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# Does entrepreneurship improve the livelihood of young people? Evidence from the NDE program beneficiaries in Kano state, Nigeria

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MANAGEMENT | RESEARCH ARTICLE

# Does entrepreneurship improve the livelihood of young people? Evidence from the NDE program beneficiaries in Kano state, Nigeria

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**Abstract:** Entrepreneurship has evolved into a valuable tool for facilitating job creation in response to Nigeria's youth bulge and declining job opportunities in the formal sector. This study assessed the impact of entrepreneurship on youths' livelihood, focusing on the National Directorate of Employment (NDE) program in Kano state. The study employed both qualitative and quantitative methods. A total of 266 respondents, including 148 young entrepreneurs and 118 non-entrepreneurs, were sampled using a multi-stage sampling technique, with Focused Group Discussions (FGDs) used to collect qualitative data from 25 youths. Data were analyzed using descriptive statistics and an Endogenous Switching Treatment Effect Regression (ESTER) model. The descriptive analysis showed that engagement in entrepreneurship was determined by age, having consistent income source, credit access, number of entrepreneurs in the household, access to entrepreneurship training, household size, and asset ownership. Even though entrepreneurs earned higher monthly income than non-entrepreneurs, their income was just slightly above the Nigerian minimum wage. Furthermore, asset ownership, access to credit, group membership, and access to training, all of which are strong predictors of entrepreneurship, were higher among entrepreneurs compared to non-entrepreneurs. The findings also revealed that entrepreneurs had better livelihood outcomes, as measured by income and self-assessed living condition, than non-entrepreneurs. Even though these outcomes could have resulted from other externalities, the empirical analysis helped to address such endogeneity, thereby attributing the outcome estimates solely to entrepreneurship. These results, therefore, show the relevance of entrepreneurship in alleviating poverty and generating better livelihood outcomes for young Nigerians.

**Subjects: Development Studies; Sustainable Development; Business, Management and Accounting;**

**Keywords: entrepreneurship; youths' livelihood; entrepreneurship programs; Nigeria**

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## 1. Introduction

Nigeria is considered a high-active population country based on its large youthful population. According to the Federal Ministry of Youth and Sports Development (2019), over 60% of the population is aged between 18 and 35 years old, an age category that defines Youth. While this could be considered an economic asset in terms of human resources (Adeyanju et al., 2021), there is little or no evidence that it has translated into appreciative economic progress over the years (Alimi et al., 2021). This is due, in part, to the high rate of unemployment and underemployment among young Nigerians, particularly those residing in rural areas. The National Bureau of Statistics (NBS) (2021) reported that the combined rate of youth unemployment and underemployment rose to 53.4 percent in the fourth quarter of 2020, up from 40.80 percent in the second quarter, indicating a 24 percent increase in the space of three months.

Underemployment is especially severe among young graduates, who are forced to accept low-wage jobs in private primary and secondary schools that pay less than 10,000 naira per month (Eseyin et al., 2021). This corroborates Longe (2017) that graduate youth unemployment is by far one of the most challenging issues Nigeria continues to struggle with. Unemployment and underemployment are closely linked to poverty and insecurity, two concepts that are common among Nigerian youths. Their negative implications are also reflected in vices such as increasing rates of cybercrimes, kidnapping, Boko Haram terrorism, banditry, etc (Adenike, 2021). This is supported by (Onwuzuruigbo, 2021) who attributed the high crime and insecurity rates in the northern region to youth unemployment and low literacy.

According to Adeyanju et al. (2021), these ongoing issues, as well as future predictions of extreme severity, have increased the demand for program- and policy-level intervention to reduce unemployment and its associated negative outcomes. It is believed that any effort aimed at tackling insecurity must also focus on tackling the issue of youth unemployment and under-employment. While it may take a while to fully achieve the job creation goals highlighted in the Sustainable Development Goal (SDG) 8, the Federal Government of Nigeria has made concerted efforts to promote a shift from conventional job creation towards entrepreneurship. The introduction of entrepreneurship education in higher education in 2013 and the Skills Acquisition and Entrepreneurship Department (SAED) program for recent graduates are two notable examples (Aliu & Ibe, 2008; Olorundare & Kayode, 2014). The common goal of these programs is to sensitize and mobilize young people for skill acquisition and subsequently, reduce the rate of unemployment and improve youths' livelihood.

The drive behind entrepreneurship is based on its impacts on job creation and poverty reduction in developed countries (Asogwa & Dim, 2016), and the benefits embedded in creating job providers against job seekers. In this context, unemployment is considered as a push factor which could motivate young people to join entrepreneurship. Martínez-Cañas et al. (2023) describe this as a negative factor which create entrepreneurs out of necessity and may not reflect individual's true willingness to start a business enterprise. Young people may have little or no choice but to create their own jobs in the face of declining formal job opportunities and alternative career options. However, some youths may choose entrepreneurship over formal employment out of personal desire to become a business owner. Martínez-Cañas et al. (2023) described this as a pull motivational factor that could have positive impact on entrepreneurial success. Regardless of the driving factors, the concept of entrepreneurship revolves around self-sustenance, creating wealth, and reducing unemployment, thereby increasing economic growth in the country. Also, it involves identifying business or investment opportunities, mobilizing resources, and exploiting the opportunities through persistence.

In recent years, youth entrepreneurship has gained some more importance as a means of endorsing employment opportunities and stimulating local, regional, and all-around development in Nigeria (Sitoula, 2015). The continuous emphasis on youth entrepreneurship as a livelihood strategy is closely linked to the declining job opportunities in the formal sector and the inability of the sector to absorb the growing youth population. This is supported by Olorundare and Kayode (2014) who strongly opined that entrepreneurship brings about social changes through income

and wealth generation. To this end, the Nigerian government has shown its commitment to youth entrepreneurship development in the country. For instance, the entrepreneurship and skills acquisition program of the National Directorate of Employment (NDE) was introduced to improve the livelihood of young Nigerians.

Other programs and policy measures introduced by successive governments include the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN), National Economic Empowerment and Development Strategy (NEEDS), Youth Enterprise with Innovation in Nigeria (YouWin), Graduate Internship Scheme (GIS), Nigerian Youth Employment Action Plan (NIYEAP), Subsidy Reinvestment and Empowerment Program (SURE-P), N-Power program, and Youth Empowerment in Agricultural Program (YEAP). In addition to national efforts, there are growing commitments of development partners including the World Bank, Mastercard Foundation, African Leadership Academy (ALA), and Tony Elumelu Foundation, among others, to support local stakeholders in facilitating youth entrepreneurship development in Nigeria.

Even though there are reports that these efforts hold considerable gainful and sustainable economic opportunities and benefits for young people (Girard, 2016; Koira, 2014), it is still plagued with various challenges which have raised doubts about program impacts and the tendency of entrepreneurship to lift youths out of poverty (Ajibo & Lum, 2015). Also, despite the long existence of such efforts, there is limited practical evidence to show their impacts on youth livelihood. This lack of empirical evidence shows the need for rigorous empirical research, against the normal theoretical documentation, to verify and support the theoretical claims and understand the impact of entrepreneurship on the youths' livelihood. It is for this reason that the study examines the impact of entrepreneurship on the livelihood of young Nigerians with a focus on the entrepreneurs trained under the NDE program in Kano State. The main hypothesis tested is that youth engagement in entrepreneurship have a significant impact on their income and living condition. Thus, we compared the outcomes of young entrepreneurs and non-entreprenurs within the study's context. It is believed that the results of this study will be of great use to policymakers in formulating practical and evidence-based policy on the subject.

