should be statistically significant from zero. However, both the government recurrent expenditure coefficient and the real GDP coefficient in equations (9a) and (9b) can be statistically significant from zero.

4.0 RESULTS AND DISCUSSIONS

The major goal of the study was to examine the link between Ghana's GDP and recurrent expenditure, as well as to evaluate the direction of causation between the two variables. To achieve this objective, various models were estimated and are presented in this section.

4.1 Descriptive Statistics

This section includes Table 4.1 which presents the summary statistics of the time series data used in the study. This table's objective is to provide preliminary insights into the qualities and essential properties of all the variables used in the research. The variables used in this study were based on 31 observations from yearly time series data spanning the years 1990 to 2020.

Table 4.1: Variables Summary Statistics

	RGDP	GREXP	INFL	BRMS	L	K
Mean	2652.307	10.11451	23.36964	25.69287	71.78065	21.03553
Std. Dev.	3842.326	2.382813	15.24144	4.906664	2.927772	4.766567
Min	13.0018	6.957052	7.112454	14.14209	66.21	12.8
Max	12341.48	15.30817	80.75458	34.10823	74.92	29.00214
Skewness	1.393442	0.4588573	2.038791	-.3435386	-.264317	-.180647
Kurtosis	3.548718	2.176616	7.803854	2.683759	1.582211	2.033291
Obs.	31	31	31	31	31	31

Sources: Author's Construct (2025) with Stata (version 15.1)

Table 4.1 shows that all of the factors examined in the study had positive averages (means). Furthermore, three variables, namely BRMS (Broad Money Supply), L (Labor Input), and K (Capital Input), had negatively skewed values. This suggests that the greater portion of the recorded data for these variables were more than their respective averages. Conversely, the remaining three variables, namely Real GDP (RGDP), Government Recurrent Expenditure (GREXP), and Inflation (INFL), exhibited positively skewed values. This suggests that most of the numbers they recorded were below their corresponding means.

The dataset's degree of variance or dispersion is also shown in the table. Out of all the variables, Government Recurrent Expenditure has the lowest standard deviation, indicating that its data points are closer to the mean. The data points for the other variables, on the other hand, are dispersed over a wider range from their averages, as shown by their greater standard deviations.

A closer look the findings obtained from the kurtosis demonstrate that Government Recurrent Expenditure, Broad Money Supply, Labor Force Participation, and Gross Capital Formation all exhibit a platykurtic distribution. This implies that their kurtosis values were less than 3, which is the value associated with a normally distributed kurtosis. This indicates that these variables have a higher number of values below their sampled mean. Real GDP and inflation, on the other hand, have a leptokurtic distribution, indicating that they have a higher number of values above their sampling mean.

4.2 Test of Unit Root

The assessment of whether the dataset is non-stationary, meaning it contains unit roots, or stationary, indicating it does not contain unit roots, is an essential part of time series analysis. The study evaluated this using the Phillips-Perron (PP) and Augmented Dickey Fuller (ADF) tests. The alternative hypothesis states that the series does not have unit roots (stationary), while the null hypothesis for both tests states that the series has unit roots (non-stationary). The ADF test was run at four levels: no constant, constant, constant plus trend, and constant plus drift. The PP test was also performed with no constant, constant, and constant + trend. Tables 4.2 and 4.3 reflect the outcomes of these experiments, respectively.

The decision rule for interpreting the data is as follows: the null hypothesis, which suggests that the series is non-stationary, is accepted if the test statistics are smaller than any of the necessary significance criteria (1%, 5%, and 10%). The alternative hypothesis, which suggests that the series is stationary and devoid of unit roots, is accepted in place of the null hypothesis if the test results exceed any of the significance criteria.

Table 4.2: Augmented Dickey Fuller Unit Root Test (Includes Constant, Trend, and Drift)

Variable	Series	No Constant	Constant	Constant +Trend	Constant + Drift
			Panel A: Level		

RGDP	lnrgdp	2.139	-1.511	-0.829	--1.511
GREXP	lngrexp	-0.371	-2.262	-4.510	-2.262
INFL	lninfl	-0.757	-2.667	-3.622	-2.667
BRMS	lnbrms	0.906	-3.113	-2.953	-3.113
L	lnl	-1.795	1.752	-1.787	1.752
K	lnk	-0.015	-2.980	-2.876	-2.980
			Panel B: First Difference		
RGDP	lnrgdp	-1.044	-3.350**	-2.726*	-1.344*
GREXP	lngrexp	-5.125	-5.075***	-4.948***	-5.075***
INFL	lninfl	-6.013	-5.923***	-6.085***	-5.923***
BRMS	lnbrms	-4.443	-4.494***	-4.274**	-4.494***
L	lnl	-0.278	-1.867	-3.435*	-1.867**
K	lnk	-4.740	-4.695***	-4.792***	-4.695***

*(Please keep in mind that the symbols ***, **, and * denote statistically significant values of 1%, 5%, and 10%, respectively).*

(Sources: Author's Construct (2025) with Stata (version 15.1)

Table 4.3: Phillips-Perron Unit Root Test (Includes Constant and Trend)

