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GENDER INEQUALITY AND ECONOMIC GROWTH IN NIGERIA: A GRANGER-CAUSALITY ANALYSIS (2009–2023)

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ABSTRACT: *This study examined the causality relationship between gender inequality and economic growth in Nigeria, covering the period 2009–2023. The study was anchored on two inequality theories, namely functionalist theory and conflict theory. The ex-post facto was used as the research design for the study. Data for the study were extracted from the World Development Index of the World Bank and the Central Bank of Nigeria (CBN) Statistical Bulletin (2023). The method of data analysis adopted in the study was the Granger-Causality Analysis with the Unit-Root employed to estimate the stationarity status of the variables. The results of the study reveal that there is a causality relationship existing between gender inequality and economic growth in Nigeria, covering the period 2009 to 2023. However, the result reveals that the relationship is bi-directional, flowing from gender inequality to economic. The F-statistics and corresponding probability values show that gender inequality granger causes economic growth. The GIE yielded a p-value of 0.0037 < 0.05, GIEPP yielded a p-value of 0.0137 < 0.05, GHIC yielded 0.0108 < 0.05, and GIED yielded 0.0341 < 0.05. Comprehensive policy interventions that promote gender equality in education, employment, and political representation are necessary to ensure that Nigeria's economic growth is inclusive and resilient.*

KEYWORDS: Gender Inequality, Economic Growth, Political Participation, Education, Healthcare.

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INTRODUCTION

Gender inequality is a pervasive issue affecting various aspects of life worldwide, with significant implications for economic growth and development. In Nigeria, a country characterized by its diverse cultural, ethnic, and socioeconomic landscape, gender inequality remains a critical challenge (Adeleke, Duru, Yakubu & Ikubor, 2024). The disparities between men and women in education, employment, health, and political participation not only undermine social justice but also hinder the nation's economic potential (Othman, Oboh, Kam Jia Yi & Jusoh, 2024). Gender inequality remains one of the most pervasive and entrenched issues globally, affecting individuals across different cultures, societies, and economic backgrounds. Despite significant progress in the fight for gender equality, disparities between men and women continue to exist in various sectors, including education, employment, politics, and healthcare.

The origins of gender inequality are deeply rooted in historical, cultural, and social constructs that have traditionally favored men over women. Patriarchal societies have long dictated gender roles, with women often relegated to domestic duties while men dominate public and professional spheres. These traditional beliefs are perpetuated through socialization processes, where children learn gender-specific roles and behaviors from a young age. Additionally, discriminatory laws and policies in many countries have institutionalized gender inequality, limiting women's access to resources and opportunities (Kuteesa, Akpuokwe & Udeh, 2024). The implications of gender inequality extend beyond individual hardships, affecting societal and economic development. Gender disparities hinder economic growth by limiting the potential of half the population. When women are denied equal opportunities, societies miss out on the diverse perspectives and talents that women bring to the table. Additionally, gender inequality perpetuates cycles of poverty, as women who lack education and employment opportunities struggle to provide for their families (Nam, Ryu & Szilagyi, 2024). Nigeria is Africa's most populous country and one of the continent's largest economies, largely driven by oil exports (Adedapo, 2023). However, despite its abundant natural resources, Nigeria faces significant developmental challenges, including poverty, unemployment, and infrastructure deficits.

Despite the global campaign for women empowerment and gender equity, Nigerian women are still lacking in equal opportunity both in their developmental contributions and benefits accrued from it. Following Scholz (2019), it is no longer news to say that women account for more than half of most nations' populations and are a huge talent base. Therefore, issues related to economic development are incomplete without a conversation on gender issues. Relatively, gender disparities are significant in Nigeria, as the nation was rated 120 out of 135 countries in 2021 World Economic Forum, 2021 Global Gender Gap Index, 79 out of 86 countries in 2019 OECD's Social Institutions and Gender Index, and also 128 out of 153 (World Economic Forum, 2021).

