Journal of Economics Education and Entrepreneurship
Vol. 6, No. 1, April 2025, pp. 99-108
https://ppjp.ulm.ac.id/journals/index.php/jee/issue/view/882
ISSN: 2746-5438 (Print) | 2745-729X (Online)

School Enrollment, Investment in Entrepreneurship Education and Sustainable Poverty Reduction in Nigeria

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Article Info

Keywords:
Education
School enrollment
Entrepreneurship
Investment
Poverty

A B S T R A C T

School enrollment produced a significant reductive impact on investment in entrepreneurship and poverty reduction. The purpose of this study is to determine the nature of interactive effect of school enrollment on entrepreneurship and sustainable poverty reduction in Nigeria. The approach adopted for the study is quantitative research with monthly secondary data from 1990-2022, a data set covering 384 data sets sourced from the Nigeria Bureau of Statistics (NBS) and Central Bank of Nigeria (CBN) statistical bulletin. The analysis used by the study is the Auto-regressive distributed lag method which provided the framework for short and long run interactive effect. The results of the study showed that school enrollment interacted with investment in entrepreneurship reduce poverty in the long run. Also, investment in entrepreneurship showed lagged negative effect on poverty reduction. This implies that boosting school enrollment plays a vital role in augmenting the relationship between investment in entrepreneurship and sustainable poverty reduction in Nigeria. Therefore, education policy should be tailored toward enhancing school enrollment in school where pedagogical activities have been fashioned towards skill acquisition so as to promote the growth of entrepreneurial education and sustained reduction of poverty in Nigeria.

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Submitted 11 Sept 2024; Accepted 2 April 2025; Published 30 April 2025

How to cite: Adeagbo, J. O. & Adeoti, J. P. O (2025). School Enrollment, Investment in Entrepreneurship Education and Sustainable Poverty Reduction in Nigeria. *Journal of Economics Education and Entrepreneurship, 6*(1), 99-108. https://doi.org/10.20527/jee.v6i1.13448.

1. INTRODUCTION

Entrepreneurial activities have been touted to be very crucial to the growth of a nation. It has the potential to create creative thinking that leads to innovative venture. The level of innovation in entrepreneurs produces new business venture and generates employment opportunities which has the potential to reduce poverty. Knowledge, skills and creativity generated by entrepreneurial education enables individuals to identify opportunities in form of societal needs

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and be able to develop solutions that meet such opportunities. In meeting such needs essential services are created, varieties of commodities are provided to meet the surging desires of would be consumers. The higher the investment to create the quest for entrepreneurial pursuit the higher the potential of individuals to break free from constraining web of poverty (Meshack, Orji and Ogechukwu 2022).

In Nigeria, poverty has become endemic and multi-dimensional owing to various economic, social and political factors. Also, it has been linked to years of persistent rapid population growth without corresponding increase in productivity, corruption, economic mismanagement and instability in oil prices occasioned by external shocks (Ozoh, Metu, Stephen and Madueke 2020). The nature of poverty in Nigeria is also rural where over 70% of people are said to be poor compared to only about 40% in the urban area, although this differs from region to region. Additionally, in terms of intensity of poverty in rural areas have about 42% poverty intensity in relation to about 37% in the urban areas (MPI, 2022). In 2018, about 40.1% amounting to 82.9 million were under the national poverty line while 39.1% were said to be under the international poverty line within the same period (World Bank, 2021).

In a bid to check the rising incidence of poverty in Nigeria, government as well as other stakeholders has identified programmes to empower individual citizens and so have come up with different ones in recent period which include N-Power programmes, Conditional Cash transfer, Trader-Money programmes etc which are meant to promote entrepreneurial prowess of the citizens. Despite these and many other various attempts directed at improving the standard of living not much has been achieved, in fact level of poverty has increased significantly because of the depreciating value of Naira and the attendant increase in the level of inflation in the country. Investment in entrepreneurship education has been identified as a key to every entrepreneurial venture as it determines how far the entrepreneur will be able to grow the business to a sustainable level. The knowledge of financial literacy and risk management strategies cannot be adequately assessed by entrepreneurs without adequate education and training. The capacity to lift entrepreneurial activities beyond the boundary of subsistence lies within the scale of investment in training and education of an individual. Therefore, the interactive role played by access to education becomes very imperative in analyzing the nexus between entrepreneurial development and poverty reduction.