Variable	Series	No Constant	Constant	Constant +Trend
		Panel A: Level		
RGDP	Lnrgdp	6.163	-1.436	-0.810
GREXP	Lngrexp	-0.353	-2.449	-3.878
INFL	Lninfl	-0.920	-3.548	-4.257
BRMS	Lnbrms	1.035	-3.052	-2.873
L	Lnl	-3.625	1.592	-2.075
K	Lnk	0.065	-2.827	-2.713
		Panel B: First Difference		
RGDP	Lnrgdp	-1.528	-4.645***	-4.923***
GREXP	Lngrexp	-5.937	-5.835***	-5.764***
INFL	Lninfl	-7.641	-7.539***	-7.510***
BRMS	Lnbrms	-5.235	-5.356***	-5.373***
L	Lnl	-0.269	-1.382	-2.068*
K	Lnk	-5.179	-5.092***	-5.043***

*(Please keep in mind that the symbols ***, **, and * denote statistically significant values of 1%, 5%, and 10%, respectively).*

(Sources: Author's Construct (2025) with Stata (version 15.1)

According to the data in Panel A of both Tables 4.2 and 4.3, the majority of variables were not stationary at their original values. Therefore, the study proceeded to estimate all the variables by taking their first difference. The estimated results were presented in Panel B of Tables 4.2 and 4.3. Based on the data analysis, it was evident from the constant, trend, and drift components contained in the first difference that all the variables were statistically significant at the 1%, 5%, and 10% levels. However, Labor Force Participation (L) was found to be insignificant when only the constant term was included, but it became significant at the 10% and 5% levels when the trend and drift terms were included. This indicates that for every variable in the model, the alternative hypothesis was accepted and the null hypothesis—which presupposes the existence of a unit root—was rejected. This suggests that the series is integrated at order one (I [1]) and stationary at its starting difference.

The series were statistically significant at the 1% level when they were differentiated once, according to the results presented in ADF Table 4.3. However, it should be noted that the Labor Force Participation (L) variable showed significance at the 10% level. This suggests that all variables became stationary after differencing, and they were integrated at order one (I [1]). Nevertheless, further investigation was conducted specifically on variable L, which revealed that the ADF test accepted a significant level of 5% and 10% when drift and trend terms were included. This finding paved the way for the utilization of Johansen Cointegration in the subsequent analysis of this study.

4.3 Test of Cointegration using Johansen Test

The long-run cointegration between the study's variables is examined in detail in this section. A unit root test is followed by a cointegration test in an empirical econometric analysis. The Maximum Likelihood cointegration technique, created by Johansen and Juselius (1990), was used in this work to assess the cointegration connection between the variables under inquiry. The alternative hypothesis (H_1) argues that there is no cointegration equation and thus the null hypothesis is false. The null hypothesis (H_0) is this.

According to the decision rule, we reject the null hypothesis (H0) and conclude that there is cointegration among the variables if both the trace and max statistics are greater than the critical values at the 5% significance level. This is so because the maximum eigenvalue statistics and the trace statistics are the two main statistics produced by the cointegration approach. If these critical levels are not exceeded by the result estimates, we are unable to reject (H0). Table 4.4 shows the results of the cointegration test.

Table 4.4 Results of Johansen Cointegration Test

Maximum Rank	Trace Stats	5% Critical Value	Max Stats	5% Critical Value
0	143.5375	94.15	55.9881	39.37
1	87.5494	68.52	37.1219	33.46
2	50.4275	47.21	22.6460	27.07
3	27.7815*	29.68	19.1682	20.97
4	8.6133	15.41	7.9454	14.07
5	0.6679	3.76	0.6679	3.76

*(Please keep in mind that the symbols ***, **, and * denote statistically significant values of 1%, 5%, and 10%, respectively).*

(Sources: Author's Construct (2025) with Stata (version 15.1)

We provide the test results in Table 4.4. A maximum rank of 0 to 5 is used in this test to find cointegration equations. According to the alternative hypothesis, there are five cointegration equations, but the null hypothesis claims that there are none at the 5% significance level. The results indicate that, when considering a 5% critical value, the trace statistics suggest a maximum of 2 cointegration equations, while the max statistics indicate a maximum of 1 cointegration equation among the variables. Because the alternative hypothesis suggests that the variables under study have a long-term cointegration link, we reject the null hypothesis that there is no cointegration.

The cointegration between the two variables under investigation—GREXP and RGDP, which represent government recurrent expenditure and economic growth, respectively—as well as other explanatory variables included in the study provide evidence for the estimation of an error-correcting mechanism. Therefore, the next stage of the research was to estimate the coefficients for both the long-run and the short-run relationship using the Vector Error Correction Model.

4.4 The Long-Run Relationship

A thorough examination of the long-term correlation between Ghana's recurrent spending and its economic growth is provided in this section. As a proxy for economic growth, real GDP per capita was placed as the model's projected variable. Within the framework of this research, a "long-run relationship" is defined as a period that permits the government to modify its spending levels to promote the growth of the economy in Ghana. This period corresponds with Ghana's annual budget review. Based on the findings of the previous post-estimation tests, the study chose to adopt and apply the Johansen cointegration technique and the vector error correlation model to estimate the long-run relationship between the predicted variable and the other explanatory variables in the model. Yet, the analysis largely concentrated on government recurrent spending as it was the primary explanatory variable of interest in the long-run estimation. Table 4.5 presents the findings.