## 2. Literature review

### *2.1. Overview of youth entrepreneurship in Nigeria*

Entrepreneurship as a pathway to sustainably reduce unemployment, generate income, and improve youth livelihood, as well as attain a decent standard of living has been widely discussed (Amjad et al., 2020; Kim et al., 2018; Lukeš et al., 2019). According to Orga et al. (2021), the concept of entrepreneurship has become a panacea to sustainable job creation and an important accelerator of economic growth and development in both developed and developing countries. This is supported by Kimmitt et al. (2020) who argue that engagement in entrepreneurship helps to expand the employment choices of individuals, thereby raising the possibility of earning additional income. Within the context of this study, an entrepreneur is regarded as an individual with innovative ideas, who plans, undertakes risks, runs, and manages a business enterprise, as well as maximizes business opportunities for profit-making (Boldureanu et al., 2020).

In recent times, youth entrepreneurship has gained momentum with many young Nigerians as SME venture owners (Betcherman & Khan, 2018; Ogamba, 2018). This is also facilitated by the Nigerian government and other development partners' efforts reflected in different training and entrepreneurship programs implemented over the years. An example is the NDE program which was launched by the Federal Government of Nigeria (FGN) in 1986 to strategically deal with rising youth unemployment and poverty among young people and more recently, the YOUWIN program aimed at creating a new generation of young business owners and employers of labor. Evidence abounds on the significance of these programs in harnessing the entrepreneurial mindset of youth and promoting job creation (Ogunmodede et al., 2020; Olonade et al., 2022; Omeje et al., 2020).

Also, theoretical evidence suggests that entrepreneurship has the potential to increase individual prosperity and that of their dependents (Sutter et al., 2019), help in mitigating the negative effects of poverty by improving living conditions, or at the very least preventing living conditions from deteriorating further (Chliova et al., 2015), and promote income generation and improve consumption, thereby enhancing better livelihoods (Kimmitt et al., 2020). However, there is a dearth of empirical evidence on the link between entrepreneurship and youth livelihoods. This is supported by Ogamba (2018) who argued that while the general idea behind youth entrepreneurship is appealing, entrepreneurship may not generate positive outcomes for young people without an enabling environment. This is because young people face several constraints in starting, managing, and expanding their businesses. For instance, Liu et al. (2019) identified limited entrepreneurship experience and financial independence as two major factors constraining youth entrepreneurship. Other studies have identified a lack of market, lack of creditworthiness, lack of education and training, lack of mentorship, government regulations, and poor entrepreneurial skills, among other factors as critical challenges facing young entrepreneurs in Africa (Adeyanju et al., 2021; Ahmed & Ahmed, 2021; Gunewardena & Seck, 2020; Ogamba, 2018).

The issues discussed so far raises an urgent need for an enabling environment and support system for young entrepreneurs. However, practical policy targeting requires an empirical understanding of the benefits of entrepreneurship and if indeed engagement in entrepreneurship generates better livelihood outcomes for youths. The current study aims to generate empirical evidence to support the theoretical claims and practical policies on youth entrepreneurship by assessing the impact of entrepreneurship on youths' livelihoods and identifying factors influencing youth engagement in entrepreneurship.

### *2.2. The NDE program*

The NDE program was launched by the Federal Government of Nigeria (FGN) in 1986 as a strategy to deal with unemployment and poverty. The general concept is self-enterprise, which promotes self-employment and self-reliance over wage work. The program has four core components including National Youth Employment and Vocational Skills Development program, Small Scale Industries and Graduate Employment program, Agricultural Sector Employment program, and Special Public Works program. The major goal of these components was to equip young Nigerians with productive and marketable skills required for establishing and managing a business enterprise. In addition to receiving technical support and mentorship, beneficiaries enjoy low taxes and other support services provided by the Federal Government to enhance job creation. The program has been successful in mobilizing youths for self-employment, thereby raising a large number of young entrepreneurs across Nigeria. The NDE is Nigeria's apex agency for employment creation among young people (National Directorate of Employment [NDE], 2005, p. 22), and emphasizes self-reliance and entrepreneurship. Thus, it provides a proper platform for accessing the impact of entrepreneurship among young people, considering its long existence and the large number of entrepreneurs it has produced over the years (Ejiogu & Nwajiuba, 2012).

## 3. Materials and method

### *3.1. Study area*

The study was conducted in Kano state, situated in North-Western Nigeria (Figure 1). Kano State is the commercial hub of Northern Nigeria and its capital, Kano, is the second largest city after Lagos. According to the National Bureau of Statistics (2017), Kano is the most populated state in Nigeria with an estimated population of over 13 million. This high population provides a large market for entrepreneurs and anyone engaged in commercial activities. Despite the abundance of natural and human resources, the state ranked in the top seven states with the highest unemployed population in 2020, with a combined rate of unemployment and underemployment of 56.56% (NBS, 2021).

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To reduce this high rate of unemployment and efficiently utilize the available resources, different entrepreneurship programs have been implemented by different government regimes and development partners. An example is the entrepreneurship and skills acquisition program of the NDE which has been in existence for the last two decades. By sector, Agriculture, Forestry, and Fishing engage about one-third (29.5%) of the population, followed by Transport and Storage (25.6%), and Accommodation and Food Service Activity (19.2%) (National Bureau of Statistics, 2010). The choice of Kano state is based on its high youth population, level of commercial activities, and the continuous efforts of development organizations (e.g., Mastercard Foundation, International Institute of Tropical Agriculture, etc.) to eradicate poverty and generate sustainable employment opportunities for young people in the state. Also, Kano state has witnessed an enormous number of entrepreneurship programs over the years. Examples include the NDE, Arewa Entrepreneurship program, the Small and Medium Enterprises Development Agency of Nigeria, and various life skill programs by Mercy Corp.