Based on research development, impact of investment in entrepreneurship on poverty reduction through employment creation have been well explored in the literature (Hussain, Bhuiyan & Bakar 2014; Lateh, Hussain & Abdullah 2018; Ezeanyeji, Imoagwu & Ejetobihi 2019; Dialoke, Joseph & Ogbu 2019; Umoh & Ekpo 2023 and Azamat, Fayzullokh & Nihifer 2023). However the interactive role played by school enrollment in engendering sustainability of this relationship has not been well accounted for in the literature. Therefore, this study fills existing gap by examining the nature of relationship as well as the interactive role of school enrollment on investment in entrepreneurship and sustainable poverty reduction in Nigeria.

There have been several attempts to relate entrepreneurship to poverty reduction. For instance, Dialoke, et. Al (2017) found entrepreneurship to be positively related to poverty eradication. There was a significant effect of entrepreneurship on poverty eradication and higher entrepreneurial activities were found to also significantly decline poverty level. This view was also canvassed by Umoh and Ekpo (2023) that in order to promote job creation and wealth acquisition, entrepreneurship training must be vigorously pursued and instituted across communities. Obafemi and Araoye (2020) also opined that entrepreneurship development is pivotal to employment generation and poverty alleviation and self-sustenance. This is however possible if adequate infrastructure which includes establishing thriving programmes through higher educational institutions is put in place.

In a separate view, Arejiogbe, Moses, Salau, Onayemi, Agada, Dada and Obisesan (2023) used structural and measurement modeling approach to investigate social entrepreneurship as possible significant predictor of poverty alleviation. This study found sustainable social entrepreneurship programme as fundamental to addressing poverty problem, hence, innovative and entrepreneurial education must be vigorously implemented to achieve sustainable development in Nigeria. The relevance of entrepreneurship development was also stressed as a stimulating factor for generating employment and dealing with poverty headlong (Bhuiyan, Said and Halim 2017).

Olayinka, Olusegun and Babatunde (2015) empirically contributed to the study of entrepreneurship and poverty issues. From a stratified random sampling of 500 respondents and OLS application, there existed a positive and significant relationship between entrepreneurship and poverty reduction. However, this relationship can be sustainable when entrepreneurial skills acquisition and training is embedded in primary, secondary and tertiary education curriculum. This will boost productivity of individuals engaged in such training and provide them with crucial skills for generating sustained job as well as weapons for fighting unemployment and poverty.

The need to increase access to education through primary school, secondary and tertiary enrolment becomes imperative so as to prevent the vicious cycle of poverty among the citizens (Cookson and Darling-Hammond, 2022). Turning education to be poverty responsive will not only end spread of poverty but also instill in each child the capacity to generate further innovations that makes better future a reality and promote inclusivity of every educated child in the growth processes (Salis, 2021). The linkage between school enrolment and poverty reduction has also been stressed to be necessary for achievement of sustainable goals especially those relating to industry and innovation (UNESCO, 2017).

In fact increase in school enrolment has contributed significantly to the increasing rate of finance based entrepreneurial ventures and endowment and have also strengthens the nexus between access to education and increase in marginal productivity which measures quality of individual decision making (OECD, 2012; World Bank, 2019). The question of whether educational spending improves the quality of students' outcomes was the focus of Jackson, Johnson and Persico (2015). The study found that higher spending increases the school quality and enhances students' enrolment and that investment in education is worthwhile.

Although literature has taken care of relationship between investment in entrepreneurial education and poverty reduction as well as nexus between poverty and school enrolment, there is still gap left in the role played by school enrolment on the relationship between investment in entrepreneurial education and sustainable poverty reduction. Also, in the area of methodology, studies in the literature have focused mainly on the use of primary data in analyzing the nexus between entrepreneurial education and poverty. This study intends to fill this gap using econometrics technique of Autoregressive Distributed Lag (ARDL) model to investigate the interactive role of school enrolment on the relationship between investment in entrepreneurial education and sustainable poverty reduction in Nigeria.