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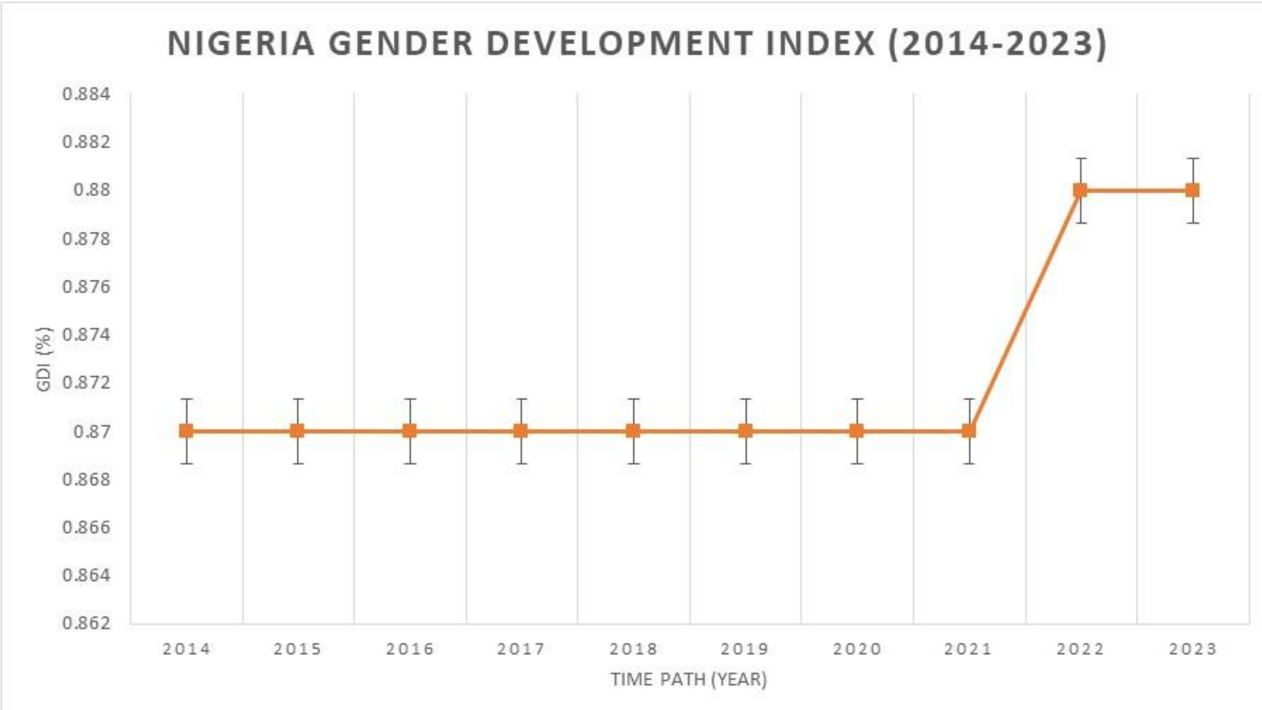
The graph in Figure 1 is a 10-year stylized fact analysis on the historical behaviour of Gender Development Index (GDI) in Nigeria. This covers the period 2014–2023.

Figure 1: Gender Development Index (GDI) for Nigeria (2014–2023)



Source: *World Development Index (2023)*

The data provided in Figure 1 represents the Gender Development Index (GDI) for Nigeria from 2014 to 2023. The GDI measures gender disparities in achievements related to health, education, and income, comparing women and men across these dimensions. The GDI remained at 0.87 for seven consecutive years, suggesting minimal or no change in gender development disparities during this period. This could indicate that the relative position of men and women in Nigeria in terms of access to health, education, and economic opportunities was largely unchanged. There was a marginal increase to 0.88 in 2022 and 2023. This indicates a slight improvement in closing the gender gap, possibly reflecting better access to education, healthcare, or economic opportunities for women. However, the increase is small, implying that while progress has been made, significant gender disparities likely persist. While Nigeria's GDI has seen modest improvement in the last two years, the overall stagnation over much of the decade suggests that more targeted interventions may be needed to accelerate gender parity in the country. The slight uptick from 2022 to 2023 is a positive sign, but sustained and more substantial progress is required for long-term gender equality.