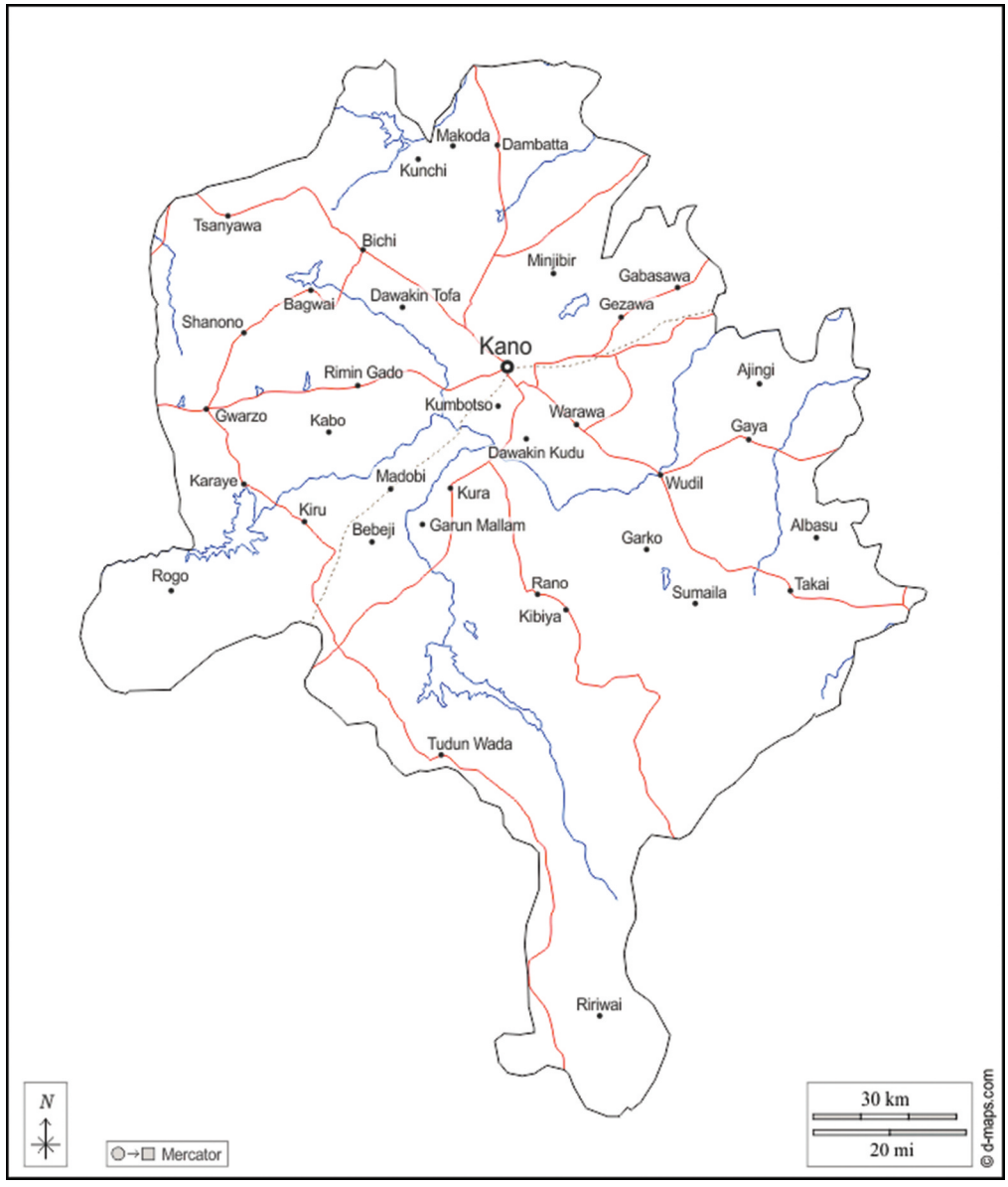


**Figure 1. Map of the study Areas.**

### *3.2. Data and sampling procedure*

The survey was conducted between February—March 2021. Specifically, quantitative data were collected on important variables which were grouped into different categories including Demographic Information, Entrepreneurship Training, and Livelihood indicators. Data was also collected on socio-economic characteristics such as age, gender, education, and marital status. Data was analysed using Stata 14.

The population of interest in this research is young beneficiaries of the entrepreneurship and skills acquisition program of the NDE in Kano state. The research primarily focused on two youth groups, entrepreneurs who were directly trained under the NDE program and a comparison group of non-entrepreneurs within the same age category.

In selecting the respondents, the study adopted a multi-stage sampling technique which was implemented as follows:

a. In stage 1, the study population was stratified into two groups (entrepreneurs and non-entrepreneurs).
b. Stage 2 involved the random selection of respondents from the two groups.

In implementing this, two lists were obtained from the NDE coordinating office in Kano State. The lists provided information on the entrepreneurship status of the target population. The first list comprised young entrepreneurs who were trained and supported under the entrepreneurship and skills acquisition program of the Directorate. This served as the first sampling frame used in selecting the treatment group. The second list comprised non-entrepreneurs, who have been selected to participate in the next round of the program but, have not participated due to the pandemic and were not engaged in entrepreneurship. This list served as the second sampling frame which was used to select the control group. For data protection and guidance, sampling from the lists was done together with the assistant state coordinator and program managers. Following this, a random sampling technique was used to select the prospective respondents (using random numbers generated on Microsoft Excel). This was to ensure that all the units within each group had equal chances of being selected. Upon successful sampling, selected youths were contacted via phone calls to seek their consent to be a part of the survey. In compliance with COVID-19 measures, the respondents were invited in batches to avoid overcrowding. The entire selection and contacting process were facilitated by the assistant state coordinator and two of the program managers.

### *3.3. Econometric estimation*

#### *3.3.1. Assessing the determinants of entrepreneurship and its impact on youth livelihood*

Assessing these objectives using a pooled regression model may not yield efficient results. Thus, to account for possible endogeneity, the determinant of entrepreneurship and impact on livelihood were assessed using an Endogenous Switching Treatment Effect Regression (ESTER) model.

#### *3.3.2. The Endogenous Switching Treatment Effect Regression (ESTER) model*

The ESTER model follows a two-step estimation procedure whose first stage assesses the determinants of youth entrepreneurship using a binary model. The first stage model (assignment equation) is specified in Equation (1);

$$A_i* = K_i\alpha + \varepsilon \text{i} \tag{1}$$

Where:

$A_i$ is a binary variable that equals 1 if a youth is an entrepreneur and 0 if otherwise.
α is the vector parameter to be estimated

$K_i$ represents other covariates determining entrepreneurship such as the youth demographic characteristics (such as age, gender, education, marital status, household size), institutional support (credit access, training, group membership), etc. The variables included in the model are presented in Table A.1 in the Appendix.
$\varepsilon_i$ is the error term

From Equation (1), the reduced form selection (entrepreneurship engagement) equation can be specified as expressed in Equation (2)

$$A_i = \begin{cases} 1 \; if \; A_i^* > 0 \\ 0 \; otherwise \end{cases} \tag{2}$$

The second stage estimates the Average Treatment Effect (ATE) of a linear regression which includes the endogenous binary-treatment variable. The outcome equations (income and self-assessed living conditions) corrected for endogeneity are given as:

$$\text{Regime 1} : Y_{1i} = \beta_1 X_{1i} + \sigma_{1\varepsilon}\hat{\lambda}_{1i} + \eta_{1i} \text{ if } A_i = 1(\text{Entrepreneurs}) \tag{3}$$

$$\text{Regime 2} : Y_{2i} = \beta_2 X_{2i} + \sigma_{2\varepsilon}\hat{\lambda}_{2i} + \eta_{2i} \text{ if } A_i = 0\,(\text{Non} - \text{entrepreneurs}) \tag{4}$$

Where $Y_i$ is the outcome variables (Income and self-assessed living conditions), $X_i$ represents the vector of explanatory variables, β and $\sigma$ are the parameters to be estimated, $\hat{\lambda}[\hat{\lambda}_1, \hat{\lambda}_2]$ is the Inverse Mill Ratio (IMR) computed from the selection equation to correct for selection bias, and $\eta$ is the error term.