Table 4.5 Long-Run Cointegration Results (Predicted Variable: RGDP)

Variable	Series	Coefficient	Std. Error	Test-Statistics	P-Value
GREXP	lngrexp	-32.9933	3.5976	-9.17	0.000***
INFL	lninfl	5.7983	3.4893	1.66	0.097*
BRMS	lnbrms	-10.6949	4.1717	-2.56	0.010***
L	lnl	151.664	22.5369	6.73	0.000***
K	lnk	2.9881	2.2891	1.31	0.192*

*Please keep in mind that the symbols ***, **, and * denote statistically significant values of 1%, 5%, and 10%, respectively.* ***Sources: Author's Construct (2025) with Stata (version 15.1)***

There is a positive and statistically significant long-term relationship between government recurrent expenditure and real GDP in Ghana, as indicated by the data shown in Table 4.5. According to the findings, GREXP was statistically significant at the 1% level, which implies that ceteris paribus, a 1% rise in government recurrent spending will translate into a 32.9933% increase in real GDP. As a result, it may be said that Ghana's recurrent expenditure promotes economic growth. These results are consistent with the study carried out by Adu and Ackah (2015), who also found a long-term relationship of this kind. Furthermore, the findings align with Nyarko-Asomani's (2017) study, which demonstrated that non-interest payment recurrent expenditure by the government has a favorable long-term impact on Ghana's economic growth. In brief, the available data indicates that augmenting the government's recurrent expenditures may have a positive impact on Ghana's overall growth in GDP.

However, the findings presented here contradict the research conducted by Appiah (2014), who discovered that expenditures incurred by the Ghanaian government in recurrent category hampers economic growth. The findings justify scholarly discussions on government expenditures and economic growth and lend support to the Keynesian theory of economic growth, which holds that government interventions in the form of public expenditure can stimulate production and ultimately enhance economic growth. Consequently, these findings emphasize the importance of fiscal discipline in effectively managing and controlling government recurrent expenditure, as it holds the potential to promote long-term economic growth in Ghana.

Taking into consideration the other explanatory variables included in the long-run estimation, the current analysis indicated that inflation (INFL) has a negative influence on GDP per capita with a statistically significant value at the 10% level. The findings indicate that a 1% increase in inflation leads to a decline of 5.7983% in economic growth, ceteris paribus. The implication is that the current levels of inflation in Ghana are insufficient to drive economic growth. Therefore, it is crucial for the central bank and other fiscal authorities to implement robust monetary and fiscal policies to effectively control inflation rates and stimulate significant economic expansion. In this instance, the findings of Enu's (2009) research are deemed paradoxical, as they demonstrated a positive correlation between inflation and economic growth. Thus, the findings support those of Nyarko-Asomani et al. (2019), who also observed a positive correlation. Because inflation obscures the signalling function of

relative price changes, it makes it more difficult to allocate resources efficiently, as the estimated findings' coefficient value confirms. This signalling mechanism plays a vital role in making informed economic decisions (Nyarko-Asomani, 2017; Fischer, 1993).

The Broad Money Supply (BRMS), a metric used to gauge financial development, also showed a strong and favorable correlation with GDP growth. The results show that ceteris paribus, a 1% increase in the money supply would result in a 10.6949% rise in real GDP. These results, however, proceed to counter the conclusions of two researchers (Adusei, 2013; Geta et al., 2017), who discovered a negative correlation between economic growth and money supply.

Another explanatory variable (L) which denotes labor input and was used as a proxy for labor force participation was found to be significant at 1% level in the association with economic growth in Ghana. Specifically, the results show that, increasing labor input by 1% will lead to a decline of 151.664% in gross domestic product per capita, assuming all other factors remain constant.

In this study, labor input was considered as one of the conventional inputs in the Aggregate Production Function (APF). The results suggest that Ghana's economy relies more on labor-intensive methods of production and fewer capital-intensive methods. However, it is important to note that when labor lacks the necessary training to be more efficient, this can have a negative impact on real GDP. This is particularly evident in Ghana, where a significant portion of the total labor force have limited education to enhance their full participation in the production and manufacturing sector. The findings of this study align with the research conducted by Oteng-Abayie et al (2006) and Aryeetey and Fosu (2005), but differ from the findings of Danquah (2006) and Nyarko-Asomani (2017).

Again, the variable (K) which denotes capital input and a proxy for gross capital formation was considered in the estimation. This variable was considered alongside other conventional inputs in the study's model, following the APF model employed by researchers Adu and Ackah (2015) and Nyarko-Asomani et al (2019). The coefficient of estimate revealed that the relationship between capital input and economic growth is negative, and significant at 10% level. These findings contradict the conclusions reached by Adu and Ackah (2015), and Nyarko-Asomani (2017), who observed that gross capital formation leads to a significant increase in real GDP per capita. From the estimated results, increasing capital input by 1% would trigger a decline of 2.988% in real GDO, ceteris paribus.

The coefficients of estimated results from Table 4.5, which have been interpreted in the opposite direction, suggest that GREXP, INFL, and BRMS, which are proxies for government recurrent expenditure, inflation and broad money supply respectively, aligns with the expected outcomes. However, Labor inputs (L) and Capital inputs (K), which are traditionally used in production according to the Aggregate Production Function employed in this study, do not exhibit the anticipated signs. Consequently, the error correction model for the long-term relationship is as follows:

$$ECM_{t-1} = 1.00lnRGDP_{t-1} - 32.99lnGREXP_{t-1} + 5.79lnINFL_{t-1} - 10.69lnBRMS_{t-1} + 151.66lnL_{t-1} + 2.98K_{t-1} - 574.65$$

4.5 The Short-Run Relationship

The estimate of an error correction model (ECM) is justified by the finding of cointegration among the model's variables. This makes sense since, in any time series study, it aids in highlighting the short-term changes that might have long-term antecedent impacts. The short-run is defined as the time frame during which it is most difficult for the government to economically modify expenditure in any category, since this study employed yearly time series data. Therefore, the coefficient of estimate in this model might be used to determine the rate of adjustment required to reach an economic equilibrium (Adu and Ackah, 2015). The short-run relationship among the variables in the model is estimated, and the results are shown in Table 4.6 with an ideal lag of 2.

