



Entrepreneurship, inclusive growth and poverty reduction in Nigeria

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Abstract

This study empirically examined the dynamic relationship between entrepreneurship development, inclusive growth, and poverty reduction from 1990 to 2021, driven by the need to address Nigeria's ongoing poverty. Using data from the World Bank and the Central Bank of Nigeria, the study aimed to establish a causal relationship between these variables using strong econometric techniques, such as the Granger causality test and the Fully Modified Ordinary Least Squares (FMOLS). The main conclusions showed that, contrary to popular opinion, entrepreneurship had a negative and negligible effect on poverty, whereas inclusive growth had a significant negative effect, demonstrating the effectiveness of entrepreneurship in reducing poverty. Additionally, it was discovered that entrepreneurship significantly and negatively affected inclusive growth. The results of the causality tests indicated a two-way relationship between poverty and inequality and a one-way relationship between entrepreneurship and poverty. Based on these findings, the study suggests that, in order to increase innovation and productivity, strategic investment in science and technology should go beyond simple entrepreneurial promotion. To guarantee that public funds are used efficiently for inclusive economic development, it also supports increased stimulus spending to generate employment and a crucial bolstering of anti-corruption organizations like the EFCC and ICPC.

Keywords: Entrepreneurship, FMOLS, Inclusive growth, Nigeria, Poverty reduction.

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Contribution of this paper to the literature

This study contributes to the limited existing literature on the impact of entrepreneurship on poverty reduction and examines how poverty alleviation and entrepreneurship influence inclusive growth in Nigeria. The research covers a critical period marked by significant policy shifts in the country, offering valuable insights and actionable policy recommendations for policymakers.

1. Introduction

Entrepreneurship has been considered mainly an economic growth catalyst, job creation, and poverty reduction agent, particularly in developing economies like Nigeria (Audretsch, Keilbach, & Lehmann, 2006; Urbano, Aparicio, & Audretsch, 2019). Entrepreneurship entails value production through entrepreneurial innovations, risk-taking, and efficient use of resources, with the prospect of generating new markets, industries, and job opportunities (Baumol & Strom, 2007; Dhar & Farzana, 2017). Entrepreneurs function as economic drivers of change through risk-taking, enhanced competitiveness, and economic vibrancy (Bosma, Content, Sanders, & Stam, 2018). Entrepreneurship as a tool for growth is a companion of inclusive growth, which ensures that economic benefits trickle down to all classes of society, particularly the poor and marginalized groups (Kabeer, 2021; Ranieri & Almeida Ramos, 2013). Inclusive growth entails everything regarding multi-dimensional involvement, fair opportunities for accessing resources, and the erasure of disparities, which are part of the long-term reduction of poverty (Cerra, Eichengreen, El-Ganainy, & Schindle, 2021; Samans, Blanke, Corrigan, & Drzeniek, 2015).

In spite of the imperative need for entrepreneurship and inclusive growth, Nigeria continues to grapple with persistent poverty and rising unemployment. Nigeria's economic growth rate has fallen from 5.9% in 1985 to -1.8% in 2020, while unemployment increased nearly twofold over twenty years to 9.7% in 2020 (Uchenna, Onyekachi, & Chinwe, 2018). Currently, around 86.9 million Nigerians live in extreme poverty, while another 93 million Nigerians live below the poverty line (Olayinka, Olusegun, & Babatunde, 2015). It is a situation equivalent to millions of Nigerians lacking the capability to access basic staples such as food, shelter, healthcare, and education every day. The COVID-19 pandemic has further fueled the phenomenon, which has proven Nigeria's socioeconomic pillar weak (Obiakor, Iheonu, & Ihezue, 2021).

The prevalence of poverty in Nigeria, despite increased entrepreneurial activity, supports the argument that Nigerian economic growth has not been inclusive. Nigerians, in general, are deprived of economic engagement, which has resulted in increased inequality and social exclusion. Access to basic necessities such as electricity, clean water, and quality education continues to be uneven, particularly in rural areas (Jaiyeola & Bayat, 2019). Such exclusion contradicts the function of entrepreneurship in poverty alleviation and supports the necessity of growth measures that, in addition to being dynamic, need to be inclusive.

In recent years, the Nigerian government has implemented various poverty eradication and entrepreneurship promotion programs. Some of these programs include the Directorate of Food, Roads and Rural Infrastructure (DFRRI), the National Directorate of Employment (NDE), the Small and Medium Enterprise Equity Investment Scheme (SMEEIS), and the National Poverty Eradication Programme (NAPEP) (Farida, 2018; Yero & Abdu, 2024). Despite these efforts, key socioeconomic indicators reveal high levels of unemployment and poverty (Alaye, 2024). Most Nigerians, particularly youths, remain unemployed and underemployed, which perpetuates the cycle of poverty and discourages economic development.

Poverty in Nigeria is multidimensional and extends beyond low income. It encompasses constrained health, education, basic services, social isolation, and exposure to economic shocks (Deaton, 2006). Entrepreneurship as a profitable venture holds significant leverage to break such a cycle by generating income, creating jobs, and economically empowering others (Adenutsi, 2023). With an additional inclusive growth policy, which provides equal access opportunities for accessing markets, resources, and opportunities, this leverage is maximized, resulting in social equity and sustainability of growth (Adanma & Ogunbiyi, 2024; Animashaun, Familoni, & Onyebuchi, 2024). This study aims to empirically examine how entrepreneurship development and inclusive growth contribute to poverty reduction in Nigeria from 1990 to 2021. Using secondary data sourced from the World Bank Development Index and the Central Bank of Nigeria, the study employs advanced econometric techniques, including the Fully Modified Ordinary Least Squares (FMOLS) method and Granger causality tests, to examine both the direct effects and causal relationships among these variables. The findings will provide policymakers with concrete data for formulating effective policies to promote inclusive economic growth and reduce poverty in Nigeria.

The paper is structured as follows: Section 2 reviews the relevant literature, Section 3 outlines the methodology, Section 4 presents the empirical results, and Section 5 concludes with policy recommendations.