The Average Treatment effect on the Treated and Untreated (ATT and ATU) was computed using the results for expected values of the dependent variable for entrepreneurs and non-entrepreneurs in actual and counterfactual scenarios:

$$\mathrm{E}(Y_{1i}|A_i = 1, X_{1i}) = \beta_1 X_{1i} + \sigma_{\eta 1\varepsilon}\,\rho_1 \frac{\phi(K_i\hat{\alpha})}{\varphi(K_i\hat{\alpha})} \tag{5}$$

$$\mathrm{E}(Y_{2i}|A_i = 0, X_{2i}) = \beta_1 X_{2i} - \sigma_{\eta 2\varepsilon}\rho_1 \frac{\phi(K_i\hat{\alpha})}{(1 - \varphi(K_i\hat{\alpha}))} \tag{6}$$

$$\mathrm{E}(Y_{2i}|A_i = 1, X_{1i}) = \beta_2 X_{1i} + \sigma_{\eta 2\varepsilon}\,\rho_2 \frac{\phi(K_i\hat{\alpha})}{\varphi(K_i\hat{\alpha})} \tag{7}$$

$$\mathrm{E}(Y_{1i}|A_i = 0, X_{2i}) = \beta_2 X_{2i} - \sigma_{\eta 1\varepsilon}\,\rho_2 \frac{\phi(K_i\hat{\alpha})}{(1 - \varphi(K_i\hat{\alpha}))} \tag{8}$$

$\phi$ and $\varphi$ are the probability density and cumulative distribution function of the standard normal distribution, respectively. $\rho_1$ and $\rho_2$are correlation coefficients between the selection equation error term, $\varepsilon_i$ and the error terms of the outcome equations $\eta_1$ and $\eta_2$. $\sigma_{\eta_1\varepsilon}$ and $\sigma_{\eta_2\varepsilon}$ are covariance of $\varepsilon_i$, $\eta_{1i}$and $\eta_{2i}$respectively. The actual scenario presented in Equations (4) and (5) represents the outcome of an actual young entrepreneur and non-entreprenur, respectively which shows the actual average treatment effect on the treated and untreated. Equations (6) and (7) provides the outcome for two counterfactual scenarios whereby an entrepreneur is assumed to be untreated (i.e., not engaged in entrepreneurship) while a non-entreprenur is assumed to be treated (i.e., engaged in entrepreneurship).

The ATT is calculated as the difference between Equations 4 and 6 (i.e., the difference between the actual and counterfactual scenario for an entrepreneur) as specified in 8

$$\mathrm{ATT} = \mathrm{E}(Y_{1i}|A_i = 1, X_{1i}) - \mathrm{E}(Y_{2i}|A_i = 1, X_{1i} \tag{9}$$

The ATU is calculated as the difference between Equations 5 and 7 (i.e., the difference between the actual and counterfactual scenario for a non-entrepreneur) as specified in 9

$$\mathrm{ATU} = \mathrm{E}(Y_{1i}|A_i = 0, X_{2i}) - \mathrm{E}(Y_{2i}|A_i = 0, X_{2i} \tag{10}$$

**Table 1. Socioeconomic and Demographic characteristics of the respondents**

| Variable | Pooled | Entrepreneurs (*n* = 148) | Non-entrepreneurs (*n* = 118) | z-value |
|---|---|---|---|---|
| Age | 25.76 | 26.58 | 24.74 | −2.94*** |
| Gender (Male) | 41.35 | 45.95 | 35.59 | −1.70* |
| Marital status (Married) | 43.61 | 48.65 | 37.29 | −1.86* |
| Years of formal education | 12.96 | 12.53 | 13.51 | 2.43** |
| Household size | 9.16 | 8.98 | 9.38 | 0.59 |
| Household head (Yes) | 31.20 | 37.84 | 22.88 | −2.62*** |
| *Current residence* | | | | |
| Rural area | 6.35 | 6.76 | 5.93 | 0.28 |
| Metropolitan city | 88.92 | 9.54 | 87.29 | |
| Large city | 4.74 | 2.70 | 6.78 | |
| Migration (Yes) | 26.32 | 22.97 | 3.51 | −1.39 |
| Dependents (Yes) | 68.05 | 68.92 | 66.95 | −0.34 |
| Consistent income (Yes) | 53.01 | 66.89 | 35.59 | −5.08*** |
| Income | 19197.93 | 26159.80 | 10466.10 | −5.21*** |
| Number of Entrepreneurs in Household | 2.69 | 3.06 | 2.23 | −2.67*** |
| Asset index | .33 | .40 | .24 | −6.26*** |
| Contribution to household expenses (yes) | 78.11 | 91.89 | 6.68 | −6.10*** |
| Perception of Entrepreneurship (Profitable) | 91.35 | 93.24 | 88.98 | −1.23 |

Source: *Author's computation using STATA 14*.

*Significant at 10%, ** Significant at 5%, ***Significant at 1%.

## 4. Results and discussion

### *4.1. Socioeconomic and demographic characteristics of the respondents*

The dataset contains 266 respondents, out of which 56% are entrepreneurs. Entrepreneurs had a mean age of 27 years, while non-entrepreneurs had a mean of 25 years (Table 1). The difference between the mean ages of the two groups was significant at 1%. About 45.95% of the entrepreneurs were male against 35.59% of the non-entrepreneurs. The difference between the two groups when disaggregated by gender was significant at 10%. Regardless of this low significance level, the higher percentage of female entrepreneurs recorded indicates a changing trend in the entrepreneurial gender gap which has been in favor of males for decades. Also, it suggests that despite facing more challenges than their counterparts, more females are taking up entrepreneurship as a livelihood option. About 49% of the entrepreneurs were married compared to 37% of the non-entrepreneurs. The difference between the two groups was statistically significant at 10%.

On average, non-entrepreneurs had more years of formal education (14 years) compared to entrepreneurs (13 years). This high level of literacy among both groups could be attributed to the high value placed on education in Nigeria. According to FAO (2018), literacy rates have been increasing in Nigeria since 1991, growing from 66.4 percent in 2008 to 79.9 percent in 2015. The

two means were significantly different at 5%. Generally, the respondents had an average household size of nine persons. The household size was defined as the number of people who live and dine together. This result is contrary to Hyeladi et al. (2014) who found that the mean household size in Nigeria is between four and six persons. However, this result was expected since northern Nigeria is known for large households.

Compared to the non-entrepreneurs, about 38% of the entrepreneurs were household heads, indicating more responsibilities and the possibility of having a diversified income source. This could also be attributed to the larger percentage of married people among the entrepreneurs. A larger percentage (30.51%) of non-entrepreneurs compared to entrepreneurs (22.97%) had migrated to their current residence for reasons related to education/training, employment, and family-related issues.