This appears to be the fact about Nigerian women, notwithstanding the role played by class, kinship, religion, education, ethnicity as well as marital status in extenuating or particularizing this impact. The geographical division between the North, mainly Muslim, and the South,

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predominantly but not exclusively Christian, is also an important dimension of the struggle for gender equality (Edozie, 2017). Therefore, there exist numerous reasons why Nigerian gender inequality is of great concern, particularly in the most important dimensions of welfare such as health, education, employment and political participation. From the equity viewpoint, growth in gender inequality is very problematic as it lessens welfare as well as increases injustice from the perspective of justice and equity as well. However, such an opinion would only reduce these dimensions of welfare gender inequalities. Recently, the instrumental impacts of gender inequality are most noteworthy especially when it has to do with economic growth processes, which have become the current or trending argument in the literature (Cubers & Teignier, 2020).

Economic growth has been inconsistent, often hampered by political instability, corruption, and social unrest (Ogbu & Osazuwa, 2023). Within this context, gender inequality presents an additional barrier to sustainable economic progress. In Nigeria, educational disparities between genders are significant, particularly in rural areas. While enrollment rates for girls have improved, many still face barriers such as cultural beliefs, early marriage, and economic constraints. The northern regions of Nigeria, in particular, see lower enrollment and higher dropout rates for girls compared to boys (Adam & Njogu, 2023). Nigerian women face significant challenges in the labor market, including the gender pay gap, underrepresentation in leadership roles, and employment in lower-paying jobs. Women often work in the informal sector, which offers little job security or benefits. Societal norms and limited access to education and training further restrict women's economic opportunities (Ette & Akpan-Obong, 2023).

LITERATURE REVIEW

Gender Inequality

Gender inequality refers to the disparity between individuals based on gender, manifesting in various forms such as unequal access to resources, opportunities, and rights. Despite significant progress in recent decades, gender inequality remains a pervasive issue worldwide, affecting the lives of millions of women, men, and non-binary individuals (Rosa, Drew & Canavan, 2020). Historically, gender roles have been rigidly defined, with men often occupying positions of authority and women being relegated to subordinate roles. This division was justified through various cultural, religious, and social beliefs that depicted men as natural leaders and women as caretakers. Such beliefs have contributed to systemic inequalities that are deeply embedded in societal structures. Over time, feminist movements and human rights organizations have challenged these norms, advocating for equal rights and opportunities regardless of gender. Despite significant progress, historical inequalities continue to influence contemporary gender dynamics (Huang, Gates, Sinatra & Barabási, 2020).

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Economic Inequality

Economic inequality is one of the most evident forms of gender disparity. Women often face significant barriers in the workforce, including wage gaps, limited career advancement opportunities, and underrepresentation in leadership roles. The gender pay gap, where women earn less than men for the same work, is a persistent issue globally. This disparity is influenced by various factors, including occupational segregation, discrimination, and the undervaluing of work traditionally performed by women, such as caregiving and domestic work. Moreover, women are more likely to engage in part-time or informal employment, which often lacks job security and benefits (Kleven *et al*., 2024).

Educational Inequality

Education is a critical area where gender inequality manifests. In many parts of the world, girls face barriers to accessing education due to cultural norms, poverty, and inadequate infrastructure. This lack of access limits their future opportunities and perpetuates cycles of poverty and dependency. Even in regions where educational access is more equitable, gender biases can influence the subjects that girls and boys are encouraged to pursue, leading to gender imbalances in fields like science, technology, engineering, and mathematics (STEM). Encouraging equal participation in all areas of education is essential for achieving gender parity and empowering individuals to reach their full potential (Quadlin, VanHeuvelen, & Ahearn, 2023).

Gender inequality in education remains a critical issue affecting many societies worldwide. Despite significant progress over the past few decades, disparities persist in access to and quality of education between males and females. This inequality not only hinders individual potential but also impacts broader societal development and economic growth. Understanding the roots, implications, and possible solutions to gender inequality in education is crucial for achieving gender parity and empowering all individuals to contribute meaningfully to society (Quadlin, VanHeuvelen & Ahearn, 2023).

Historically, education systems worldwide have often favored males, with females receiving limited or no formal education. Cultural norms, economic barriers, and political structures have traditionally restricted women's access to education. In many societies, educating girls was deemed unnecessary as they were expected to fulfill domestic roles. However, the feminist movements of the 19th and 20th centuries, alongside international declarations such as the Universal Declaration of Human Rights, have advocated for equal educational opportunities for all genders (De Welde & Stepnick, 2023).