2. Review of Literature

2.1. Conceptual Literature

Entrepreneurship has been defined as the utilization of innovative concepts to create wealth and spur economic development (Shuaibu, Bin Kamin, Muhammad Isa, & Musa Cledumas, 2021; Udukeke & Usoro, 2023). Entrepreneurship is the discovery and utilization of new opportunities through creating new products, new markets, and transforming resources, which collectively spur economic development. Entrepreneurship also spurs poverty alleviation (Apetu, Egbetokun, Ajani, & Egbenede, 2024). Entrepreneurship development in Nigeria is, however, plagued with many challenges such as poor infrastructure, inadequate finance, and uncertain government policies, which hinder its full realization (Odeyemi¹ et al., 2024).

Entrepreneurial success is greatly dependent on acquiring the necessary skills to enable individuals to innovate, generate employment, and improve livelihoods (Adejoke, 2025). The Nigerian government factored this in regard to youth entrepreneurship initiatives and promoting TVET for facilitating employability and entrepreneurship (Diyoke, 2014). Despite such interventions, there is a challenge in ensuring quality entrepreneurial training and practice for all (Aly, Audretsch, & Grimm, 2021).

Inclusive growth promotes entrepreneurship because economic benefits and profits are shared fairly by all sections of society, including the poor (Ranieri & Almeida Ramos, 2013). Inclusive growth promotes participatory,

equitable, and poverty-reducing development with full access to markets, resources, and jobs (Adegboyega, 2018). Without inclusive growth, economic benefits will accrue to a privileged minority, causing greater inequality and poverty (Cerra, Lama, & Loayza, 2021).

Nigerian poverty eradication programs like the National Directorate of Employment (NDE) and the National Poverty Eradication Programme (NAPEP) have been focused on employment generation and economic empowerment to reduce poverty (ABUBAKAR, 2023; Anuoluwapo, 2021). The programs have, however, long suffered from corruption, policy discontinuity, and implementation issues that have undermined their effects (Ibrahim, 2024).

Generally, inclusive growth and entrepreneurship development are two complementary dimensions of poverty reduction. Entrepreneurship creates employment and innovation, and inclusive growth ensures that the benefits of economic growth are passed on to all members of society so that standards of living are improved and inequality decreased (UNDP, 2013). Such a postulation is supported by the present research to empirically test such linkages in the Nigerian context.

2.2. Theoretical Review

Entrepreneurship has been widely seen as a driver of economic growth, and it should be to a considerable extent due to its value creation and innovation functions. Schumpeter (1934) articulates this in his delineation of entrepreneurs as innovators making new products and services from novel combinations of inputs. Not only does this innovation activity explain economic growth, but it also contributes to employment creation and increasing incomes, making it central to poverty elimination (Ayoo, 2022). Inventors are motivated by a desire for discovery, but entrepreneurs are motivated to bring their innovations to market to make them useful, to realize abstract ideas, and to transform these into marketable outputs that increase productivity and economic activity.

But entrepreneurship's role in changing and reshaping present institutions into better ones has been fulfilled only when there has been an environment of equal opportunities and resources. This is the concept of inclusive growth. Inclusive growth following Keynesian economics (Keynes, 1936) recognizes the prime role of the state in the development of the environment in which there can be economic participation by all. In government spending on infrastructure, social welfare, and measures to address increasing income disparities, inclusive growth ensures that benefits of economic growth are shared equally by society. Inclusive growth integrating entrepreneurial innovation and social justice constructs an economy in which growth translates into improved living standards for everybody, especially the weaker sections (Apetu et al., 2024).

Despite such mechanisms, poverty incidence still plagues most developing economies because it is entrenched in deeply embedded structural barriers. According to the Structural Poverty Theory (Wilson, 1996), poverty is not a matter of absolute individual failure but is explained by wider demographic and economic structures such as skills mismatch, exclusion, and marginalization in accessing opportunities. According to the theory, unless the structural barriers are removed, entrepreneurship development and inclusive growth policies cannot be expected to contribute the maximum towards poverty alleviation Si, Ahlstrom, Wei, and Cullen (2021). Structural reforms are thus inevitable in order to remove these barriers and release the productive efforts of marginalized groups toward economic development.

These theories present a joint model towards a multi-dimensional synergy between entrepreneurship, inclusive growth, and poverty reduction. Schumpeter's Innovation Theory addresses the manner in which entrepreneurial activity generates economic growth; Keynesian theory addresses how much a degree of equality is ensured in an inclusive setting; and Structural Poverty Theory addresses structural barriers to be eliminated. The enlarged theoretical model underlies the empirical analysis of how entrepreneurship and inclusive growth can have reciprocal implications on long-term poverty reduction for Nigeria.

2.3. Empirical Review

There is sufficient empirical study analyzing entrepreneurship, economic growth, inclusive growth, and poverty reduction and their real-world implications for the current study. Arejiogbe et al. (2023) utilized the structural equation model using data from 262 respondents and found that social innovation contributes to poverty reduction in Nigeria; therefore, social innovation should be strongly promoted through government policies to support poverty reduction efforts. Similarly, Azamat, Fayzullokh, and Nilufar (2023) utilized panel fixed effects regression for different countries and found that entrepreneurship contributes positively to poverty reduction across the globe; therefore, incentives towards building entrepreneurial capacity and efficiency are needed.

From education, Goniri (2020) analyzed entrepreneurship education of Nigeria's Maiduguri graduates using regression analysis and concluded that job and wealth creation are important determinants of poverty alleviation. The study advocated that government initiatives aimed at encouraging graduates toward job creation should ensure that the graduates utilize the acquired knowledge in establishing self-employment, thereby reducing unemployment. Ifeoma, Purity, and Yusuf (2018) also advocated entrepreneurship development as a key driver of Nigeria's economic growth, employment generation, and poverty reduction. Worldwide, Bonito, Daantos, Mateo, and Rosete (2017) used Philippines data and concluded that entrepreneurship leads to economic progress, thus alleviating poverty and reducing income inequality. In Nigeria, Ogidi (2014) demonstrated the pivotal role undertaken by women's entrepreneurship in poverty alleviation against Enugu State SMEs' primary data. Ali and Ali (2013) have, however, demonstrated a positive but statistically insignificant relationship of entrepreneurship development toward poverty in Somalia, advocating that context determinants of the relationship are required. Kareem (2015) demonstrated a significant negative correlation between entrepreneurship and poverty in Nigeria using chi-square and correlation statistics, indicating that entrepreneurial ventures can help alleviate poverty.