Despite having a higher single-to-married ratio, over 68% of the entrepreneurs had people who depended on them for livelihood compared with 66.95% of the non-entrepreneurs. This is surprising given that the majority are not household heads, but it could be because they have a source of income. This also establishes the level of family ties in the northern region. The majority of the entrepreneurs (91.89%) compared with non-entrepreneurs (60.68%) contributed to household expenses. As expected, a larger percentage (66.89%) of entrepreneurs compared with non-entrepreneurs (35.59%) had a consistent source of income. This validates evidence from the FGD that entrepreneurship provides sustainable income for young people. This also explains why the majority made contributions to their household expenses and had dependents. There appears to be a direct link between these variables. For example, having a consistent source of income could fuel contributions to household expenses.

The average monthly income of entrepreneurs and non-entrepreneurs was 26,160 naira and 10,466 nairas, respectively. This indicates that entrepreneurs earned higher income compared to those who are not engaged in entrepreneurship. However, both groups' incomes are lower than the Nigerian minimum wage, which suggests that youth employed in other forms of employment may be underpaid. The difference between the two groups was significant at less than 1%.Based on the analysis, asset ownership was below average for both groups. However, entrepreneurs had a higher index score of 0.4 compared to non-entrepreneurs (0.24). The higher score of entrepreneurs could be attributed to ownership of business equipment since the index was measured as a composite function of personal and business assets. The difference was significant at 1%.

Overall, young people's career choices, especially the very young ones, are more likely to be influenced by family trends and opinions. Thus, those who come from entrepreneurial households may choose to follow the career trends of their families compared to their counterparts. This corroborates the analysis which showed that entrepreneurs had more business owners in their households than non-entrepreneurs. The difference between the two groups was significant at 1%.

**Table 2. Institutional characteristics of the respondents**

| Variable | Pooled | Entrepreneurs (*n* = 148) | Non-entrepreneurs (*n* = 118) | z-value |
|---|---|---|---|---|
| Credit need (Yes) | 9.80 | 93.88 | 86.41 | −2.01** |
| Credit access (Yes) | 4.51 | 7.43 | .85 | −2.57*** |
| Training (Yes) | 62.03 | 74.32 | 46.61 | −4.63*** |
| Group membership (Yes) | 12.03 | 15.54 | 7.63 | −1.97** |

Source: *Author's computation using STATA 14.*

**Significant at 10%, ** Significant at 5%, ***Significant at 1%.*

### *4.2. Institutional characteristics of the respondents*

Table 2 presents the institutional characteristics of the respondents disaggregated by entrepreneurship status. The results show that a higher proportion of the respondents (90.80%) needed credit, but only a few (4.51%) had access to it. Compared with non-entrepreneurs, more entrepreneurs (93.88%) needed and had access (7.43%) to credit. The two groups were statistically different based on credit need and credit access at 5% and less than 1% level of significance, respectively. The low percentage of respondents who had access to credit support existing reports that young entrepreneurs face a stringent challenge in accessing credit from formal sources because they lack the required collaterals and have limited financial knowledge (Herrington & Coduras, 2019; Hussain et al., 2019; Ogamba, 2018). According to Orobia et al. (2020), many young entrepreneurs depend on personal savings and family finance, indicating low levels of capital that may not support business expansion and large-scale operations.

Availability and access to credit facilities enable entrepreneurs to pay bills, obtain inventory, and finance other business activities (Orobia et al., 2020). Also, business survival depends on the availability of funds for business operations. Thus, interventions to improve access to finance are crucial to promoting youth entrepreneurship and subsequently helping alleviate poverty among young people.

A higher percentage (74.32%) of entrepreneurs had access to entrepreneurship training compared with non-entrepreneurs where less than 50% have participated in any form of entrepreneurship training. This could be attributed to the social capital associated with entrepreneurship. Thus, compared to non-entrepreneurs, entrepreneurs are more likely to get current information on entrepreneurship programs. Also, program organizers are more likely to target existing entrepreneurs and related groups. The difference between the two groups was significant at 1%. According to Babu et al. (2020), young entrepreneurs are inexperienced and low-skilled. Thus, entrepreneurship training is important to help young entrepreneurs acquire/improve their entrepreneurial skills and capabilities, which will lead to better business performance and sustainability.

Group membership was relatively low (7.63%) among non-entrepreneurs compared to entrepreneurs (15.54%). Nevertheless, the overall proportion (12.03%) of respondents who belonged to a group or association is considered low and could suggest a low level of social capital among young people. The difference between the two groups was significant at 5 percent.

### *4.3. Impact of entrepreneurship on youth's livelihoods*

Two outcome variables, average monthly income, and self-assessed living conditions ranked between 1–10 were used as proxies for youth livelihood. Table 3 presents the estimation results for the model with average monthly income as the outcome variable.

According to Abdulai and Huffman (2014), proper specification of the model requires the inclusion of at least one explanatory variable in the treatment equation (entrepreneurship) which directly affects the decision to engage in entrepreneurship but does not directly influence the outcome variable (average income). Accordingly, two variables (Number of entrepreneurs in the household and access to entrepreneurship training) were imposed as the exclusive restrictions to identify the model. The signs and significance of the covariance terms (ρ1 and ρ2) indicate the existence of self-selection in the decision to engage in entrepreneurship. This implies that entrepreneurship may not have the same effect on non-entrepreneurs if they choose to engage (Abdulai & Huffman, 2014). Also, the significance of the likelihood ratio test indicates the existence of joint dependence between the treatment and outcome equations of entrepreneurs and non-entrepreneurs. The description, measurements, and sign expectations of the variables used in the regression analysis are presented in Table A1 in the Appendix.

### *4.4. Determinants of youth engagement in entrepreneurship*

The second column of Table 3 reports the estimates for the determinants of youths' decision to engage in entrepreneurship. Age as an explanatory variable was positive and significantly related to the decision to engage in entrepreneurship, suggesting that older youths are more likely to engage in entrepreneurship compared to younger ones. This could be attributed to the inverse link

**Table 3. Full information maximum likelihood estimates of the EnSTER model for average monthly income**

| Variables | Model Estimates | | |
|---|---|---|---|
| | **Entrepreneurship** | **Entrepreneurs** | **Non-Entrepreneurs** |
| Age | 0.054 (0.02)*** | 0.050(0.02)*** | −0.037(0.03) |
| Gender | 0.198(0.19) | 0.225(0.17) | 0.303(0.25) |
| log(Years of formal education) | −0.100(0.22) | 0.526(0.19)*** | 0.364(0.33) |
| Marital status | −0.013(0.21) | −0.455(0.19)** | 0.010(0.28) |
| log(Household size) | −0.285(0.17)* | −0.201(0.15) | 0.187(0.22) |
| Migration status | −0.165(0.21) | −0.506(0.20)*** | 0.184(0.26) |
| Number of dependents | −0.168(0.20) | 0.093(0.20) | 0.163(0.25) |
| Consistent source of income | 0.616(0.19)*** | 0.002(0.22) | −0.242(0.29) |
| Asset ownership | −0.438(0.19)** | 0.431(0.19)** | 0.567(0.26)** |
| Credit Access | 1.182(0.54)** | −0.181(0.35) | 0.919(0.94) |
| Group Membership | 0.141(0.27) | −0.009(0.24) | 0.923(0.39)** |
| No of Household Entrepreneurs | 0.107(0.03)*** | | |
| Entrepreneurship Training | 0.552(0.19)*** | | |
| _cons | −0.943(−0.94) | 8.017(0.90)*** | 6.666(1.17)*** |
| ρ1, ρ2 | | −0.700(0.26)* | 0.917(0.05)*** |
| **Model Diagnosis** | | | |
| Wald chi2 | 50.02*** | | |
| Log-Likelihood | −491.89 | | |
| LR test of independence | 17.93*** | | |

Source: Stata output using survey data.

