Ondo University Journal of Agriculture and Social Sciences 2024, 2(1): 9-27

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Original Article

Determinants of career decisions among rural youth: the case of undergraduate students from farming households in Ondo State, Nigeria

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ABSTRACT

This study investigates the relationship between undergraduate students' understanding of career-related risks, educational performance, and career outcomes in Nigeria. Specifically, it explores how government policies on financial support for skill acquisition and professional certifications influence career decisions. Conducted in Ondo State, the study used the Yamane formula to sample 198 students from a population of 394, obtaining 188 valid responses through structured questionnaires administered in two waves. It applied the Maximin criterion to assess the expected returns on educational investments and their impact on employment outcomes. The findings revealed that 26% of students preferred self-employment with technical skills (D1), 8% aimed for specialized professional self-employment (D4), while 54% and 12% opted for wage employment without (D2) and with professional certifications (D3), respectively. The study highlighted Decision 2 (D2) as the most favourable, emphasizing the influence of policy interventions in shifting preferences towards decisions 3 (D3) and 4 (D4). The socioeconomic variations among students who changed their decisions indicate the significant impact of perceived risks and policy frameworks on career choices. Additionally, the study found that older students and males are more likely to choose professional certification and wage employment, with age and gender showing odds ratios of 2.001 and 4.411, respectively. Risk-taking propensity, higher annual stipends, and affordability of professional skills also significantly influence career decisions, with respective odds ratios of 2.097, 3.483, and 2.113. These insights emphasize the complex interplay of various factors in shaping career preferences and the importance of targeted educational and policy interventions.

HIGHLIGHTS

- 26% of students prefer self-employment with technical skills.
- 54% of students opt for wage employment without certification.
- Age and gender significantly influence students' certification choices.
- Policy shifts students' preferences toward professional certifications.

Article History:
Received: 19th May, 2024
Accepted: 27th June, 2024
Available online: 17th September, 2024

Keywords:
Career decisions; rural youth employment; skill acquisition policies; professional certification; educational investment outcomes

1. Introduction

Over time, there has been a steady increase in the educational attainment of young people. The percentage of youths without any education or with only primary education has decreased, while the percentage of youths with advanced degrees has increased (Rufai et al., 2021). Regarding education and skills training, rural youth typically face disadvantages compared to their urban counterparts. However, urban youth often experience higher rates of unemployment and underemployment, and they are likely to encounter a greater level of informality in various aspects of their lives and work (S4YE,2015). However, evidence of how rural youth encounter numerous obstacles while attempting to secure a means of livelihood is well documented in the literature (Opombo & Diawara, 2024; Rob et al., 2014). This study, titled "Determinants of Career Decisions among Rural Youth", aims to address the challenges faced by African governments due to the projected influx of 440 million young individuals into the labour market by 2030 (De Pinto & Ulimwengu, 2017). According to Allen et al. (2016), this demographic phenomenon poses a significant developmental hurdle, particularly in rural regions where the majority of these young people reside. The restricted prospects for securing meaningful employment in these areas have led to increased youth migration, unemployment, and security concerns, especially in sub-Saharan Africa (Opombo & Diawara, 2024; Cole, 2021). Efforts to address the unemployment rate among rural youth have proven challenging, as previous policy initiatives have struggled to effectively meet their intended goals (Boye et al., 2024; Adeosun et al., 2023; Rufai et al., 2021; Geza et al., 2021; Mabiso & Benfica, 2019; Yami et al., 2019; Fox & Thomas, 2016). Therefore, recent literature emphasizes the importance of career development for rural youth in sub-Saharan Africa, as it promotes their participation in the global economy and governance (Boye et al., 2024; Adeosun et al., 2023; Rufai et al., 2021; Geza et al., 2021; Mabiso & Benfica, 2019; Yami et al., 2019; Fox & Thomas, 2016).

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https://doi.org/10.52493/j.oujas.2024.2.95

The study revealed that economic considerations and risk, including career choices, play significant roles in young individuals' decisions (Yulianti et al., 2023). Individuals often make decisions with the hope of gaining an advantage and career success is seen as a pathway to maximize happiness and advance into more favourable circumstances (Hennessy & Yip, 2021). To explore and break new ground in their careers, young individuals can draw upon various theories that provide frameworks for understanding and navigating these challenges (Becker, 1964; Vroom, 1964; Bandura, 1986).