Economic Growth

Economic growth is a critical indicator of a country's economic health and prosperity. It is commonly measured by the increase in a nation’s Gross Domestic Product (GDP) and reflects the overall capacity of an economy to produce goods and services (Lewis, 2013). Understanding economic growth involves examining its determinants, impacts, and the policies that can sustain it. Economic growth is essential for improving the well-being of a nation's citizens and achieving higher living standards. It results from a complex interplay of factors, including capital

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accumulation, labor force development, technological innovation, and institutional strength. To sustain growth, policymakers must balance these factors while addressing environmental and social challenges. By fostering an environment that encourages innovation, investment, and sustainable practices, countries can achieve robust and long-lasting economic growth (Rabie, 2016).

Economic growth is a critical factor for the development and prosperity of any nation. It refers to the increase in a country's production of goods and services over a specific period, typically measured by the rise in Gross Domestic Product (GDP) (Rabie, 2016). Economic growth often leads to higher income levels, allowing individuals and families to enjoy better living standards. This includes access to improved healthcare, education, and housing, as well as increased consumption of goods and services (Rabie, 2016). Sustained economic growth can help reduce poverty levels by creating more job opportunities and increasing wages. As the economy expands, more resources become available to support social welfare programs and poverty alleviation initiatives (Song, Chang & Gong, 2021).

Theoretical Literature

Gender inequality is a complex and multifaceted issue that has been studied extensively across various disciplines. Numerous theories and models have been developed to understand the origins, manifestations, and perpetuation of gender inequality. This section of the paper is focused on a review of related theories deemed fit for the subject under investigation.

Functionalist Theory

Functionalist theory was propounded by Durkheim in 1914. This theory views society as a complex system with interdependent parts that work together to promote stability and social order. From this perspective, gender roles are seen as functional for society. For example, Talcott Parsons argued that the division of labor between men and women in the family is beneficial for society. Men are seen as suited for instrumental roles (e.g., providing financial support), while women are suited for expressive roles (e.g., nurturing and caregiving). Critics of functionalist theory argue that it justifies the status quo and overlooks the power imbalances inherent in traditional gender roles (Smith, 2010). Functionalist theory helps explain how traditional gender roles have historically contributed to social stability in Nigeria. By assigning specific roles to men and women, society ensures that essential functions, such as caregiving and income generation, are fulfilled (Thompson, 2013).

Functionalist theory offers valuable insights into the dynamics of gender inequality and economic growth in Nigeria. By highlighting the roles that gender norms play in maintaining social stability and influencing economic efficiency, this perspective helps to identify both the benefits and limitations of traditional gender roles. Understanding these dynamics is crucial for developing strategies that promote gender equality and sustainable economic growth in Nigeria. Through a functionalist lens, policymakers and researchers can better address the challenges of gender inequality and harness the potential of all citizens for economic development.

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Conflict Theory

Conflict theory, rooted in the works of Karl Marx, views gender inequality as a result of the power struggles between different social groups. Feminist scholars have adapted this theory to analyze how patriarchal structures benefit men at the expense of women. According to conflict theory, gender inequality is a result of men's historical domination over women in various spheres, including the economy, politics, and family. This theory emphasizes the need for social change to achieve gender equality (Jackson, 1993). Conflict theory is a valuable lens for examining gender inequality and its impact on economic growth, particularly in a country like Nigeria, where traditional gender roles and socio-economic disparities are prominent. This theory, which views societal structures as arenas of power struggles, can provide critical insights into how gender inequality affects economic growth in Nigeria.

The application of conflict theory to the study of gender inequality and economic growth in Nigeria provides valuable insights into the power dynamics and structural barriers that hinder women's economic participation. By highlighting these issues, conflict theory advocates for social change and helps to identify strategies to promote gender equality and inclusive economic development. Addressing gender inequality is not only a matter of social justice but also a critical factor in unlocking Nigeria's full economic potential.

Empirical Studies

Some of the past and related studies on the subject under analysis were reviewed and discussed in this section.