There has also been a lot of research on the connection between poverty reduction and inclusive growth. Abosede, Adebayo, and Oladele (2013) found that entrepreneurship increases economic growth through channels of inclusive growth. Migapet, Olayemi, and Usman (2015), however, examined financial inclusion in Nigeria and found that poor financial inclusion discourages inclusive growth, which increases poverty in Africa. Alekhina and Ganelli (2021) found that inclusive growth decreases poverty significantly in Asian countries, and Lee and Sissons

(2016) found that although the United Kingdom had recorded economic growth, its non-inclusiveness discourages poverty reduction. In Nigeria, Adegboyega (2018) confirmed that poverty decreases as economic growth increases and determined the contribution of inclusive growth. Munir and Ullah (2018) quoted macroeconomic stability and structural reforms to be effective in the achievement of inclusive growth in Pakistan. Ozughalu and Ogwumike (2015) believed that Nigeria, despite economic growth, has high poverty, unemployment, and inequality because Nigeria's human capital growth is low and the manufacturing sector's performance is weak. It called on policymakers to consider these issues with a view towards maximizing inclusiveness with immediate effect. Arabiyat, Mdanat, and Samawi (2020) applied the panel data method for 1990 to 2015 and found that trade openness stimulates inclusive growth, but increasing poverty and inequality undermine its impact at the national and provincial levels.

Finally, Folorunsho, Osinubi, and Dada (2021) analyzed the causality relationship between entrepreneurship and inclusive growth in 21 African nations. The research validated that entrepreneurship and economic globalization positively affect inclusive growth. Causality tests validated that entrepreneurship and governance have bi-directional causality, a signal of variables' complexity in fostering inclusive development within the continent.

Despite the overwhelming evidence regarding the economic benefits of entrepreneurship and inclusive growth in the direction of poverty alleviation, the literature also leads us to formidable challenges. Policy effectiveness, institutional quality, and resource endowment interact with each other simultaneously to influence the effectiveness of poverty reduction interventions. Countries that cannot escape the traps of poverty and inequality due to governance and infrastructure weaknesses are likely to remain ensnared. However, countries that invest strategically in the development of entrepreneurship, inclusive policies, and structural reforms have a greater chance of achieving more sustainable and equitable growth. The Nigerian experience exemplifies these forces in action and indicates that technological innovation and economic reforms are essential for the success of a more sustainable and inclusive economy capable of alleviating poverty.

3. Methodology

This research employs the Fully Modified Ordinary Least Squares (FMOLS) method to examine the role of entrepreneurship and inclusive growth in reducing poverty in Nigeria from 1990 to 2021. FMOLS, first introduced by Phillips and Hansen (1990) and later extended to panel data by Pedroni (2007) is employed to estimate long-run relationships between integrated variables and sidestep issues of serial correlation and endogeneity. The variables are integrated of I(1) and there is long-run cointegration, and hence FMOLS is appropriate and statistically efficient to use in this research (Lee & Chang, 2008; Onwe, Bandyopadhyay, Hamid, Rej, & Hossain, 2023).

The theoretical foundation of the study is the Keynesian theory of poverty, which views government expenditure and taxation as aggregate demand and welfare stabilizers. The theory is congruent with interventions such as entrepreneurship and inclusive growth policies as mechanisms for poverty reduction using demand-side policy (Maku, Tella, & Fagbohun, 2020).

3.1 Model Specification

Guided by the Keynesian framework, the study models poverty as a function of entrepreneurship, inclusive growth, government expenditure, inequality, taxation, and capital formation. The baseline functional relationship is expressed as:

$$POV_t = f(ENT_t, INGR_t, GEXP_t, INEQ_t, GFCF_t, TAX_t)$$

The model is expressed in a log-linear econometric form as follows:

$$POV_t = \alpha_0 + \beta_1 ENT_t + \beta_2 \log INGR_t + \beta_3 \log GEXP_t + \beta_4 INEQ_t + \beta_5 GFCF_t + \beta_6 LTAX_t + \varepsilon_t$$

To assess the influence of entrepreneurship on inclusive growth, a second model is estimated as:

$$INGR_t = \alpha_0 + \beta_1 ENT_t + \beta_2 \log POV_t + \beta_3 \log GEXP_t + \beta_4 INEQ_t + \beta_5 GFCF_t + \beta_6 LTAX_t + \mu_t$$

Where:

POV_t : Poverty (proxied by per capita income).

$INGR_t$: Inclusive Growth (Proxied by total labor force).

ENT_t : Entrepreneurship (Proxied by total self-employment).

$GEXP_t$: Government Expenditure.

$INEQ_t$: Income Inequality (Gini Coefficient).

$GFCF_t$: Gross Fixed Capital Formation.

$LTAX_t$: Tax Revenue.

α_0 : Intercept.

$\beta_1 - \beta_6$: Long-run parameters.

μ_t, ε_t : Error terms.

3.2. Estimation Technique

The FMOLS estimator corrects for endogeneity and serial correlation in cointegrated regressions. FMOLS adjusts the standard OLS estimator with semi-parametric corrections so that the long-run parameters are asymptotically normal and unbiased.