The literature on the determinants of career decisions among rural youth highlights a multitude of factors influencing career choice. These factors include genetic and environmental elements, as well as variables such as family background, peer groups, societal perceptions of careers, education level, and motives for career choices (Osita, 2020). Emotional needs, values, attitudes, societal prestige, and the ability to affect occupational change also play crucial roles in career decision-making (Hoppick, 1997; Abiasekog, 1992). Additionally, external and internal factors such as intellectual ability, aptitudes, schooling, family influence, personality, self-concept, job stereotypes, expectations, interests, gender differences, and environmental influences contribute to shaping career choices (Shiertzer & Stone, 1998). However, there is a lack of evidence in the literature regarding the knowledge about risk associated with career-related decisions. Besides, the literature is scanty on how government policies relating to funding support for students to increase access to pertinent entrepreneurial skills and acquisition of professional certifications can influence the quality of students' career decisions to turn them into graduates with relevant skills that are required to solve societal problems.

In an attempt to build on the literature, the conceptual framework for the study aims to explore the intricate relationships among students' efforts, postgraduate performance, resultant career options, and functioning. The framework emphasizes the role of risk-taking tendencies, government policies related to funding support for students, access to pertinent entrepreneurial skills, and the acquisition of professional certifications in shaping career trajectories. It seeks to unravel the uncertainties faced by students hailing from rural areas in their educational journeys, considering factors such as individual efforts, socioeconomic backgrounds, and labour market conditions (Peña-Ayala & Villegas-Berumen, 2020; Khadka & Khadka, 2024).

The framework comprises three main pillars: "Efforts and Capabilities," "Performance," and "Resultant Career Options." The first pillar focuses on whether students' efforts in education, knowledge acquisition, and entrepreneurial skill development can predict their career goals, irrespective of socioeconomic background or labour market conditions. The second pillar emphasizes postgraduate scenarios, assessing whether graduates can secure jobs that align with their acquired skills and knowledge. The third pillar categorizes undergraduates into four potential paths based on skills, competencies, and preferences, offering insights into the motivations, challenges, and benefits associated with diverse career choices.

Furthermore, the framework incorporates the concept of the "reward" and the maximin criterion in decision-making. It evaluates whether achieved functioning or results in terms of career choice are desirable to individuals based on personal values and goals. The maximin criterion, a decision-making approach, focuses on minimizing potential losses or negative consequences associated with career decisions, emphasizing risk aversion and protecting against worst-case scenarios. Overall, the conceptual framework provides a holistic understanding of the factors influencing career decisions among rural youth, shedding light on the dynamics shaping undergraduates' career trajectories and economic expectations.

Research has recognized the utilization of the expected value criterion (EVC) to appraise how individuals make choices concerning risks linked to diverse alternative decisions (Shu & Zhu, 2021; Basu & Meltzer, 2018). The foundational assumptions revolve around the idea that students and young job seekers commonly assess the anticipated financial gains associated with each career option, taking into account factors such as potential salary, income growth, job market stability, industry trends, and personal risk tolerance. The literature strongly supports the notion that EVC functions as a framework for valuing information available to decision-makers, adept at encompassing the expenses and investments essential for education, training, and skill development across various decision alternatives. Therefore, this study incorporates value of information (VOI) analyses to assess the value of potential future research. According to Basu & Meltzer (2018), the expected value of perfect information (EVPI) is utilized to quantify the value of eliminating all existing uncertainties regarding the comparative outcomes of different career paths or labour market decisions. On the other hand, the expected value of sample information (EVSI) represents the anticipated value of a practical study that can only achieve a partial reduction in uncertainty. In essence, research is valuable in this context because it has the potential to rectify the inefficient nature of decision-making influenced by current information, which is hindered by inherent uncertainties in the comparative effects of choices.

However, the practical application of these theoretical constructs is complicated by the multidimensional nature of career decisions, particularly in contexts such as Nigeria. Young individuals embarking on their careers are influenced by a myriad of factors, and the decision-making process is far from being solely guided by expected value criteria. The evidence suggests that in pursuit of their career paths, young people tend to be risk-averse and base their decisions on a combination of past experiences, job-related news, and unemployment statistics reeled out in newspapers. This implies that the value of future research, which assumes that new information can alter decisions and their consequences, should be tailored to the specific decision criteria employed.

Therefore, this paper attempts to compare alternative labour market decision criteria within the framework of VOI calculations. The goal is to resolve ambiguity and identify the most motivating and appropriate choice of labour market decisions that adequately reward individuals' efforts while balancing the potential for adverse events or risks. The relevance of this work is accentuated by the timeliness of addressing the increasing rate of youth unemployment, particularly as policymakers seek to allocate limited resources effectively. This study, by examining different decision criteria, offers insights that can contribute to informed policy decisions aiming to address the challenges associated with youth unemployment and career choices.

This segment provides a concise overview of decision-making criteria for calculating value of information (VOI) parameters, drawing from the works of Ades, et al., (2004). VOI metrics typically rely on expected value calculations, asserting that the decision to opt for one career path over another should be based on the expected returns from those decisions, which serves as the first decision criterion. If the chosen career path does not align with individual functioning based on expected values, addressing this misalignment through efforts such as acquiring skills or knowledge is considered valuable. This perspective is consistent with previous evidence on similar decisions (Fenwick, Claxton, & Sculpher, 2008).