Andrew (2022) examined the impact of gender inequality and female labour participation in the Nigerian civil service on the economic growth of Nigeria using mix-methods. The study adopted panel regression analysis and content-based analysis. The findings indicate that gender inequality negatively impacts economic growth and distorts the pool of human capital available to the Nigerian civil service and recommends the use of education and outsourcing of some employment functions to eliminate it effectively.

Oboh (2019) examined the influence of gender inequality and female labour force participation in the civil service on economic growth in Nigeria. The data cut across 35 states in Nigeria from 2008 to 2016. The model is estimated using a panel data fixed effect estimation. The findings show that the economic cost of an increase in men's employment at the expense of women's employment may have a negative impact on economic growth. Thus, the pursuit of equi-gender representation is an important measure towards women empowerment, reducing their dependency, elevating their socio-economic status, and achieving economic growth.

Golit and Adesanya (2019) adopted the bounds test and autoregressive distributed lag (ARDL) approach to evaluate the impact of gender inequality in education on real productivity in Nigeria using quarterly data from 1985Q1 to 2018Q4. Empirical evidence to establish the rejection of the null hypothesis of no cointegration among the variables was provided. The empirical results reveal that gender inequality in education depresses real productivity, with an output elasticity of -0.1 per cent per quarter. Furthermore, empirical evidence indicates that higher school enrolment of males

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enhances real productivity in Nigeria, while the influence of female school enrolment was not affirmative owing to some socio-cultural factors that tend to inhibit female participation in economic activities.

Nnenna and Iwegbu (2020) analyzed the impact of gender inequality on education and economic growth in Nigeria. The study examined the magnitude of the relationship between gender and education and the extent to which gender inequality affects economic growth in Nigeria. Data from the National Bureau of Statistics are utilized. The quantitative technique employed in analyzing the data collected is the Error Correction Model (ECM). Also, Mann-Whitney test statistics is employed to test whether a significant difference exists between the male's contribution to the national economic growth and female's contribution to the nation's economic growth. The major finding is that in the urban region, females exhibited predominant unemployment by educational level when compared to the rural region. More so, other findings from the study conclude that there is a high level of gender inequality in labour force participation in relation to Nigerian educational level.

On the empirical frontiers, Egbulonu and Eleonu (2018) evaluated the impact of gender inequality on Nigerian economic growth, using Ordinary Least Square (OLS) regression model technique. The study discovered that the female employment rate and male school enrolment both have a significant effect on Nigerian economic growth. It also discovered that the Nigerian female employment level has increased and the study concluded that there is a need for more job creation as well as the formulation of policies that will drastically reduce barriers that create room for gender inequality.

Khayria and Rochdi (2021) studied the effect of gender inequality on economic development in Africa using the generalised method of moments (GMM). The study found that a negative and significant relationship exists between gender inequality index and economic growth with a threshold of 10%. In the same vein, Onwuameze (2019) examined the educational opportunity and inequality in Nigeria using both descriptive and multivariate regression analysis. The study discovered that gender does not play a role in educational performance; rather, other variables such as family wealth, mother's education and geographical factors determine educational achievement. The study thus resolved that there is no gender inequality in the Nigerian education system.

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METHODOLOGY

The investigation employed the expo-facto design. This was because the researcher had no control over the data and variables used in the investigation. This study made use of econometric procedure in estimating the impact of gender inequality on economic growth in Nigeria. It is also pertinent to note that the research design adopted the quantitative approach based on the fact that it gave room for statistical and econometric estimations for the actualization of the research objectives.

Model Specification (Granger Causality Model)

Granger causality is a statistical concept used to determine whether one time series can predict another time series. It is not about true causality but rather about whether past values of one variable provide information about future values of another variable. In the context of studying the impact of gender inequality on economic growth in Nigeria, Granger causality can be useful for exploring the relationships between these variables over time. The causality model is specific below:

$$GDP = \beta + \sum_{i}^{n} \eta_i \, GDP_{t-i} + \sum_{i=1}^{n} \gamma_i \, GIE_{t-i} + \sum_{i=1}^{n} \gamma_i \, GIEPP_{t-i} + \sum_{i=1}^{n} \gamma_i \, GIHC_{t-i} + \sum_{i=1}^{n} \gamma_i \, GIED_{t-i} + \Omega.$$