Following the panel FMOLS framework of Pedroni (2007), with necessary modifications, the estimator is specified as follows:

$$\beta_{FM} = N^{-1} \sum_{i=1}^N (\sum_{t=1}^T (y_t - \bar{y})^2)^{-1} (\sum_{t=1}^T (y_t - \bar{y})) Z_t^* - T_\tau i \quad (1)$$

Where: $Z_t^* = (z_t - \bar{z}) - \frac{L_{2t}}{L_{2i}} \Delta y_t, \tau_i = \pi_{21t} + \varphi_{21t}^0 - \frac{L_{21t}}{L_{22t}} (\pi_{22t} - \varphi_{22t}^0), L_i$ denotes the lower triangular decomposition of φ_i . The similar t-statistics are given as:

$$t_{\beta^*} = N^{-\frac{1}{2}} \sum_{i=1}^N t_{\beta^8} \quad (2)$$

Where $t_{\beta^*, i} = (\beta_i^* - \beta_0)[\varphi_{11i}^{-1} \sum_{t=1}^T (y_t - y)^2]^{1/2}$
These expressions ensure that the estimation accounts for bias and inefficiency resulting from endogeneity and heteroskedasticity in cointegrated systems.

3.3. Data and Sources

Table 1 presents the variables of the study, measurement and sources of data. The study used a secondary dataset extending the period 1990–2021, sourced from the World Bank Development Indicators (WDI) and the Central Bank of Nigeria (CBN). The variables used for the study included poverty, inclusive growth, income inequality, gross fixed capital formation, entrepreneurship, government expenditure, and taxation. Similarly, E-view was used for analysis.

Table 1. Variables measurement and sources of data.

Variable	Measurement/Abbreviation	Source
Poverty	Per capital income (LPOV)	WDI
Inclusive growth	Active Labor Force (LIG)	WDI
Inequality	GINI coefficient (INQ)	WDI
Gross fixed capital formation	GFCF	WDI
Entrepreneurship	Self-employment (ENT)	WDI
Taxation	Total tax income (LTAX)	OECD, CBN
Government expenditure	Total government expenditure (LGEXP)	WDI

4. Result Presentation and Discussion

Table 2 presents the descriptive statistics for the study variables. Poverty (LPOV) had an average index of 7.011015 with a range of 5.599236 and 8.038832, showing overall increasing poverty over the period of study. Entrepreneurship (ENT), with aggregate self-employment as a proxy variable, was at a mean of 82.95162 and ranged between 79.26835 and 85.03133, indicating a continued increase, possibly due to unemployment, high poverty rates, and government momentum. Inclusive growth (LIG), with active labor force as a proxy variable, was at a mean of 17.65332, with very little volatility, showing slow but steady improvement. Government expenditure (LGEXP) was at a mean of 6.022514, with a range of 3.10135 to 7.832994, indicating increasing expenditure that has not seemingly translated into poverty reduction, perhaps due to inefficiency. Inequality (INQ) and gross fixed capital formation (GFCF) had means of 41.47500 and 8.977125, respectively, with inequality potentially contributing to poverty and also reflecting investment tendencies in capital formation. Taxation (LTAX) was at a mean of 14.01916, indicating government revenue generation. The skewness and kurtosis values suggest that most variables are approximately normally distributed, except GFCF, which is leptokurtic in distribution.

Table 2. Descriptive Statistics.

	LPOV	ENT	LIG	LGEXP	INQ	GFCF	LTAX
Mean	7.011015	82.95162	17.65332	6.022514	41.47500	8.977125	14.01916
Median	7.278958	83.17810	17.68096	6.283532	40.10000	8.405000	14.70913
Maximum	8.038832	85.03133	17.98186	7.832994	51.90000	18.77200	16.28155
Minimum	5.599236	79.26835	17.27459	3.180135	35.00000	6.860000	10.55964
Std. Dev.	0.778021	1.915550	0.210734	1.247410	6.403829	2.184002	1.817988
Skewness	-0.244645	-0.312444	-0.238422	-0.822305	0.678807	2.910053	-0.534236
Kurtosis	1.482920	1.634998	1.850343	2.863174	1.964300	13.69310	1.829098
Observations	32	32	32	32	32	32	32
Correlation	LPOV	ENT	LIG	LGEXP	INQ	GFCF	LTAX
LPOV	1						
ENT	-0.89935	1					
LIG	0.909275	-0.93399	1				
LGEXP	0.818797	-0.80747	0.944279	1			
INQ	-0.78902	0.818612	-0.66958	-0.44419	1		
GFCF	0.511617	-0.63018	0.661673	0.59387	-0.47758	1	
LTAX	0.930179	-0.88609	0.980932	0.936285	-0.64759	0.589188	1

The lower part of Table 2 shows a strong negative correlation between entrepreneurship (ENT) and poverty (LPOV) at -0.8994, indicating increasing entrepreneurship and decreasing poverty in Nigeria. Inclusive growth (LIG) is strongly and positively correlated at 0.9093, suggesting that poverty persists despite growth, possibly due to deeper underlying economic structural issues. Government expenditure (LGEXP) is also strongly and positively correlated with poverty at 0.8188, which may indicate wastage and diversion of public spending. Inequality (INQ) is strongly and negatively correlated with poverty at -0.7890. Gross fixed capital formation and taxation are moderately and positively correlated at 0.5116 and 0.9302, respectively, reflecting their multi-dimensional and complex roles in Nigerian poverty dynamics.

Table 3. Unit Root Test-ADF.

	<i>Level</i>	<i>First Diff.</i>	Results
LPOV	-0.6339	-4.2918***	I(1)
ENT	-0.3544	-5.0675***	I(1)
LIG	-1.5495	-3.6732***	I(1)
LGEXP	-2.3348	-6.5072***	I(1)
INQ	-1.0525	-5.3013***	I(1)
GFCF	1.9776	-5.1372***	I(1)
LTAX	-1.8620	-5.1958***	I(1)

Note: *** indicates statistical significance at 1%.

Augmented Dickey-Fuller (ADF) test with an intercept was used to obtain the unit root test result indicated in Table 3 to determine the study variables' stationary properties. None of these variables from the results are stationary at levels and therefore have unit roots. After first differencing, all variables become stationary, showing that they are integrated of order one, I(1). This finding is significant for selecting among stationarity-at-variable-level methods because it rules out methods like bounds cointegration tests. Since these variables' integration order is equal, the study proceeds to apply the Johansen cointegration test to determine whether long-run relationships exist among these variables. This approach allows for stable and accurate estimation of long- and short-run dynamics in the model.

Table 4. Johansen cointegration test summary.