Table 4.6: Short-Run Estimates (Predicted Variable: RGDP)

Variable	Series	Coefficient	Std. Error	T-Statistics	P-Value
GREXP	D_lngrexp (-1)	-0.4201	0.5795	-0.72	0.469
INFL	D_lninfl (-1)	-1.9764	1.0267	-1.92	0.054**
BRMS	D_lnbrms (-1)	0.0135	0.2204	0.06	0.951
L	D_lnl (-1)	0.0178	0.0151	1.18	0.238
K	D_lnk (-1)	0.4407	0.6411	0.69S	0.492
	ECM (-1)	-0.0176	0.0036	-4.81	0.000***

(*Please keep in mind that the symbols ***, **, and * denote statistically significant values of 1%, 5%, and 10%, respectively).*

(Sources: Author's Construct (2025) with Stata (version 15.1)

The coefficient of the estimated error correction model provides insight into how soon the variables converge to equilibrium following a shock. According to certain scholars, the sign after the estimation should be significant and negative, indicating that the short-term shocks may be resolved in the long run. According to Appiah (2014) and Acheampong (2007), this implies that the rate of convergence to equilibrium would also grow with the coefficient of error expressed in absolute terms.

Based on the data shown in Table 4.6, we can determine that the coefficient of the lag error correction term, or ECM_{t-1},), was significant and negative at the 1% level. This gives support for the idea that the variables are cointegrated. Based on an estimated coefficient of -0.0176, we may infer that the long-run deviation resulting from the shock from the previous years will, in the current year, converge back to the long-run equilibrium. This deviation amounts to around 1.76%. This is the explanation for why, when shocked in the short run, the model's variables converge to equilibrium more slowly.

The study aimed to investigate the long-term relationship between Ghana's recurrent expenditure and economic growth. However, the table's results showed that, consistent with original predictions, government recurrent expenditure had a positive short-term coefficient. The impact did not reach statistical significance. It follows that although government recurrent expenditure does not directly affect economic development in the near term, there is a causal link between it and growth in Ghana's economy. This further suggests that ongoing expenses only have a beneficial long-term influence on economic growth.

Furthermore, the insignificance coefficient indicates that the short-run period could be too short for government recurrent expenditure to show a positive correlation with Ghana's GDP growth. Upon careful examination of the anticipated results, it was found that the only factor with the ability to impact economic growth in the near term at a 10% significant level is inflation. However, the broad money supply, capital, and labor input did not significantly influence Ghana's economic development in the near term. They also lag by one year.

Overall, this analysis shows that while government recurrent expenditure may not directly affect Ghana's economic growth, it is a key factor in long-term economic development. On the other hand, inflation seems to have a greater impact on economic growth in the near run. Policymakers and other stakeholders may gain important insights from these results on the dynamics of public expenditure, inflation, money supply, labor input, and capital formation, as well as how these factors are related to Ghana's economic growth over the long and short terms.

4.6 Diagnostics and Stability Test

According to Hansen (1992), parameter diagnostics in time series data is crucial to ensure that estimated parameters do not vary over time. This is done to prevent any potential model misspecification due to unstable parameters. To avoid biased estimation of results, the study performed post-estimation diagnostics tests to validate the robustness of the obtained findings utilizing the Jarque-

Bera Test and the Lagrangian Multiplier Test. Additionally, a stability test was estimated to verify the stability of the variables emplyed in the model.

4.6.1 Lagrange Multiplier (LM) Test

Autocorrelation is a significant issue when it comes to estimating time series data. In order to determine the absence of any serial autocorrelation in the choice of the optimal lags used in estimating the vector error correction model, we conducted the Langrage Multiplier test.

Table 4.7 Lagrange Multiplier Test Result

Lag	chi2	df	Prob > chi2
1	39.4484	36	0.31841
2	26.3338	36	0.88106

Sources: Author's computation (2025) using Stata (version 15.1)

The findings from Table 4.7 suggest that there is no evidence to support the presence of serial autocorrelation among the lags. The null hypothesis, which states that there is no serial autocorrelation, cannot be rejected based on the p-values obtained from the estimated chi-statistics. The complete lack of autocorrelation in the model's estimations is confirmed by the fact that both p-values at the various lags are larger than the 5% level of significance.

4.6.2 Jarque-Bera Test

Type I error is one of the key risks in time-series analysis, hence, it is crucial that such risks are minimized through a thorough examination of the residuals' normal distribution for the equations used in estimating the VECM, and the other estimations techniques utilized for hypothesis testing. To achieve this, the Jarque-Bera test of normality was utilized and the results presented in Table 4.8.