$$GIE = \beta + \sum_{i}^{n} \eta_i \, GIE_{t-i} + \sum_{i=1}^{n} \gamma_i \, GDP_{t-i} + \sum_{i=1}^{n} \gamma_i \, GIEPP_{t-i} + \sum_{i=1}^{n} \gamma_i \, GIHC_{t-i} + \sum_{i=1}^{n} \gamma_i \, GIED_{t-i} + \Omega.$$

$$GIEPP = \beta + \sum_{i}^{n} \eta_i \, GIEPP_{t-i} + \sum_{i=1}^{n} \gamma_i \, GIE_{t-i} + \sum_{i=1}^{n} \gamma_i \, GDP_{t-i} + \sum_{i=1}^{n} \gamma_i \, GIHC_{t-i} + \sum_{i=1}^{n} \gamma_i \, GIED_{t-i} + \Omega.$$

$$GIHC = \beta + \sum_{i}^{n} \eta_i \, GIHC_{t-i} + \sum_{i=1}^{n} \gamma_i \, GIE_{t-i} + \sum_{i=1}^{n} \gamma_i \, GIEPP_{t-i} + \sum_{i=1}^{n} \gamma_i \, GDP_{t-i} + \sum_{i=1}^{n} \gamma_i \, GIED_{t-i} + \Omega.$$

$$GIED = \beta + \sum_{i}^{n} \eta_i \, GIED_{t-i} + \sum_{i=1}^{n} \gamma_i \, GIE_{t-i} + \sum_{i=1}^{n} \gamma_i \, GIEPP_{t-i} + \sum_{i=1}^{n} \gamma_i \, GIHC_{t-i} + \sum_{i=1}^{n} \gamma_i \, GDP_{t-i} + \Omega.$$

where:

GDP = Real Gross Domestic Product (Measure of Economic Growth)

GIE = Gender Inequality in Employment

GIEPP = Gender Inequality in Political Participation

GIHC = Gender Inequality in Health Care

GIED = Gender Inequality in Education

$\beta' s =$ The Parameters of the independent variables to be estimated.

Ω = Stochastic Error Term
t = The Period.

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Unit Root/Stationarity Test

This was used to test whether a variable's mean value and variance vary over time. It is necessary in time series variables in order to avoid the problem of spurious regression. The Augmented Dickey Fuller (ADF) test was used for the analysis. Augmented Dickey-Fuller (ADF) test is used to test the existence of unit root when there is autocorrelation in the series and lagged terms of the dependent variable are included in the equation. The following three models represent pure random walk, random walk with drift, and random walk with drift and trend used in Augmented Dickey-Fuller tests:

$$\Delta\psi_t = \Omega\psi_{t-1} + \sum_{i=1}^{p}\beta_i\Delta\psi_{t-1} + \varepsilon_t$$

$$\Delta\psi_t = \alpha_0 + \Omega\psi_{t-1} + \sum_{i=1}^{p}\beta_i\Delta\psi_{t-i} + \varepsilon_t$$

$$\Delta\psi_t = \alpha_0 + \Omega\Psi + \beta_2 t + \sum_{i=1}^{p}\beta_i\Delta\psi_{t-1} + \varepsilon_t$$

where: $\Omega = (\lambda - 1)$ The null hypothesis is $\mathrm{H}_0 : \Omega = 0$ and the alternative hypothesis is $\mathrm{H}_a : \Omega < 0$

Co-integration Test

This will be used to test if there exists a long-run relationship between the variables under investigation. The Johansen or Engel-Granger methodology will be used. The long-run equilibrium relationship is estimated with the following equation:

$$\mathrm{X}_t = \alpha_0 + \alpha_1\mathrm{Z}_t + \varepsilon_t$$

If there is cointegration, α_0 and α_1 estimates reveal "super-consistent" estimators in the OLS regression. In this estimation, fitted values of ε_t series are tested for stationarity. In this analysis, DF or ADF may be used. However, in hypothesis testing, critical values constructed by McKinnon (1991) are used. If this series is stationary, we can conclude that there is cointegration between X_t and Z_t. The fitted values of ε_t may be used as the error correction term of the model.