Model	Test type	No. of Cointegrating Equations	Test statistic	Critical value (5%)	P-value	Conclusion
1	Trace statistic	4	213.44	25.62	<0.001	Cointegration confirmed
1	Max eigenvalue	3	73.61	46.23	<0.001	Cointegration confirmed
2	Trace statistic	4	213.44	25.62	<0.001	Cointegration confirmed
2	Max eigenvalue	3	73.61	46.23	<0.001	Cointegration confirmed

Table 4 presents evidence of four cointegrating equations for both models based on the trace statistic and three based on the maximum eigenvalue statistic, and all are significant at 5%. These findings affirm that there is a stable long-run relationship between the variables, and there is a reason why the Fully Modified Ordinary Least Squares (FMOLS) estimator is usable in optimal long-run parameter estimation. The evidence of cointegration supports analyzing both the short-run and long-run relationships among entrepreneurship, inclusive growth, and poverty reduction in Nigeria.

Table 5. Result of the FMOLS for Model One and Two.

Variable	MODEL 1: dependent variable-LPOV				Variable	Model 2: dependent variable- LIG			
	Coefficient	Std error	t-value	p-value		Coefficient	Std error	t-value	p-value
ENT	-0.1379	0.0851	-1.6210	0.118	LPOV	-0.0425	0.0102	-4.1469	0.000
LIG	-4.9047	1.7715	-2.7686	0.010	ENT	-0.0360	0.0035	-10.178	0.000
LGEXP	0.3026	0.1214	2.4927	0.020	LGEXP	0.0384	0.0066	5.7753	0.000
INQ	-0.0469	0.0136	-3.5545	0.001	INQ	-0.0005	0.0009	-0.6084	0.548
GFCF	-0.0166	0.0220	-0.7564	0.456	GFCF	0.0050	0.0012	3.9893	0.000
LTAX	0.5443	0.1235	4.4078	0.000	LTAX	0.0675	0.0056	12.035	0.000
C	97.692	34.947	2.7954	0.010	C	19.738	0.2952	66.846	0.000
	R ² = 0.946		Adj. R ² =0.932			R ² = 0.993		Adj. R ² =0.991	

The FMOLS regression results from Table 5 reveal the complexity of entrepreneurship’s linkages with inclusive growth and poverty in Nigeria. Model 1 shows that entrepreneurship (ENT) has a negative but insignificant effect on poverty (POV) at the 5% level. The conclusion is that although there has been growth in entrepreneurial pursuits fueled by the public and private sectors towards realizing the Sustainable Development Goals (SDGs), entrepreneurship has yet to have its effect on poverty alleviation. The result is most likely due to issues affecting small and medium enterprises (SMEs) that characterize Nigeria’s entrepreneurial environment. Such issues emanate from economic uncertainty caused by unstable exchange rates, aggressive market competition, and high business costs, which together threaten SME growth and survival. It is thus clear that entrepreneurship’s theoretical contribution towards economic development and employment creation, as has been found from other studies (Arejiogbe et al., 2023; Azamat et al., 2023; Kritikos, 2024) thus still lies subject to Nigeria’s economic environment.

Conversely, however, inclusive growth (LIG) has a strong negative impact on poverty, with a value of -4.9047, and each unit increase in inclusive growth lowers poverty by roughly 5%. This aligns with Keynesian economic theory on mass economic participation as a primary cause of poverty alleviation (Keynes, 1936). Despite widespread underemployment and unemployment, even low-quality jobs help reduce poverty. This finding aligns with earlier empirical studies on Nigeria (Adegboyega, 2018) but refutes with others that explained little inclusive growth over decades (Ozughalu & Ogwumike, 2015) an indication of Nigeria's dynamic and fluid nature of its economy.

Model two also reveals a counterintuitive outcome: entrepreneurship negatively and significantly impacts inclusive growth, contrary to its theoretical foundations as well as empirical proof in past studies (Folorunsho et al., 2021; Kritikos, 2024). Such a negative impact may reflect the informal and unregistered nature of most Nigerian SMEs enjoying tax holidays and operating outside formal economic streams, thus their impact on inclusive growth is not realized. This warrants their integration and regularization into formal economic streams to fully exploit their potential.

Expenditure by local governments (LGEXP) is a double-edged sword because it strongly promotes inclusive growth but causes poverty. The irony can only be explained through wastage, misallocation, corruption of public expenditure, theft, and political patronage that push public expenditure away from poverty-reduction programmes, on which rich elites predominantly benefit. Similarly, taxation (LTAX) promotes inclusive growth but discourages poverty reduction and thus must be a discriminatory tax system even towards poor people, thereby worsening economic inequalities.

Inequality (INQ) decreases poverty significantly but has a nonsignificant, adverse effect on inclusive growth. Although a decomposition of inequality is essential for poverty reduction, such impacts may or may not translate into broader economic inclusiveness. Gross fixed capital formation (GFCF) unexpectedly increases poverty, possibly due to reduced investment and a declining capital stock, but positively influences inclusive growth, indicating a close relationship between capital accumulation and sustainable development. These findings reveal complex and sometimes contradictory links between entrepreneurship, poverty, inclusive growth, and fiscal policy in Nigeria.

They highlight the need for comprehensive policy interventions to improve the business climate, enhance public financial management capacity, reduce inequality, and formalize the entrepreneurship environment. Such policies can unlock the full potential of entrepreneurship and inclusive growth as drivers of sustained poverty reduction and economic development.

Table 6. Granger causality.

Null hypothesis:	Obs.	F-Statistic	Prob.
ENT does not Granger Cause POV	30	0.002	0.997
POV does not Granger Cause ENT		3.947	0.032
LIG does not Granger Cause POV	30	2.279	0.123
POV does not Granger Cause LIG		0.359	0.701
LGEXP does not Granger Cause POV	30	2.316	0.119
POV does not Granger Cause LGEXP		0.132	0.876
INQ does not Granger Cause POV	30	4.007	0.030
POV does not Granger Cause INQ		5.603	0.009

The outcome of the Granger causality in Table 6 shows that a unidirectional causality exists between entrepreneurship (ENT) and poverty (POV), running from poverty to entrepreneurship. This result aligns with the findings from the FMOLS regression for model 1. The causality indicates that the primary reason for promoting entrepreneurship in Nigeria, by the government, public and private institutions, and individuals, is poverty reduction. Additionally, there is no causality between inclusive growth (LIG) and poverty (POV) in Nigeria. Similar observations are noted between government expenditure (LGEXP) and poverty (POV). Finally, a bi-directional causality is observed between inequality (INQ) and poverty (POV) in Nigeria, which runs from inequality to poverty and from poverty to inequality, although the magnitude of impact is higher in POV→INQ than in INQ→POV.