2. METHOD

Based on the discussed framework, implicit formulation of a functional model for this study is stated as: $POVT = f(SEMPL, EDXPD, SENRL, DOCPS)$ …….. (1)

Notes: POVT is Poverty ; SEMPL is Total Self Employment (proxy for investment in entrepreneurship); EDXPD is Investment in Public Education; SENRL is School Enrolment

DOCPS is Domestic Credit to Private Sector; Equation (1) can be rewritten in econometric terms thus;

$$POVT_t = \delta_0 + \delta_1 SEMPL_t + \delta_2 EDXPD_t + \delta_3 SENRL_t + \delta_4 DOCPS_t + \varepsilon_t) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Linearizing equation (2) gives

$$POVT_t = \delta_0 + \delta_1 \ln SEMPL_t + \delta_2 \ln EDXPD_t + \delta_3 \ln SENRL_t + \delta_4 \ln DOCPS_t + \varepsilon_t) \quad \ldots\ldots\ldots\ldots\ldots\ldots (3)$$

To account for the interactive role of school enrolment on the nexus between investment in entrepreneurship and sustainable poverty reduction equation (3) is re-specified to show the interactive term thus;

$$POVT_t = \delta_0 + \delta_1 \ln SEMPL_t + \delta_2 \ln EDXPD_t + \delta_3 \ln SENRL_t + \delta_4 \ln(SEMPL_t * SENRL_t) + \delta_5 \ln DOCPS_t + \varepsilon_t)$$

------(4)

Equation (4) depicts the interactive term $\ln(SEMPL_t * SENRL_t)$ which shows how the interaction of school enrolment and entrepreneurship will impact poverty reduction. The ARDL model of Pesaran, et. al. (2001) is used to determine the interactive role. Thus equation (4) is re-stated thus;

$$\Delta POVT_t = \alpha_0 + \varphi_1 POVT_{t-1} + \varphi_2 \ln SEMPL_{t-1} + \varphi_3 \ln EDXPD_{t-1} + \ln SENRL_{t-1} + \varphi_5 \ln(SEMPL_{t-1} * SENRL_{t-1})$$

$$+ \varphi_6 \ln DOCPS_{t-1} + \sum_{i=1}^{p} \beta_i \Delta POVT_{t-i} + \sum_{i=0}^{p} \chi_i \Delta \ln SEMPL_{t-i} + \sum_{i=0}^{p} \delta_i \Delta \ln EDXPD_{t-i} + \sum_{i=0}^{p} \lambda_i \Delta \ln SENRL_{t-i}$$

$$+ \sum_{i=0}^{p} \gamma_i \Delta(SEMPL_{t-i} * SENRL_{t-i}) + \sum_{i=0}^{p} \eta_i \Delta \ln DOCPS_{t-i} + \mu_t ----------(5)$$

3. RESULTS AND DISCUSSION

To facilitate understanding and reading, the research results are described first and then followed by discussion (Drnovšek et al., 2010). The results and discussion subtitles are presented separately. This section must be the most part, at least 60% of the entire body of the article (N. Saraih et al., 2018).

3.1 Results

The mean and median values of the data set falls within the maximum and minimum values as contained in Table 1. LNSENRL, LNSEMPL, and LNDOCPS have positively skewed values while POVT and LNEDXPD are negatively skewed. The value of Kurtosis for POVT, LNSEMPL and LNEDXPD are lower than their respective values of Jarque-Bera, suggesting that these variables are normally distributed. The closeness of the mean and median values of these variables also supports this claim. However, the Jarque-Bera values did not support the validity of normal distribution for LNSENRL and LNDOCPS as their respective Kurtosis values are greater than their Jarque-Bera values. The standard deviation shows that variables are not widely dispersed from the average values in the series.