Table 4.8 Jarque-Bera Test Result

Equation	chi2	df	Prob > chi2
D_lnrgdp	2.708	2	0.25825
D_lngrexp	23.706	2	0.00001
D_lninfl	1.993	2	0.36912
D_lnbrms	1.247	2	0.53613
D_lnl	40.203	2	0.00000
D_lnk	1.727	2	0.42163
ALL	71.584	12	0.00000

(Sources: Authors Construct (2025) using Stata (version 15.1)

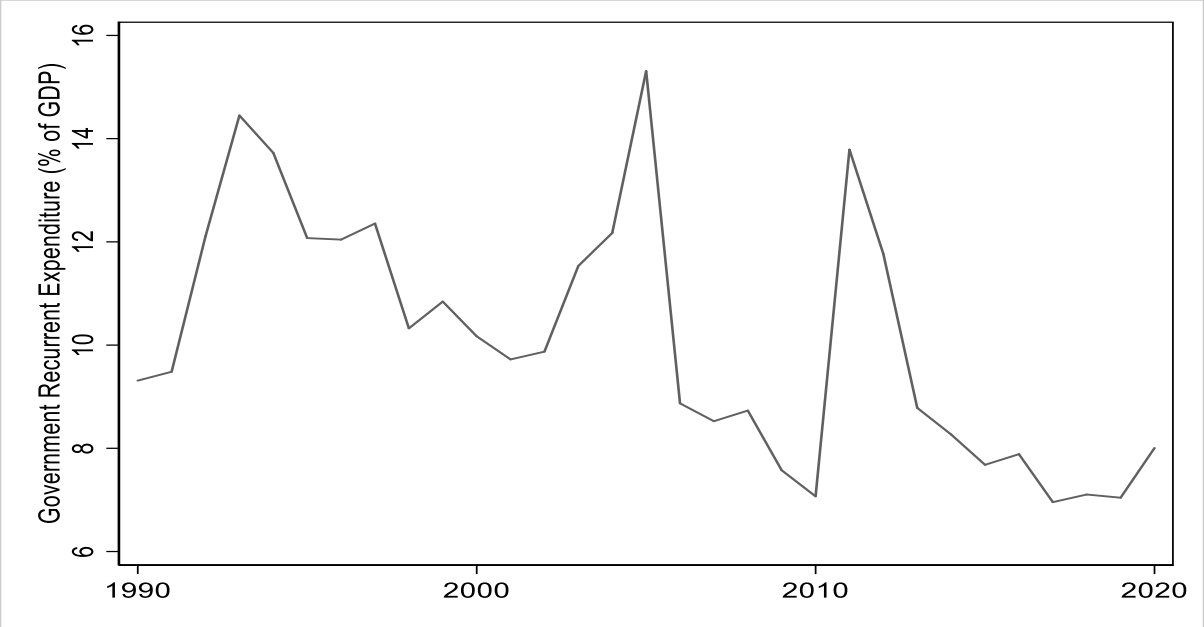
The Jarque-Bera test of normality hypothesize a normal distribution against the alternative hypothesis of non-normal distribution. Results from the test indicate that the p-values for the different systems of equations, under the vector error correction mechanism, yield a mixed outcome. While some equations demonstrated normally distributed errors, others did not, resulting in an overall absence of normality in the errors. In order to validate the findings of the normality test, the study also examined the stability of the VECM. The results confirmed that the specification imposed 5-unit moduli, which was favorable for the various estimations and indicated that the model was stable.

4.7 Trend Analysis in Government Recurrent Expenditure of Ghana

To fulfill the third objective, the current study conducted a trend analysis on government recurrent spending from 1990 to 2020 to understand how it has evolved over the past three decades. Researchers who have conducted studies in the domain of public expenditure in Ghana noticed a significant variation in capital and recurrent expenditure. Most of these research supports agendas to carefully management recurrent expenditure at the expense of capital expenditure since expenditure in the recurrent category has several effects on economic growth. A comprehensive analysis and

management of government recurrent expenditure is needed to ensure an optimum positive impact on economic growth as well as other sectors of the economic (Adu et al., 2014).

Figure 4.1 Trend in Government Recurrent Expenditure



The graphical representation displayed in Figure 4.1 illustrates the proportion of government recurrent expenditure in relation to the Gross Domestic Product (GDP) over a period spanning from 1990 to 2020. This category of expenditure encompasses various aspects, such as the government's spending on personal salaries, administrative and service-related costs, subsidies for utility prices, subventions, transfers, and other expenses incurred for the smooth functioning of government agencies, ministries, and departments.

Furthermore, this category also encompasses the procurement of commodities used by the government including employee compensation and other services. Additionally, a significant portion of government spending on national defense and security is included in this category. However, it is important to note that government military expenditure is excluded from this classification and is instead considered as part of capital expenditure (WDI, 2020).

Observation from the graph provide evidence of continues upsurge of government recurrent expenditure in the early part of 1990s with the highest figures of 14.45% recorded in 1993. However, from 1994 to 2002, recurrent expenditure began to slow down to about 9.8% until in 2003 where it started to rise astronomically to a record 15.31% in 2005 and then fell to 7.04% in 2010 with no sign of returning to higher levels again. It can also be observed from the graph that, higher expenditure figures of 13.78% was recorded between 2011 and 2013 and thereafter expenditure began to fell to a record low at 6.95% in 2016. For the past 6 years, recurrent expenditure has been relatively lower until in 2019 to 2020 where expenditure seems to trend upwards. The majority of this spending has been linked to various factors, including the designation of Highly-Indebted Poor Country (HIPIC) status in 2001, the introduction and execution of the SSSS in 2009 (Single-Spine Salary Structure), expenses related to administration and services, substantial wages and salaries in the public sector (emoluments), the impact of COVID-19, and institutional challenges such as corruption. These elements have contributed significantly to the overall expenditure streams.

4.8 Granger Causality Wald Test

The causal link between recurrent expenditure and economic growth was one of the subjects identified for investigation, especially to provide justification for the opposing theoretical perspective of the

Keynesian and Wagner on public spending. Hence, the current study attempted to achieve its third objective under this section. The Granger Causality test was used to achieve that. This approach is more suited for determining if a certain time series variable may predict another variable, according to Engle and Granger (1987). The alternative, "There is a causal relationship between GREXP and RGDP," was evaluated against the stated null hypothesis in this instance, "No causal relationship between GREXP and RGDP," and vice versa.