5. Discussion of Findings

The FMOLS regression estimates provide a comprehensive explanation of the complex relationships between entrepreneurship, inclusive growth, and poverty reduction in Nigeria. Statistically, entrepreneurship has a weak but negative influence on poverty, indicating that despite increased entrepreneurial activities, these have not necessarily resulted in significant poverty reduction. This may be due to structural challenges faced by SMEs amid economic uncertainty, intense competition, and high operational costs, which weaken their capacity to generate sustainable jobs and income. Consequently, the contribution of entrepreneurship to economic growth and poverty reduction, as extensively documented elsewhere, appears limited by Nigeria's current economic conditions.

In contrast, inclusive growth is negatively and strongly associated with poverty, emphasizing its inherent contribution toward increasing participation and living standards. The outcome aligns with Keynesian economic theory, which considers fair growth to be the key contributor to poverty alleviation. Despite widespread unemployment and underemployment, inclusive growth improves access and reduces poverty. The outcome supports prevailing empirical evidence in Nigeria but is contrary to evidence for narrow inclusiveness over the past few years, indicating Nigeria's complex and dynamic economy.

In contrast to theoretical prediction and empirical evidence, entrepreneurship is negatively and significantly influential on inclusive growth. This is due to informal and unregistered Nigerian enterprises that are tax-relieved and beyond the scope of the formal economy; thus, their influence on inclusive growth is negligible and not effectively captured. This calls for faster formalization and better integration of entrepreneurial activities into the formal economy to maximize their development potential.

Government expenditure is a double-edged sword and a great stimulus for inclusive growth but a cause of poverty. The paradox can be attributed to the fact that government expenditure is wasteful, inefficient, and corrupt, and that political patronage bestows privileges upon vested interest groups at the cost of antipoverty programs. Similarly, taxation serves as a stimulus for inclusive growth but slows down poverty reduction and indicates a regressive tax rate that is levied upon poor people and further intensifies economic inequalities.

Inequality impacts poverty reduction to a large extent without any adverse effect on inclusive growth, an implication that poverty reduction is very responsive to reduced inequality but that reduction by itself does not necessarily make economic inclusiveness. Increased fixed capital formation increases poverty unexpectedly due to decreased investment and shortage of capital but impacts inclusive growth in a positive way, an implication of contribution to sustainable development by accumulation of capital.

Together, these findings reveal the complex and sometimes contradictory relationships among entrepreneurship, inclusive growth, fiscal policy, and poverty reduction in Nigeria. They shed light on the imperative of policy harmonization to improve the business environment, public financial management, and reduce

inequalities, as well as formalize the entrepreneurial economy to maximize the full potential of entrepreneurship and inclusive growth as drivers of poverty reduction and economic development.

6. Conclusion and Policy Recommendations

Inspired by the ongoing problem of poverty in Nigeria, this study empirically examined the dynamic relationships between entrepreneurship development, inclusive growth, and poverty reduction from 1990 to 2021. Using data from the World Bank and the Central Bank of Nigeria, its main goal was to demonstrate a causal relationship between these variables using strong econometric techniques, such as the Granger causality test and the Fully Modified Ordinary Least Squares (FMOLS). The main findings showed that, in contrast to popular opinion, entrepreneurship has a negative and negligible effect on poverty, whereas inclusive growth has a significant negative effect, demonstrating the effectiveness of inclusive growth in reducing poverty. Additionally, it was discovered that entrepreneurship significantly and negatively affected inclusive growth. The results of the causality tests indicated a two-way relationship between poverty and inequality and a one-way relationship between entrepreneurship and poverty. The study concludes that entrepreneurship alone will not be able to fight poverty in Nigeria, but inclusive growth can be a force too strong to resist poverty reduction. Secondly, entrepreneurship's net effect on inclusive growth calls for its further integration within the formal economy through structural transformation. Reducing inequality is a foundation for sustainable poverty reduction.

Priority needs to be given to bridging such gaps by creating an enabling business environment through improving credit access, regulatory simplicity, and infrastructure development. Capacity and skill building through entrepreneurship development programs should be undertaken for entrepreneurs towards their catalytic contribution to poverty alleviation and economic growth. Inclusive growth policies should trickle down to marginalized and vulnerable sections through investment in education, health, and social protection for equitable access to economic opportunities. Public spending must be transparent, accountable, and efficient, and must be used effectively to channel resources into poverty-reducing measures. Tax reform must broaden and simplify the tax base and aim to reduce the tax burden on the poor and transition to a more progressive tax system. Formalization of the entrepreneurs' sector will promote enabling environments and boost the sector's contribution to inclusive growth. Additionally, social protection schemes such as conditional cash transfers, food security schemes, and rural development schemes can be expanded further to improve livelihoods and economic inclusion among the poor. Institution building and governance also play a critical role in ensuring sustained inclusive growth and anti-poverty programs.

Taking a bird's-eye view, a broad and general approach to entrepreneurship, inclusive development and growth, and fiscal management and inequality is at the center of Nigeria's inclusive economic growth and poverty reduction. The implications of institutional factors and comparative interregional research must be examined by subsequent studies to further reveal such complex dynamics.