Notes: *Standard error in parenthesis.*

**Significant at 10%, ** Significant at 5%, ***Significant at 1%.*

between age and dependency in real life. As people grow older, they become less dependent on their parents for livelihood and become more conscious of their economic status and the need for a sustainable source of income (Adeyanju et al., 2021). Thus, the bulk of responsibilities associated with adulthood may inspire entrepreneurship decisions among older youths. This also corroborates Nwigwe (2010) who argued that younger youths may not take up entrepreneurship since they are more likely to be enrolled in school. However, the result contradicts Hatak et al. (2015) who argued that older people are less likely to invest their resources in risky activities with uncertain paybacks.

Household size had a negative and significant influence on entrepreneurship decisions, suggesting that those from large households are less likely to engage in entrepreneurship. This could be attributed to the high reliance of young people on family funds coupled with the tough competition for family resources which reduces the tendency to acquire start-up capital. As documented in entrepreneurship literature, family represents a critical and often used resource for start-ups and young entrepreneurs rely heavily on their families for capital (Cetindamar et al., 2012; Sharma, 2014). This corroborates evidence from the FGD that entrepreneurship engagement is fuelled by family support/resources. One of the participants revealed that:

> as a young person, getting funding and other support for a business idea is not a pot of beans at all. If not for family support, many youth-owned enterprises wouldn't have gone beyond the ideation stage.

Another participant, who had to partner with her siblings to set us a business enterprise, added that:

> Family inheritance is shared amongst many people, including uncles and aunts. What I got after my father's demise was too little to start up anything. I had to partner with my siblings to set up something just to keep up with life.

This, however, contradicts Cetindamar et al. (2012) who found a positive relationship between family size and youth's likelihood to engage in entrepreneurship in Turkey. However, what was regarded as a large household (5-6 persons) in their study is below the average household size (9 persons) found in the current study.

The analysis showed that having a consistent source of income increased youths' likelihood to engage in entrepreneurship. This is because having a consistent source of income indicates some level of financial capital that may fuel entrepreneurship activities through personal savings. This corroborates existing evidence that suggests that the largest source of start-up funding for young entrepreneurs, particularly in developing countries, is personal savings (Yadav et al., 2018). This is also supported by Soldi and Cavallini (2017) who found that the availability of financial capital positively influences entrepreneurship among young people.

The negative and significant relationship between asset ownership and entrepreneurship suggests that a higher asset index reduces the propensity to engage in entrepreneurship. This could be because an asset is a measure of wealth that implies better economic status. This result is, however, contrary to Dunn and Holtz-Eakin (2000) who found a modest quantitative effect of asset ownership on youths' transition to self-employment.

As expected, access to credit facilities had a positive and significant influence on entrepreneurship, suggesting that those who have access to credit have a higher likelihood of engaging in entrepreneurship. It is well documented that while the decision to engage in self-employment is largely determined by access to credit, many young people do not have the avenue to accumulate the amount of capital needed to start a viable business (Khan & Anuar, 2018; Olugbola, 2017; Rusu & Roman, 2020; Yadav et al., 2018). This places access to credit facilities among the strong determinants of entrepreneurship and also explains why it ranked high among the barriers facing young entrepreneurs (Adeyanju et al., 2021). According to Chen and Bellavitis (2020), youths' access to financial resources eases their transition into entrepreneurship because financial resources are required to run and sustain a business. This also supports the argument of Sharma (2014) that those from rich homes find it easier to start a business enterprise than their counterparts.

Several studies have established that youths who grew up in entrepreneurial households have a greater propensity to choose an entrepreneurial career compared to their peers (Lindquist et al., 2015; Olomi & Sinyamule, 2009; Sharma, 2014; Tong et al., 2011). Similar to these studies, the number of household entrepreneurs was positive and significant at 1%, indicating that those from households with more entrepreneurs are more likely to engage in entrepreneurship. This is because youths from entrepreneurial households must have been better socialized to entrepreneurial careers and environments, thereby influencing them to start their own businesses. Martínez-Cañas et al. (2023) found that living in an environment where family members and friends are entrepreneurs can lead to a strong desire to start own business. This could be attributed to several factors. First, having relatives with entrepreneurial experience can help individuals perceive entrepreneurial activity as attractive and foster legitimacy (Hanlon & Saunders, 2007). Secondly, inexperienced youths willing to start a business may view their close relatives as a vital source of support, who can help them to avoid costly errors during the start up stage. This form of social contact can also act as a link between entrepreneurial intent and business creation (Ruiz-Palomino & Martínez-Cañas, 2021). Additionally, Edelman et al. (2016) posits that family-based social contact may help in accessing existing family social capital which could ease start-up stress.

Training had a positive and significant influence on entrepreneurship, suggesting that those who have received any form of entrepreneurship training are more likely to engage in entrepreneurship. This is because many entrepreneurship training programs aim at addressing issues relating to young people's relatively lower level of technical and business skills and bridging their entrepreneurial experience gap. This corroborates Olugbola (2017) who noted that entrepreneurship training provides a platform for skills acquisition and helps young people to develop certain entrepreneurial abilities. In addition, Haftendorn and Salzano (2003) noted that it provides support services, such as mentorship, which helps young people to scale their business ideas beyond the ideation stage to create viable businesses with higher survival rates. This result also corroborates Seun and Kalsom (2015) who reported that entrepreneurship training moderates the relationship between entrepreneurial ability and readiness toward the creation of new ventures. Similarly, Martínez-Cañas et al. (2023) argued that such trainings could direct young people toward entrepreneurial endeavors while also boosting their confidence in starting their own businesses. Entrepreneurship training could also help young people identify relevant business opportunities and develop good business proposals which could be useful in attracting seed capital during the startup stage.

### *4.5. Determinants of the income*

The model estimates of the explanatory variables against average monthly income for entrepreneurs and non-entrepreneurs are presented in the third and fourth columns of Table 3. While age was insignificant for the non-entrepreneurs, it shows a positive and statistically significant result for the entrepreneurs, suggesting that as people grow older, their income also increases. This could be attributed to the direct relationship between age and work experience. Thus, as people age, they become more conversant with both the input and output markets which subsequently, influences their income. This further explains why YEs recorded higher income compared to their younger counterparts and supports FitzRoy et al. (2013) who noted that personal income increases with age.