We place an emphasis on the fact that the estimation of the VECM presented in Table 4.6 provided insights into the causal relationship between the two variables under consideration. We can observe this relationship through the t-test of the modified predictor variable which provides information about the immediate causal effects between the two variables. The t-test for the long-run cointegration's lagged error correction term also points to a causal connection between the two variables. But we cannot depend just on the Granger causation test to establish the direction of causation. To verify the direction of causation between the two variables, Wald's test is suitable for this reason. The table below displays the test's outcomes.

Table 4.9 VECM Granger Causality Wald Test Results

Null Hypothesis	F-Statistics	Prob > chi2	Remarks
GREXP does not granger cause RGDP	7.59	0.0059**	Ho Rejected
RGDP does not granger cause GREXP	0.53	0.4685	Ho Accepted

(*Please keep in mind that the symbols ** denote statistically significant values of 5%).*
(Sources: Author's Construct (2025) with Stata (version 15.1)

By making reference to what was said earlier, VECM has two key ways of examining causality. Thus, Table 4.6 confirms that there is no meaningful short-term correlation between government recurrent expenditure and economic growth. In absolute terms, the computed coefficient of -0.4201 does not meet statistical significance. Additionally, Table 4.5 shows the long-term link between GREXP and RGDP. Based on this data, we can infer that, at the 1% level, there is a positive and substantial relationship between government recurrent expenditure and economic growth. This substantial correlation validates the long-term, unidirectional causal link between government recurrent expenditure and economic growth. This relationship is further supported by Wald's test estimate shown in Table 4.9. The null hypothesis is rejected with a p-value of 0.0059 at the 10% level of significance, indicating the existence of a unidirectional causal relationship between government recurrent expenditure and economic growth. The reverse is untrue, though.

The current results provide justification for the Keynesian Theory of Government Expenditure and Economic Growth which states that “causality flows from government expenditure and economic growth”. Interestingly, we did not observe a significant relationship between RGDP and GREXP from the Wald’s test. This implies that, the “Wagner’s Law” emphasizing that “causality runs from economic growth to government expenditure” does not hold in the current study. On another note, the findings also contradict the Feedback Theory which suggests that “there is a bidirectional causality between government expenditure and economic growth”.

5.0 POLICY RECOMMENDATIONS

The study's empirical results demonstrated that the economic growth in Ghana is influenced by government recurrent expenditure. Based on these findings, several policy recommendations are proposed. Firstly, the study's original goal has been accomplished as it has been shown that government recurrent expenditure positively and sustainably affects the Ghanaian economy. The study therefore recommends the government to prioritize the recurrent expenditure component in policy decisions taking into account the long-run effects. The government, the Ministry of Finance, and other organizations or institutions participating in budget allocation decision should prioritize and evaluate

government recurrent expenditure, not only on the basis of its economic returns, but also on the basis of its technical, administrative, and financial feasibility. In this regard, proper cost-benefit analysis of government recurrent expenditure is critical. To avoid arbitrary allocation, a clear set of established criteria for deciding resource distribution should be ensured, and transparency and accountability must be ensured in all circumstances.

Second, the trend analysis, which gave the result for the study's second objective, forecasted an increase in government recurrent spending from 2020 to the near future. The report relates these shocks to unanticipated occurrences such as covid-19, which is thought to have had a considerable influence on Ghana's economic development over the last two years. As a result, the study advises the government and the Ministry of Finance to prioritize the recurrent expenditure component of government spending and to back up choices in this area with suitable contingency plans for the future since government recurrent expenditure exhibited an upward trend. There is a need for control measures to keep this government expenditure component at an optimum level to push the country's economic growth.

By clearly demonstrating a cause-and-effect link between government recurrent expenditure and economic growth, the study accomplished its third goal. The findings suggest that Ghana's economic development may be boosted by the way the government handles its recurrent expenditure. However, it is imperative that the government and other important decision-makers, such as the Ministry of Finance and the Bank of Ghana, make informed policy decisions that serve as a guide for this expenditure. It is imperative to prioritize the allocation of recurrent expenditures to prevent overspending that could have detrimental effects in the long run. By doing so, the government can ensure that its spending remains within manageable limits and does not harm future economic prospects.

Furthermore, as financial development has been recognized as a significant driver of Ghana's economic advancement, the research promotes key decision maker (Ministry of Finance and the Central Bank) to prioritize financial development in their fiscal and monetary policies. Improving this macroeconomic factor will have a favorable impact on Ghana's economy. Additionally, the study urges the government to implement strategies that maintain inflation at a level that fosters positive ripple effects on the nation's development. Furthermore, the study highlights the necessity for the government to promote capital development and create additional job possibilities, given that a significant proportion of the working population has low labor force participation. Ghana's economic growth suffers as a result of these two metrics' negative consequences.

Finally, the role of the government is critical in a developing nation like Ghana. In order to achieve long-term growth, the government must establish a stable and favorable economic and political environment. It is crucial for the government to foster widespread agreement and mobilize its citizens to actively participate in development initiatives.