References

- Abosede, O., Adebayo, F., & Oladele, T. (2013). Entrepreneurship and inclusive growth in developing economies. *Journal of Entrepreneurship and Development*, 5(2), 45–58.
- ABUBAKAR, S. (2023). The role of government in poverty alleviation in Nigeria. *FUO Journal of Management Sciences*, 7(1), 86–94.
- Adanma, U. M., & Ogunbiyi, E. O. (2024). A comparative review of global environmental policies for promoting sustainable development and economic growth. *International Journal of Applied Research in Social Sciences*, 6(5), 954–977.
- Adegboyega, S. B. (2018). Poverty reduction and inclusive growth in Nigeria. *Bulletin of the University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca. Horticulture*, 75(2), 134–141.
- Adejoke, O. I. (2025). Youth educational empowerment through entrepreneurial skills development: A transformative strategy for long-life impact in Lagos State. *Journal of Educational Foundations*, 14(1), 133–147.
- Adenutsi, D. E. (2023). Entrepreneurship, job creation, income empowerment and poverty reduction in low-income economies. *Theoretical Economics Letters*, 13(6), 1579–1598.
- Alaye, A. (2024). Comparative assessment of poverty trends and socioeconomic inequality in Nigerian States. *NIU Journal of Social Sciences*, 10(2), 33–48. <https://doi.org/10.58709/niujs.v10i2.1869>
- Alekhina, V., & Ganelli, G. (2021). Determinants of inclusive growth in ASEAN. *Journal of the Asia Pacific Economy*, 28(3), 1196–1228. <https://doi.org/10.1080/13547860.2021.1981044>
- Ali, D., & Ali, A. H. (2013). Entrepreneurship development and poverty reduction: Empirical survey from Somalia. *American International Journal of Social Science*, 2(3), 108–113.
- Aly, M., Audretsch, D. B., & Grimm, H. (2021). Emotional skills for entrepreneurial success: The promise of entrepreneurship education and policy. *The Journal of Technology Transfer*, 46, 1611–1629. <https://doi.org/10.1007/s10961-021-09866-1>
- Animashaun, E. S., Familoni, B. T., & Onyebuchi, N. C. (2024). Implementing educational technology solutions for sustainable development in emerging markets. *International Journal of Applied Research in Social Sciences*, 6(6), 1158–1168.
- Anuoluwapo, D. (2021). Poverty reduction programmes in Nigeria: Issues and the way forward. *African Journal of Development Studies*, 11(3), 307. https://hdl.handle.net/10520/ejc-aa_affrika1_v11_n3_a15
- Apetu, S., Egbetokun, S., Ajani, S., & Egbenede, M. (2024). The role of innovation and entrepreneurial responses in addressing poverty and promoting the growth and development of the nation. *Editorial Team*, 12(3), 369.
- Arabiyat, T. S., Mdanat, M., & Samawi, G. (2020). Trade openness, inclusive growth, and inequality: Evidence from Jordan. *The Journal of Developing Areas*, 54(1). <https://doi.org/10.1353/jda.2020.0008>
- Arejiogbe, O. E., Moses, C. L., Salau, O. P., Onayemi, O. O., Agada, S. A., Dada, A. E., & Obisesan, O. T. (2023). Bolstering the impact of social entrepreneurship and poverty alleviation for sustainable development in Nigeria. *Sustainability*, 15(8), 6673. <https://doi.org/10.3390/su15086673>
- Audretsch, D. B., Keilbach, M. C., & Lehmann, E. E. (2006). *Entrepreneurship and economic growth*. Oxford: Oxford University Press.
- Ayoo, C. (2022). Poverty reduction strategies in developing countries. *Open Access Library Journal*, 9(5), 1–9.
- Azamat, O., Fayzullokh, S., & Nilufar, A. (2023). The impact of entrepreneurship on poverty reduction. *International Journal of Professional Business Review*, 8(3), e01012. <https://doi.org/10.26668/businessreview/2023.v8i3.1012>
- Baumol, W. J., & Strom, R. J. (2007). Entrepreneurship and economic growth. *Strategic Entrepreneurship Journal*, 1(3–4), 233–237. <https://doi.org/10.1002/sej.26>
- Bonito, J. D. M., Daantos, F. J. A., Mateo, J. C. A., & Rosete, M. (2017). Do entrepreneurship and economic growth affect poverty, income inequality and economic development. *Review of Integrative Business and Economics Research*, 6(1), 33–43.
- Bosma, N., Content, J., Sanders, M., & Stam, E. (2018). Institutions, entrepreneurship, and economic growth in Europe. *Small Business Economics*, 51, 483–499. <https://doi.org/10.1007/s11187-018-0012-x>
- Cerra, V., Eichengreen, B., El-Ganainy, A., & Schindle, M. (2021). *How to achieve inclusive growth*. Oxford: Oxford University Press.
- Cerra, V., Lama, R., & Loayza, N. V. (2021). Links between growth, inequality, and poverty. *International Monetary Fund*, 68, 1–54.