Also for entrepreneurs, years of formal education had a positive and significant influence on income but was insignificant for non-entrepreneurs. This implies that one additional year of formal education increased entrepreneurs' income by 53%. According to FitzRoy et al. (2013), education is highly correlated with income. Thus, its positive and significant influence on income for entrepreneurs is expected. This supports Détang-Dessendre et al. (2004) who found a strong positive relationship between income and high levels of education. It is, however, surprising that education was insignificant for non-entrepreneurs since higher levels denote higher rank in the formal sector. A possible explanation could be that a majority of the non-entrepreneurs are not engaged in high-income earning sectors that could yield higher income. This further suggests that young non-entrepreneurs may be underpaid.

At a 5% level of significance, marital status was negatively correlated with the income of entrepreneurs but, had no significant influence on that of non-entrepreneurs (Table 3). This implies that married entrepreneurs earn lesser income compared to those who are not married. This could be because marital status comes with additional responsibilities and commitments which may reduce productive hours. According to Ahituv and Lerman (2005), married people, especially women, work for lesser hours due to family commitments and obligations. On the other hand, singles are assumed to have better control of their work hours. This corroborates Madalozzo (2008) who found that single women in the United States have 25.6% higher income than their married colleagues.

While migration status was negative and significant for entrepreneurs, it was insignificant for non-entrepreneurs. This result could be attributed to the stress of relocation and the challenges of building a strong customer base in a new environment. Luttrell et al. (2009) noted that the relationship between migration and income depends on the type of labor market an individual is engaged. While the income of those engaged in the formal sector with job security may not be significantly affected by migration, migrant entrepreneurs have limited social capital and access to productive resources and these may negatively influence their income-generating ability. The findings contradict Luttrell et al. (2009) who found no significant relationship between short-run

migration status and income. The authors, however, envisaged a direct significant relationship in the long run.

As expected, asset ownership was positive and significant for both entrepreneurs and non-entrepreneurs, suggesting that income increases with asset ownership. Assets are considered investments that can generate income in the long run. This result corroborates Abdelhak et al. (2012) who found that asset ownership enhances household income.

### *4.6. Determinants of living condition*

The results of the EnSTER model with living conditions as the outcome variable are presented in Table 4. The dependent variable is an individual's self-reported living condition which was measured on a 10-point scale, 0 being the lowest value, while 10 is reported by individuals who are very satisfied with their living condition.

The estimates for the determinants of entrepreneurship, which are common with the income model, are similar for both models in terms of direction with some variation in the significance level. Access to credit and group membership were replaced by household wealth status and the employment status of the household head, respectively in the livelihood model. The model estimates for gender showed no significant influence on the living conditions of entrepreneurs but had a negative and significant effect for non-entrepreneurs. This could be because of the additional responsibilities attributed to being a male in the African context. This was, however,

**Table 4. Full information max. likelihood estimates of the EnSTER model for living condition**

| **Variables** | **Model Estimates** | | |
|---|---|---|---|
| | **Entrepreneurship** | **Entrepreneurs** | **Non-Entrepreneurs** |
| Age | 0.067(0.02)*** | −0.003(0.01) | −0.026(0.02) |
| Gender | 0.322(0.19)* | 0.084(0.09) | −0.242(0.13)* |
| log(Years of formal education) | −0.049(0.24) | −0.022(0.09) | 0.138(0.20) |
| Marital status | −0.024(0.22) | 0.182(0.10)* | −0.018(0.15) |
| log(Household size) | −0.199(0.18) | 0.187(0.07)*** | 0.114(0.12) |
| Migration status | −0.245(0.22) | 0.433(0.10)*** | 0.170(0.13) |
| Number of dependents | −0.015(0.03) | −0.039(0.01)*** | −0.020(0.02) |
| Consistent source of income | 0.786(0.19)*** | 0.017(0.10) | −0.062(0.16) |
| Asset ownership | −0.497(0.20)*** | 0.048(0.10) | 0.276(0.14)** |
| log(Household wealth status) | 0.389(0.16)*** | 0.442(0.08)*** | 0.312(0.10)*** |
| Household head employment type | −0.025(0.05) | 0.039(0.02)* | 0.096(0.03)*** |
| No of Household Entrepreneurs | 0.089(0.04)** | | |
| Entrepreneurship Training | 0.648(0.18)*** | | |
| _cons | −2.083(0.95)** | 0.230(0.43) | 0.147(0.63) |
| ρ1, ρ2 | | −0.818(0.09)*** | −0.597(0.23)** |
| **Model Diagnosis** | | | |
| Wald chi2 | 76.96*** | | |
| Log-Likelihood | −316.66 | | |
| LR test of independence | 11.88*** | | |

Source: Stata output using survey data.

Notes: Standard error in parenthesis *Significant at 10%, ** Significant at 5%, ***Significant at 1%.

contrary to Anyanwu (2014) who attributed the poor living conditions of women to poverty resulting from low levels of education and poor access to productive resources.

Marital status was positive and significant for entrepreneurs, indicating that married entrepreneurs had better living conditions compared to their counterparts. This could be because marriage facilitates the aggregation of economic and social resources owned by spouses which yield economies of scale and contribute to living conditions (Lerman, 2002). Thus, married entrepreneurs and their spouses may combine their resources to enjoy better economic outcomes, thereby improving their living conditions. This further supports the notion that married people are more economically stable and corroborates some studies that have attributed marriage to social and economic gains (Anyanwu, 2014; Lerman, 2002). Since marriage generally adds a potential earner to the household, Anyanwu (2014) noted that marriage could increase the economic well-being of members of the family. However, the result contradicts Han et al. (2014) who found that compared to married people, singles below 30 years old had a better quality of life.

Contrary to expectations, household size had a positive and significant influence on the living conditions of entrepreneurs but was insignificant for non-entrepreneurs. This could be attributed to the economies of scale enjoyed by people from larger households. Thus, people within the household can aggregate their resources to earn better economic outcomes and subsequently, improve their living conditions. This is supported by the FGD where one of the participants explained that:

> It is quite overwhelming to be a sole business owner at a young age. Aside from the mentorship needed, combining resources with trusted people, such as siblings yields better outcomes.

While migration status was insignificant for non-entrepreneurs, it was positive and significant for entrepreneurs. This was contrary to prior expectations but could be attributed to the unquenching thirst of migrants for better livelihood outcomes. Jahan (2012), who defined migration as the relocation of residence, noted that many migrants seek better economic opportunities to improve their livelihood and therefore, make their living in the informal sector. This also corroborates the New Economics of Labour Migration (NELM) theory which describes migration as a "household risk-spreading strategy to stabilize living conditions (De Haas, 2010) and Abdelmoneim and Litchfield (2016) who found a positive relationship between relocation and living conditions in rural Ethiopia.

As expected, an inverse relationship was found between living conditions and the number of dependents for entrepreneurs, suggesting that having more dependents negatively affects their living conditions. This could be because those with more dependents bear the responsibility of catering for additional persons. Thus, income and other resources are shared with other people, causing economic stress and strain on the sponsor (entrepreneur).