Table 1. Descriptive Properties of Data Series

	POVT	LNSENRL	LNSEMPL	LNLEXPC	LNEDXPD	LNDOCPS
Mean	3.969818	4.489877	4.417337	3.891448	4.271573	2.285504
Median	3.878000	4.481460	4.415487	3.897863	4.779275	2.290594
Maximum	5.633000	4.607047	4.454318	3.968592	6.555327	2.976835
Minimum	0.000000	4.336808	4.396316	3.817427	-1.233408	1.600906
Std. Dev.	0.891461	0.071622	0.017356	0.055761	1.969938	0.337642

	POVT	LNSENRL	LNSEMPL	LNLEXPC	LNEDXPD	LNDOCPS
Skewness	-2.317802	0.026395	1.068058	-0.060739	-0.980425	0.007013
Kurtosis	13.46200	2.127865	3.062657	1.415168	3.332541	2.439196
Jarque-Bera	180.0456	1.049683	6.089221	3.473869	5.438830	0.432710
Probability	0.000000	0.591649	0.047615	0.176059	0.065913	0.805449

Source: Author's Computation, (2024)

Unit Root Test

The result of unit root test confirms a mixed order of integration among the variables of the study. From Table 2, only LNSEMPL become stationary at levels, hence the variable is I(0). Four other variables; POVT, LNSENRL, LNEDEXP and LNDOCPS become stationary after their first difference and are therefore I(1) variables. The mixture of I(0) and I(1) variables in our model justifies the use of ARDL method of Pesaran et al. (2001) in analyzing the interactive role of school enrolment on entrepreneurship and poverty reduction.

Table 2. Result of Unit Root Test

	ADF AT LEVELS			ADF FIRST DIFFERENCE			
Variable	ADF TEST	1%	5%	ADF TEST	1%	5%	REMARK
POVT	-1.642876	-3.661661	-2.960411	-10.90888	-4.284580	-3.562882	I (1)
LNSENRL	2.372165	-3.661661	-2.960411	-6.384894	-4.284580	-3.562882	I (1)
LNSEMPL	-5.122240	-3.661661	-2.960411	-	-4.284580	-3.562882	I(0)
LNEDEXP	-1.473621	-3.661661	-2.960411	-3.644283	-4.284580	-3.562882	I(1)
LNDOCPS	-2.352523	-3.661661	-2.960411	-5.050210	-4.284580	-3.562882	I(1)

Source: Author's Computation (2024)

Table 3. Result of Bound Test

Variables	F-statistics	Cointegration
F (POVT/LNSEMPL, LNEDEXP, LNENROL, LNDPSEC)	2.8546	
Critical Values	Lower Bound	Upper Bound
1%	3.74	5.06
5%	2.86	4.01
10%	2.45	3.52
	F-statistics	Cointegration
F(POVT/LNSEMPL* LNENROL, LNEDEXP, LNDPSEC)	3.3025	
Critical Values	Lower Bound	Upper Bound
1%	3.74	5.06
5%	2.86	4.01
10%	2.45	3.52

Source: Author's Computation (2024)

Table 3 showed the result of a Bound test for determination of a long run relationship. The calculated F-statistics of 2.856 revealed a lower value than the upper critical value of Bound test of Pesaran et al., (2001) at 5% significance level. This confirms that no long run relationship exist among the variables in this model. Thus, the short run model for equation (5) is estimated to obtain short-run coefficients. Additionally, the interaction of school enrollment with investment in entrepreneurship also confirm a short run relationship with poverty reduction. This implies that incorporating entrepreneurship education with school enrollment results in poverty reduction.

From the estimated coefficients of short run ARDL model in Table 4, school enrolment shows significant reductive impact on poverty. Specifically, 1% increase in school enrolment will reduce poverty by 0.65% in the short run ($t=-3.74;\ p<0.05$). Likewise, increase in investment in entrepreneurship will not reduce poverty immediately until after a lag period

(time t(-1)). Specifically 1% increase in investment in entrepreneurship in the immediate past period reduces poverty by 14.42% (*t=-4.02; p<0.05*). There is also an immediate impact of education expenditure on poverty as 1% increase in education expenditure reduces poverty level by 0.07%. The result also shows that domestic credit to private sector brings about a reduction in poverty by 0.19% in the lag period (*t=-2.59; p<0.05*). This result conforms to a-priori expectation and shows that credit to SMEs will improve business performance and investment which will translate to more profits and expansion of business interest leading to poverty reduction. This finding supports the position of Gabriel and Umemezia (2019) that SMEs are a major source of creating and generating employment opportunities as well as revenue for the government.