6.0 CONCLUSION

Numerous insights from the study's findings are essential to take into account when making policy choices. First and foremost, the findings demonstrated a positive and substantial causal relationship between government recurrent expenditure and long-term economic development in Ghana. This provides the indication that, in the past three decades, government recurrent expenditure had some significant impact on Ghana’s economy. However, the same claim cannot be made for the short-run where lag values exhibited insignificant impact on economic growth. The inference is that, provided that spending in this area is managed with extreme care and caution, raising recurrent expenditure in Ghana will eventually boost the country's GDP. Second, the relationship between economic growth and other explanatory variables was also investigated. For example, it was discovered that Ghana's money-supply greatly influenced economic development. Controlling inflation is crucial, though, as it has a detrimental effect on Ghana's economic expansion. The study's results also showed a negative

correlation between economic growth and labor force participation, emphasizing the necessity of retraining and training to raise worker quality and maximize labor participation to promote economic growth. Comparable conclusions apply to capital formation, which has sadly shown unable to impact economic development over the long term. Again, the analysis showed that, in comparison to the previous three decades, government recurrent spending will likely trend upward in the near future. The study blames such an upward trend on the effect of COVID-19 pandemic and other antecedent factors in the past 2 years. The study therefore suggests that careful attention be given to this expenditure category through a strategic post-pandemic mechanism since the potential consequences of recurrent expenditure on the Ghanaian economy is highly visible. Finally, the goal of the study to look into the relationship between economic development and government recurrent expenditure was accomplished. Estimates from the Granger Causality Wald Test showed that there is a unidirectional causal relationship between government recurrent expenditure and economic growth in Ghana. This suggests significant level of care and caution in budget allocation for this expenditure component, and the effective management of funds to stimulate Ghana's economic growth. The results therefore support the Keynesian view but defy the Wagner's perspective of public spending and economic growth. Additionally, the Feedback perspective of public expenditure which suggests a "bi-directional causality" does not also hold in the current study. Consequently, it is crucial to prioritize responsible fiscal policies and efficient resource allocation to ensure optimal economic outcomes for the country Ghana.

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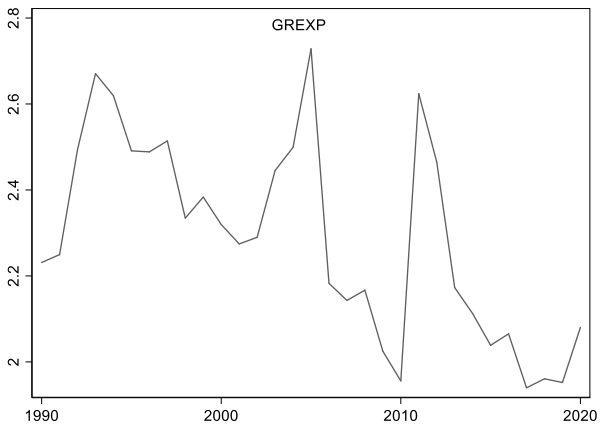
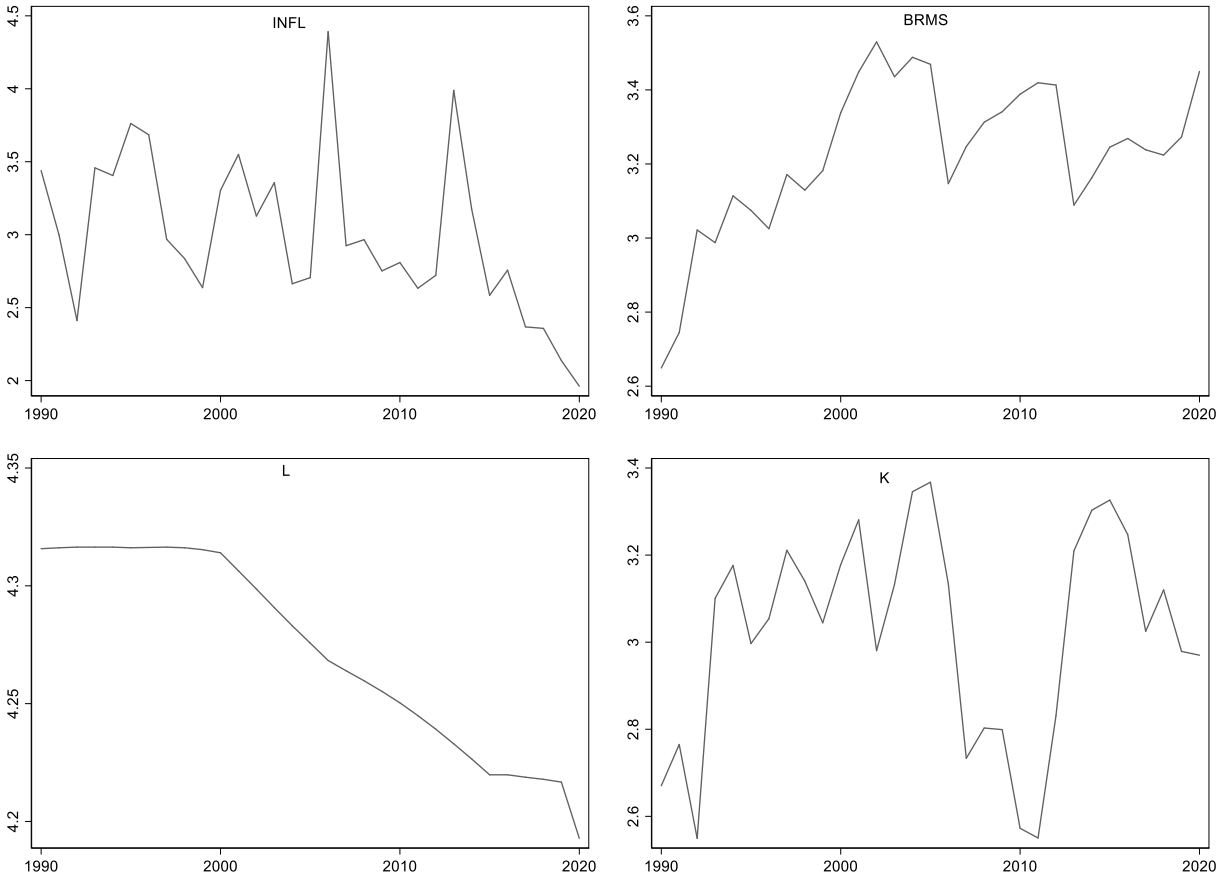
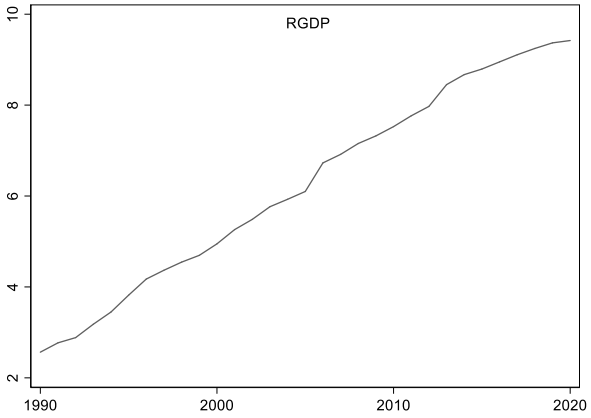
Appendix