Error Correction Model (ECM)

The error correction analysis is an econometric analysis carried out if the variables under investigation are seen to be cointegrated. The Error Correction Mechanism (ECM) was used to estimate the speed of adjustment of the short-run dynamics of the variables and timing to long-run convergence. The error correction model is specified thus:

$$\Delta Y_t = \theta_0 + \theta_1 z_{t-1} + \sum\theta_{2i}\Delta\mathrm{X}_{t-1} + \sum\theta_{3i}\Delta Y_{t-1} + \varepsilon_t$$

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where Δ denotes the first-order time difference (i.e., $\Delta y, = y_t - y_{t-1}$) and where ε_t is a sequence of independent and identically distributed random variables with mean zero and variance.

Autocorrelation Test

In order to avoid some of the pitfalls of Durbin-Watson d test of autocorrelation, the Breusch-Godfrey Serial Correlation LM test is used to carry out the test of autocorrelation.

Decision Rule (Autocorrelation Test)

If the probability value of the Chi-Square (X^2) < 0.05, we reject the null hypothesis that there is no serial correlation in the model but if the p-value of the Chi-Square (X^2) > 0.05, we accept the alternative that there is no serial correlation in the model.

Data and Sources

The data required for this research are time series secondary data on Real Gross Domestic Product (RGDP), gender inequality index on employment, political participation, health care, and education, covering the period 2009–2023. Data were extracted from the Central Bank of Nigeria (CBN) statistical bulletin (2023) and World Development Indicators (WDI) of the World Bank.

RESULTS AND DISCUSSION

When using non-stationary time series data in regression models without adjusting for stationarity, the model may show significant relationships between variables even when there is no true underlying relationship. The unit-root test is a fundamental diagnostic tool in econometric research that ensures the appropriate treatment of time series data, improving the accuracy and reliability of model results and inferences. Table 1 below is a tabular display of the unit root results for the variables under investigation.

Table 2: Unit Root Test Result

VARIABLE	ADF STAT.	CRITICAL VAL.	ORDER
RGDP	-3.929316	-1.952473	I(1)
GIE	-6.306357	-1.952473	I(1)
GIEPP	-2.975005	-2.963972	I(1)
GHIC	-4.639425	-1.955020	I(1)
GIED	-3.393139	-2.963972	I(1)

Source: *Authors' Computation and Extracted from E-views 10 Output Data.*

The result in Table 2 reveals that all the variables are integrated at first difference. The implication of this outcome is that the variables are non-stationary in their original form (i.e., they exhibit a time trend, volatility, or other patterns over time). Their statistical properties like mean, variance, and autocorrelation are not constant over time.

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Granger Causality Result

Pairwise Granger Causality Tests
Sample: 2009 2023
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
GIE does not Granger Cause RGDP	13	3.34491	0.0037
RGDP does not Granger Cause GIE		1.48599	0.3215
GIEPP does not Granger Cause RGDP	13	3.43168	0.0137
RGDP does not Granger Cause GIEPP		0.73202	0.5106
GHIC does not Granger Cause RGDP	13	8.40841	0.0108
RGDP does not Granger Cause GHIC		1.80789	0.2250
GIED does not Granger Cause RGDP	13	4.14926	0.0341
RGDP does not Granger Cause GIED		0.94599	0.4278

Source: *Eviews Econometric/Statistical Software 12.*

The Granger-Causality result shows that there is a causality relationship existing between gender inequality and economic growth in Nigeria covering the period 2009 to 2023. However, the result reveals that the relationship is bi-directional, flowing from gender inequality to economic. The F-statistics and corresponding probability values show that gender inequality Granger causes economic growth. The GIE yielded a p-value of 0.0037 < 0.05, GIEPP yielded a p-value of 0.0137 < 0.05, GHIC yielded 0.0108 < 0.05, and GIED yielded 0.0341 < 0.05.

The result that gender-inequality Granger-causes economic growth suggests a temporal relationship where past values of gender inequality can help predict future changes in economic growth.

Although the result suggests a predictive relationship, it does not imply that gender inequality leads to sustainable positive growth. Research generally shows that gender inequality hinders long-term growth by reducing the participation and productivity of half of the population. In the short run, however, some economies may appear to grow despite gender inequality, perhaps due to other economic factors overshadowing its negative effects.