Table 4. Result of ARDL Short Run Model without Interaction of Variables

Variable	Coefficient	Standard Error	t-Statistic	Probability
D(POVT(-1))	1.000405	0.018549	53.931988	0.0000
D(LNSENRL)	-0.65674	0.175683	-3.738226	0.0002
D(LNSENRL(-1))	0.669928	0.179582	3.730486	0.0002
D(LNSEMPL)	15.524190	3.588505	4.326089	0.0000
D(LNSEMPL(-1))	-14.428525	3.591099	-4.017858	0.0001
D(LNEDXPD(-1))	-0.072873	0.014885	-4.895693	0.0000
D(LNDOCPS)	0.188330	0.071789	2.623396	0.0091
D(LNDOCPS(-1))	-0.187265	0.072072	-2.598319	0.0097
ECT(-1)	-0.004938	0.002254	-2.190848	0.0291

Source: Author's Computation (2024)

Table 5. Result of ARDL Short Run Model with Interaction of Variables

Variable	Coefficient	Standard Error	t-Statistic	Probability
D(POVT(-1))	0.992751	0.013731	72.299972	0.0000
D(LNSEMPL*SENRL)	-0.422354	0.167899	-2.515530	0.0123
D(LNSEMPL*SENRL(-1))	0.460330	0.167332	2.751005	0.0062
D(LNEDXPD)	0.058860	0.012548	4.690616	0.0000
D(LNEDXPD(-1))	-0.055742	0.012415	-4.489995	0.0000
D(LNDOCPS)	-0.002314	0.002090	-1.107169	0.2689
ECT(-1)	-0.002531	0.000736	-3.437521	0.0007

Source: Author's Computation (2024)

Table 5 showed that school enrollment is interacted with investment in entrepreneurship. From the result, the interactive effect of school enrollment with investment in entrepreneurship brought about reduction in poverty by 0.42% in the immediate period (*t=-2.52; p<0.05*). The lagged value of education expenditure also significantly reduced poverty by 0.05% (*t= -4.49; p<0.05*) while the short run effect of domestic credit to private sector also caused poverty to reduce by 0.002% although the effect is not significant at 5% (*t= -1.11; p>0.05*).

Table 6. Result of ARDL Long Run Model with Interaction of Variables

Variable	Coefficient	Standard Error	t-Statistic	Probability
LNSEMPL*SENRL	-3.423963	2.695177	-1.270404	0.2047
LNEDXPD	0.118506	0.118641	0.998858	0.3185
LNDOCPS	-0.914202	0.797907	-1.145749	0.2526
C	36.033151	24.898560	1.447198	0.1487

Source: Author's Computation (2024)

In the long run, result from Table 6 showed that the interactive effect of school enrolment and investment in entrepreneurship on poverty is negative confirming that the combined effect of school enrollment and investment in entrepreneurship will reduce poverty in the long run, although the result is significant at 10% (*t= -1.27; p>0.05*). This finding aligns with European Commission (2016) report that supporting entrepreneurship with education remains the most sustainable means of inculcating enduring skills in young ones who in future time will launch entrepreneurial ventures that will reduce endemic poverty level in the society. The coefficient of education expenditure shows 1% increase in education expenditure caused poverty to increase by 0.11% in the long run. This result shows expenditure of government on education is not sufficient to create incentives that will lead to poverty reduction. This result runs contrary to Adeoti (2015) that investment in education triggers more entrepreneurial engagement and consequently reduces poverty. However, domestic credit to private sector reduces poverty in the long run. 1% increase in domestic credit to private sector causes poverty to reduce by 0.91% (*t=-1.14, p>0.05*).