The two household variables (Household wealth status and employment status of the household head) were positive and significant for both entrepreneurs and non-entrepreneurs, implying that youths from wealthier households have better living conditions. This is expected as household socioeconomic conditions are strongly linked to youth economic resources and status (Plenty & Mood, 2016). Youth from rich homes are particularly advantaged since they are more likely to have access to their parent's wealth.

### *4.7. Treatment effects*

The average treatment effect on the treated (ATT) and untreated (ATU) which show the impact of entrepreneurship on both average monthly income and living conditions are presented in Table 5.

The results revealed that engagement in entrepreneurship significantly increased income and improved the living conditions of entrepreneurs. Likewise, the results show that entrepreneurship has the potential to increase the outcomes of non-entrepreneurs. Specifically, the causal

**Table 5. Treatment effects**

| Outcomes | Entrepreneurship | Predictions | | Treatment Effect |
|---|---|---|---|---|
| | | Entrepreneurs | Non-entrepreneurs | |
| (log)Income | ATT | 9.66 | 7.09 | 2.57*** |
| | ATU | 1.58 | 8.66 | 1.92*** |
| (log)Living condition | ATT | 1.27 | 0.53 | 0.74*** |
| | ATU | 1.65 | 1.05 | 0.60*** |

Notes: *** denotes statistical significance at a 1 % level of significance.

effect of entrepreneurship for entrepreneurs is about 2.57, representing a 36% increase in their average monthly income. The potential causal effect of entrepreneurship for non-entrepreneurs is 1.92, representing a 22% increase in average monthly income. Also, entrepreneurship improved the living conditions of entrepreneurs by about 140%. The potential causal effect for non-entrepreneurs was 0.60, representing a 57% improvement in living conditions. From these results, it is evident that entrepreneurship contributes to youth livelihoods and could potentially lift them out of poverty. Given the rate of youth unemployment and declining employment opportunities in the formal sectors, these results support the notion that entrepreneurship could serve as an alternative to formal employment to generate better livelihood outcomes for young people (African Development Bank Group [AfDB], 2016; Carreras et al., 2021; Hall, 2017; IFAD, 2019; Osemeke, 2012). Also, the positive outcomes of entrepreneurship as indicated in this study could harness youths entrepreneurial intention. For instance, evidence of better livelihood through increased income and better living condition could drive peer engagement which Martínez-Cañas et al. (2023) described as push factors that could motivate people to start their own businesses and therefore, significantly reduce youth unemployment and contribute to community development.

## 5. Conclusion and recommendation

The declining job opportunities in the formal sector necessitate the need to promote entrepreneurship among young people as a means to reduce youth unemployment and facilitate income-generating activities to improve their livelihoods. The main question addressed in this study is whether entrepreneurship can improve the livelihoods of young people. The study established that entrepreneurs earned higher incomes above the national minimum wage and live under better conditions than non-entrepreneurs, implying the relevance of entrepreneurship to better livelihood outcomes and poverty reduction among young people. One implication of this result is that increased consciousness of the benefits embedded in entrepreneurship can motivate more youths to start their own businesses. This will further contribute to the SDG 8 on decent job creation and help to pull many young people off the unemployment queue.

The relevance of entrepreneurship training to youth engagement in entrepreneurship and the positive impact of entrepreneurship on their livelihood suggests the need to intensify efforts to promote entrepreneurship through relevant programs such as NDE. In achieving this, it is imperative to harness the entrepreneurship mindsets, intentions, and skills of young people through education/training programs that incorporate experimental and peer learning at an early stage. Stakeholders aiming to promote youth entrepreneurship could adopt the business incubation approach of the African Development Bank (AfDB) which targets young adults, regardless of their educational attainments. Access to such entrepreneurship training could be facilitated through innovative platforms that are appealing to youths. For instance, information about programs could be disseminated via social media frequented by young people.

In addition, beyond increasing the number of entrepreneurs, policies and programs should promote strategies to improve the business performance of existing entrepreneurs for better livelihoods. For instance, entrepreneurs can earn higher income from business expansion through increased access to credit facilities and better linkages to the market. This is because engaging in entrepreneurship by itself may not lead to better livelihoods. Generating positive outcomes from entrepreneurship largely depends on creating enabling environments in which entrepreneurs can operate and flourish.

The low credit access among the respondents as well as the significance of credit to entrepreneurship suggests the need to facilitate increased access of young entrepreneurs to credit facilities and support, particularly at the start-up stage. This is because many young entrepreneurs face stern difficulties in accessing credit from financial institutions and lack the required collateral to access credit from formal institutions. In promoting entrepreneurship, government efforts should include improving the creditworthiness of youths as well as establishing developmental funds/grants which target young entrepreneurs at different business stages. A few approaches could include linking entrepreneurs with prospects to financial opportunities, lending to young entrepreneurs at low/no interest rates, and financing those with innovative business ideas.

Even though this study fills an important gap in the literature and is one of the few to empirically assess the impact of entrepreneurship on youths livelihood in the Nigerian context, results should be interpreted in the context of the following limitations. First, the study focused on entrepreneurs trained under the NDE program which limits results generalization to a broader young entrepreneur population in the study area. Also, the study is skewed towards entrepreneurs resident in metropolitan cities. Regardless, the sample included respondents that are relevant to the study's objectives and contributed to an important policy debate in Nigeria. Future research should address these limitations to capture more entrepreneurs outside NDE, particularly those in rural and urban areas to strengthen impact debates. Also, it would be cognitively beneficial to assess the impact of entrepreneurship from a gendered perspective. Considering the dearth of empirical literature on the topic, more studies should be conducted to assess the impact of youth engagement in entrepreneurship in Nigeria to inform evidence-based policy on the subject.

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## Appendix

**Table A1. Description and definition of variables**

| Variable | Measurement | Expected sign for Livelihood |
|---|---|---|
| Dependents | | |
| Engagement in Entrepreneurship | Youth engagement in entrepreneurship (Engaged = 1, Otherwise = 0) | + |
| Living conditions | Satisfaction with living conditions, ranked between 1 and 10 (1 = Not satisfied, 10 =Very satisfied) | |
| Income | Average monthly income of the respondent | |
| Independents | | |
| Age | Age of respondent in years | + |
| Education | Years of formal education | + |
| Gender | Gender of the respondent (Male = 1, Female = 0) | +/- |
| Household Size | Number of people in a respondent's household | + |
| Dependents | Number of people who depended on respondent | - |
| Marital Status | Dummy(Married = 1, Otherwise = 0) | +/- |
| Residence | Categorical (Rural = 1, Metropolitan = 2 Large city = 3) | |
| Migration | A respondent who is a migrant in his/her current residence (Migrated to current residence = 1, Otherwise = 0) | - |
| Asset | Ownership of asset (Yes = 1, No = 0) | + |
| Access to Training | Participation in entrepreneurship training (Yes = 1, No = 0) | + |
| Access to Credit | Access to credit facilities (Yes = 1, No = 0) | + |
| Perception of Entrepreneurship | Dummy (Profitable = 1, otherwise = 0) | + |
| No o Household Entrepreneurs | Number of household engaged in entrepreneurship | + |
| Household head employment type | Type of employment of the head of the household of a respondent (Formal = 1, Informal = 0) | +/- |