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Research also shows that sectors with higher female labor participation tend to experience faster growth in economies where gender inequality is lower. This suggests that removing gender barriers allows women to contribute more effectively to economic activities, leading to higher growth rates in specific industries (IMF, 2020). Thus, reducing gender inequality could disproportionately benefit sectors that rely on female labor. From a policy perspective, reducing gender inequality could promote more inclusive and sustained economic growth. Governments and institutions are encouraged to invest in policies that increase women's access to education, employment, and political participation. Gender equality is not only a moral imperative but also an economic necessity to maximize growth potential. This is supported by the United Nations' Sustainable Development Goals, particularly goals related to education and gender equality (MDPI, 2021).

The findings of the study are also in line with the findings of Andrew (2022) who examined the impact of gender inequality and female labour participation in the Nigerian civil service on the economic growth of Nigeria. The findings indicate that gender inequality negatively impacts economic growth and distorts the pool of human capital available to the Nigerian civil service. The findings of the present study are also in agreement with the findings of Golit and Adesanya (2019) who adopted the bounds test and autoregressive distributed lag (ARDL) approach to evaluate the impact of gender inequality in education on real productivity in Nigeria. The empirical results reveal that gender inequality in education depresses real productivity, with an output elasticity of -0.1 per cent per quarter.

CONCLUSION AND RECOMMENDATION

The study's findings demonstrate that gender inequality has a significant and measurable influence on economic growth in Nigeria. This relationship aligns with global trends, where unequal access to education, labor markets, and leadership opportunities for women inhibit economic development by limiting the full utilization of the nation's human capital. In Nigeria, gender disparities, particularly in education and employment, have contributed to slower economic growth by reducing productivity, innovation, and competitiveness in various sectors.

Literature emphasizes that when women have limited access to education and employment, economies suffer from underdeveloped labor markets and diminished human capital (Altuzarra *et al.*, 2021). In Nigeria, this underutilization of half of the population's potential has constrained the country's capacity for sustainable growth. Studies also reveal that gender inequality in Nigeria is exacerbated by sociocultural norms that limit women's economic participation, particularly in rural areas where educational and employment opportunities for women remain severely restricted.

Furthermore, reducing gender inequality would not only improve overall economic growth but also create a more inclusive economy that leverages the talents and contributions of both men and women. Policies aimed at improving gender parity in education and labor force participation are critical to achieving long-term economic growth. Gender equality has been linked to higher labor productivity, enhanced innovation, and better governance, all of which are essential drivers of sustainable development.

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Finally, addressing gender inequality in Nigeria is crucial for unlocking its economic potential. Comprehensive policy interventions that promote gender equality in education, employment, and political representation are necessary to ensure that Nigeria's economic growth is inclusive and resilient. The study's findings strongly suggest that gender equality is not only a moral imperative but also a critical economic strategy for Nigeria's future.

RECOMMENDATIONS

Based on the findings of the study, the following policy recommendations are suggested:

i. The Nigerian government can strengthen and enforce laws that guarantee equal employment opportunities for women. This includes amending labor laws to address wage gaps, ensuring fair recruitment processes, and penalizing discriminatory practices in the workplace. Additionally, policies should encourage more women in leadership positions and sectors traditionally dominated by men, such as technology and engineering.

ii. There should be an implementation of legal frameworks that mandate a minimum percentage of women in political offices at local, state, and national levels. This can be achieved through constitutional amendments or electoral reforms that introduce gender quotas. Such policies ensure that women have equitable representation in decision-making bodies, which can lead to more inclusive and diverse policies that drive economic growth.

iii. The government should implement targeted programs to improve access to healthcare services for women, particularly in rural and underserved areas. This can include establishing more health facilities, ensuring the availability of essential maternal and reproductive health services, and providing mobile clinics to reach women who cannot easily access healthcare.

iv. The government should prioritize funding for programs specifically aimed at increasing enrollment and retention of girls in schools. This includes providing scholarships, stipends, or financial incentives to families for sending their daughters to school. Additionally, creating safe and supportive learning environments, including building more schools in rural areas and implementing measures to prevent gender-based violence, will encourage families to prioritize girls' education.

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