3.2 Discussion

Before estimating equation (5) for interactive effect, we check for the existence of a long run relationship among the variables. Table 3 shows the result of a Bound test for determination of a long run relationship. The calculated F-statistics of 2.856 shows a lower value than the upper critical value of Bound test of Pesaran et al., (2001). This confirms that no long run relationship exist among the variables in this model. Thus, the short run model for equation (5) is estimated to obtain short run coefficients. From the estimated coefficients of short run ARDL model in Table 4, school enrolment shows significant reductive impact on poverty. Specifically, 1% increase in school enrolment will reduce poverty by 0.65% in the short run (t=-3.74; p<0.05). Likewise, increase in investment in entrepreneurship will not reduce poverty immediately until after a lag period (time t(-1)). Specifically 1% increase in investment in entrepreneurship in the immediate past period reduces poverty by 14.42% (t=-4.02; p<0.05). There is also an immediate impact of education expenditure on poverty as 1% increase in education expenditure reduces poverty level by 0.07%. The result also shows that domestic credit to private sector brings about a reduction in poverty by 0.19% in the lag period (t=-2.59; p<0.05). This result conforms to a-priori expectation and shows that credit to SMEs will improve business performance and investment which will translate to more profits and expansion of business interest leading to poverty reduction. This finding supports the position of Gabriel and Umemezia (2019) that SMEs are a major source of creating and generating employment opportunities as well as revenue for the government.

The interaction of school enrollment with investment in entrepreneurship is very critical to national development. From the results obtained, there is a clear nexus underpinning the importance of joint pursuit of incorporating acquisition of skills and practice of entrepreneurial venture into schooling. This position is in line with the human capital theory which posited that investment in education and training enables development of critical productive capacity from where capability to generate employment and increase income is enhanced and the process ultimately lead to poverty reduction. There is a short run interplay in which the joint effect of school enrollment and investment in entrepreneurship caused a significant level of poverty reduction. Specifically, for a combined percentage increase in school enrollment and investment in entrepreneurship, poverty reduced by about 0.42% immediately and poverty reduced further after the lagged period by about 0.46%. This result is a significant improvement over what was obtained when there was no interaction of the the variables. Only school enrollment without interaction caused poverty to reduce by about 0.65% whereas investment in education did not cause poverty to reduce until after the lagged period. This result also buttress

the position of the human capital theory that education with investment in entrepreneurial training serve to equip people with skills, knowledge and competency for developing and successfully drive business innovations. The context of school enrollment together with investment in entrepreneurship also inculcated in the individual the proficiency to overcome barriers often militating against successful business drives. This connection successfully places direct and indirect economic value on knowledge transfer and entrepreneurship spirit. The findings discussed in this study reinforce previous studies by Azamat, fayzullokh and nilufar (2023); Ezeanyeji, Imoagwu and Ejefibihi (2019) which confirmed that entrepreneurship have direct impact in reducing poverty.

4. CONCLUSION

The interactive role of school enrolment with investment in entrepreneurship was examined using ARDL technique and the result shows that there is a significant negative short run effect of the interaction on poverty. The result also shows that education expenditure is not sufficiently influencing poverty negatively but domestic credit to private sector reduces poverty significantly in the short run. The negative effect of interaction of school enrolment with investment in entrepreneurship on poverty is evidence that education and entrepreneurial policies in the country must be jointly executed to produce a significant reduction in poverty in the country. These policies must be complementary rather than being substitutes in order to bring about a desirable impact on skill acquisition, job creation through entrepreneurial activities that is backed by sufficient literacy rate and eventual poverty reduction. In addition, government expenditure on education must be significantly increased to cater for provision of adequate skill acquisition programmes and practical oriented education curriculum. This will cater for acquisition of skills that individuals need to be a job creator and not job seekers so as to reduce the poverty level in the society. There is also the need to vigorously pursue targeted credit policy towards private sector and the self-employed because this will stimulate higher investment and productivity that is also capable of addressing the scourge of poverty among the teeming unemployed in the country. Furthermore, government should encourage access to basic education and also enforce the compulsory attendance at school so that each child will be equipped with requisite knowledge that is necessary for realization of objective of a literate society. This is needed to build a formidable future workforce that will promote higher productivity and reduce the population under poverty. Similarly, political will irrespective of party in government that will continue to implement gains of previous policies on education enrolment, school based entrepreneurial training, job creation and poverty reduction should be strongly encouraged.

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