- Deaton, A. (2006). Measuring poverty. *Understanding Poverty*, 3-15.
- Dhar, S., & Farzana, T. (2017). Entrepreneurs with disabilities in Bangladesh: An exploratory study on their entrepreneurial motivation and challenges. *European Journal of Business and Management*, 9(36), 103-114.
- Diyoke, C. I. (2014). Entrepreneurship development in Nigeria: Issues, problems and prospects. *International Journal of technical research and Applications*, 10(1), 19-23.
- Farida, B. (2018). *Impact of national directorate of employment programmes on poverty alleviation in Gombe State*. Zaria: Ahmadu Bello University.
- Folorunsho, M. A., Osinubi, T. T., & Dada, J. T. (2021). Economic globalization, entrepreneurship, and inclusive growth in Africa. *Journal of Economic Integration*, 36(4), 689-717.
- Goniri, A. (2020). Effect of entrepreneurship education on poverty alleviation among graduates of Ramat Polytechnic Maiduguri. *African Scholars Journal of Contemporary Education Research*, 19(2), 221-240.
- Ibrahim, U. S. G. (2024). Poverty alleviation programmes in Nigeria: A critical overview and the way forward. *UNIZIK Journal of Educational Research and Policy Studies*, 18(3), 283-303.
- Ifeoma, A. R., Purity, N.-O., & Yusuf, A. E. (2018). Effect of entrepreneurship development on poverty alleviation in Nigeria. *Journal of Business and Management*, 20(2), 80-87.
- Jaiyeola, A. O., & Bayat, A. (2019). Assessment of trends in income poverty in Nigeria from 2010-2013: An analysis based on the Nigeria General Household Survey. *Journal of Poverty*, 24(3), 185-202. <https://doi.org/10.1080/10875549.2019.1668900>
- Kabeer, N. (2021). Gender equality, inclusive growth, and labour markets. In *Women's economic empowerment* (pp. 13-48). London, UK: Routledge.
- Kareem, R. (2015). Impact of entrepreneurship on poverty alleviation. *Journal of Business Administration and Education*, 7(1), 1-16.
- Keynes, J. M. (1936). *The general theory of employment, interest, and money*. London, UK: Macmillan.
- Kritikos, A. S. (2024). Entrepreneurs and their impact on jobs and economic growth. *IZA World of Labor*.
- Lee, C.-C., & Chang, C.-P. (2008). Energy consumption and economic growth in Asian economies: A more comprehensive analysis using panel data. *Resource and Energy Economics*, 30(1), 50-65. <https://doi.org/10.1016/j.reseneeco.2007.03.003>
- Lee, N., & Sissons, P. (2016). Inclusive growth? The relationship between economic growth and poverty in British cities. *Environment and Planning A: Economy and Space*, 48(11), 2317-2339. <https://doi.org/10.1177/0308518X16656000>
- Maku, O. E., Tella, A. T., & Fagbohun, A. C. (2020). Alleviating poverty in Nigeria: Keynesian vs monetary theory of poverty. *Studia Universitatis Vasile Goldiş Arad, Seria Ştiinţe Economice*, 30(1), 103-120. <https://doi.org/10.2478/sues-2020-0007>
- Migapet, I., Olayemi, K., & Usman, A. (2015). Financial inclusion and inclusive growth in Nigeria. *African Journal of Economic Policy*, 22(1), 102-118.
- Munir, F., & Ullah, S. (2018). Inclusive growth in Pakistan: Measurement and determinants. *The Pakistan Journal of Social Issues*, 6(06), 150-162.
- Obiakor, T., Iheonu, C., & Ihezue, E. (2021). COVID-19 in Nigeria. *Centre for the Study of the Economies of Africa*. [Link].
- Odeyemi¹, O., Oyewole, A. T., Adeoye, O. B., Ofodile⁴, O. C., Addy⁵, W. A., Okoye², C. C., & Ololade, Y. J. (2024). Entrepreneurship in Africa: A review of growth and challenges. *International Journal of Management & Entrepreneurship Research*, 6(3), 608-622.
- Ogidi, A. E. (2014). Women entrepreneurship and poverty reduction. *Journal of Business and Entrepreneurship*, 1(1), 1-8.
- Olayinka, I., Olusegun, A. K., & Babatunde, S. J. (2015). Entrepreneurship and poverty reduction in Nigeria: An empirical analysis. *IOSR Journal of Business and Management*, 17(3), 16-19.
- Onwe, J. C., Bandyopadhyay, A., Hamid, I., Rej, S., & Hossain, M. E. (2023). Environment sustainability through energy transition and globalization in G7 countries: What role does environmental tax play? *Renewable Energy*, 218, 119302. <https://doi.org/10.1016/j.renene.2023.119302>
- Ozughalu, U. M., & Ogwumike, F. O. (2015). Inclusive growth and poverty reduction in Nigeria. *Bullion*, 39(4), 15-27.
- Pedroni, P. (2007). Panel cointegration: Asymptotic and finite sample properties of pooled time series tests with an application to the PPP hypothesis. *Econometric Theory*, 23(5), 597-625.
- Phillips, P. C., & Hansen, B. E. (1990). Statistical inference in instrumental variables regression with I (1) processes. *The Review of Economic Studies*, 57(1), 99-125. <https://doi.org/10.2307/2297545>
- Ranieri, R., & Almeida Ramos, R. (2013). *Inclusive growth: Building up a concept*. Retrieved from
- Samans, R., Blanke, J., Corrigan, G., & Drzeniek, M. (2015). *The inclusive growth and development report 2015*. Geneva, Switzerland: World Economic Forum.
- Schumpeter, J. A. (1934). *The theory of economic development: An inquiry into profits, capital, credit, interest, and the business cycle* (R. Opie, Trans.). Cambridge, MA: Harvard University Press.
- Shuaibu, H., Bin Kamin, Y., Muhammad Isa, U., & Musa Cledumas, A. (2021). *The concept of entrepreneurship*. London, UK: IntechOpen.
- Si, S., Ahlstrom, D., Wei, J., & Cullen, J. (2021). Introduction: Business, entrepreneurship and innovation toward poverty reduction. Business, entrepreneurship and innovation toward poverty reduction. In (pp. 1-20). London, UK: Routledge.
- Uchenna, A. C., Onyekachi, M. O., & Chinwe, M. O. V. (2018). Value creation through entrepreneurship: Implications for job creation in Nigeria. *Global Journal of Commerce & Management Perspective*, 7(1), 1-16.
- Udukeke, F. O., & Usoro, E. B. (2023). *Entrepreneurship and innovation*. Enugu, Nigeria: Dorand Publisher.
- UNDP. (2013). *Inclusive growth: A sustainable perspective*. Retrieved from <https://www.undp.org/sites/g/files/zskgke326/files/migration/in/inclusive-growth--a-sustainable-perspective.pdf>
- Urbano, D., Aparicio, S., & Audretsch, D. (2019). Twenty-five years of research on institutions, entrepreneurship, and economic growth: What has been learned? *Small Business Economics*, 53, 21-49. <https://doi.org/10.1007/s11187-018-0038-0>
- Wilson, G. (1996). Toward a revised framework for examining beliefs about the causes of poverty. *Sociological Quarterly*, 37(3), 413-428. <https://doi.org/10.1111/j.1533-8525.1996.tb00746.x>
- Yero, H. u. I., & Abdu, M. (2024). Effect of government policies and support for poverty alleviation of SSEs Owners in Kano and Niger States, Nigeria. *UNIZIK Journal of Marketing*, 1(3), 66-83.