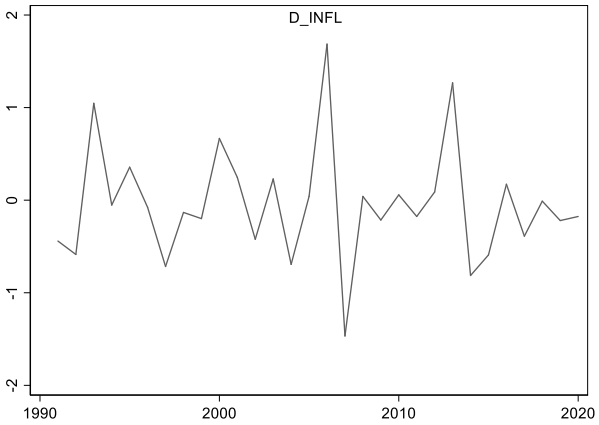
Graphical Representation of Variables at Levels

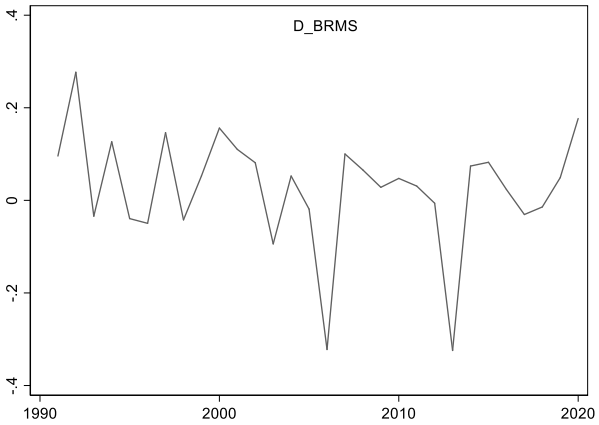




Graphical Representation of Variables when Differenced Once


RGDP
2
4
6
8
10
1990
2000
2010
2020


D_INFL
-2
-1
0
1
2
1990
2000
2010
2020


D_BRMS
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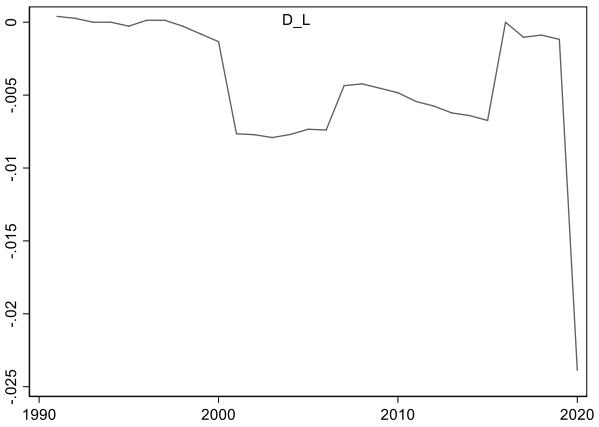
-.2
0
.2
.4
1990
2000
2010
2020


D_L
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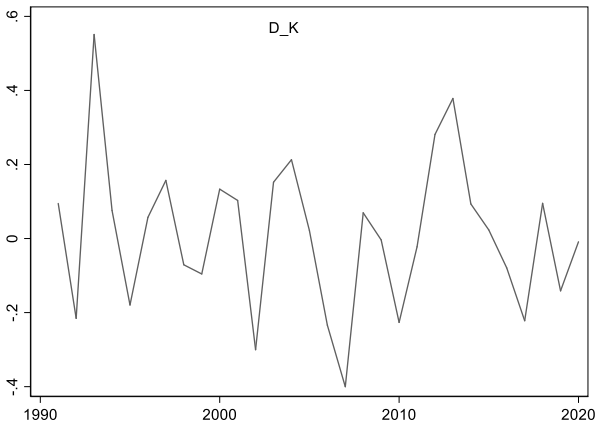
-.02
-.015
-.01
-.005
0
1990
2000
2010
2020


D_K
-.4
-.2
0
.2
.4
.6
1990
2000
2010
2020