Additionally, VOI methods can incorporate alternative decision-making criteria under uncertainty. For instance, one criterion involves assessing whether a 95% credible interval of incremental benefits includes zero. The interpretation of expected VOI estimates may vary based on this criterion. The literature suggests that labour market decisions may align not only with expected values but also with decision uncertainty faced by decision-makers (Berger, Bleichrodt, & Eeckhoudt, 2013). Decision uncertainty, expressed through credible intervals for comparative outcomes, can influence decision-making, especially when decision-makers exhibit risk aversion. In such cases, it is not only the chosen career path but also the expected value from present efforts that is capable of altering credible outcomes (Basu & Meltzer, 2018). Therefore, decision-making criteria play a crucial role in interpreting VOI estimates.

While previous studies have explored factors influencing career decisions among youth (Hennessy & Yip, 2021; Yulianti et al., 2023), there is limited research specifically addressing the unique challenges faced by undergraduate students from farming households in rural Nigeria. The intersection of socioeconomic background, access to government policies, and the perception of career-related risks remain underexplored in this context. This study sought to fill this gap by examining how these factors collectively influence the career choices of rural youth, with particular attention to the role of policy interventions and socioeconomic variables.

Specifically, the study sought to:

i. analyze how undergraduate students' understanding of career-related risks influences their educational performance and future career outcomes in Nigeria;
ii. examine how government policies on financial support for skill acquisition and professional certifications shape students' career decisions;
iii. use the Maximin criterion to assess the returns on educational investments and their effects on employment outcomes for students;
iv. Study how socioeconomic factors, policy interventions, and demographic variables like age and gender impact students' career preferences and decisions.

2. Methodology

2.1. Study Area

This study was carried out in Nigeria, which is geographically positioned between latitudes 10°00'N and 8°00'E. Nigeria is bounded by the Atlantic Ocean to the south. Covering a vast total area of 923,768 km^2. Nigeria is the 32nd largest country globally, showcasing its significant territorial expansion (AfDB 2013; Arubayi & Akobo, 2018). The Nigerian population is estimated to be approximately 223 million, with an average growth rate of 2.4%, according to the World Bank (2024).

2.2. Population and Sampling Procedures

The sample size for this study was calculated using the Yamane (1967) Slovian formula, which takes into account a 5% margin of error and a 95% confidence level, along with a finite correction factor. This formula is denoted as $n_0 = N/Ne^2$, where n_0 represents the sample size, e is 0.05 (representing the margin of error), and e is the total number of observations. To determine the minimum number of respondents to be selected from each rural community, a proportional approach was employed. This calculation involved calculating the number of students in each selected rural community divided by the total number of students in the 18 rural communities and then multiplying this fraction by n0.

Ondo State, located in Southwest Nigeria, was chosen randomly from among the states in the region. To ensure fair representation, the study considered the state's three Senatorial districts for selecting respondents, specifically undergraduate students. Each Senatorial district in Ondo State comprises 2 local government areas (LGAs), totalling 18 LGAs across the state. Within each senatorial zone, 2 LGAs were chosen for inclusion in the study. The study focused on 3 rural communities, from which a list of undergraduate students was generated. This list was compiled with the assistance of community leaders, villagers, schoolteachers, and members of the respective Union Councils. A total of 394 undergraduate students (study population) were identified from these rural communities, forming the population of the study. To obtain a sample for the study, a simple random sampling method was employed. This method involved selecting 11 undergraduate students from each of the 18 villages, resulting in a total of 198 respondents for the study. However, only 188 questionnaires were found to be properly answered/filled and thus suitable for the analysis required to achieve the study's objectives.

2.3. Data Collection

The data collection exercise was performed between January and May 2023. In two waves, a structured questionnaire was administered to each of the 198 respondents via an interview schedule. The survey included both open-ended and closed-ended questions. Respondents in the first wave were asked to choose a career path based on their current state or condition of learning and training to acquire the necessary skills and competence for the job market and very remote employment opportunities. That is their aspirations (what they wanted to be like) within the first five years after graduation. In the second wave, respondents were asked to evaluate their previous opinions (career choice) in the first wave in light of new policy recommendations that could improve their opportunity to acquire necessary skills and competence through soft loans and/or scholarships, as well as the assurance of employment opportunities.

In the first wave, the expected money value and expected opportunity loss for the alternative decisions, as well as the students' other socioeconomic characteristics, were obtained. The study was able to assess the level of risk associated with the respondents' decisions as a result of this. This project was completed in March 2023. Among the respondents, 48 expressed a desire for self-employment, while 140 expressed a desire for wage employment. Thirty-eight of the 140 students desired specialized or advanced professional courses. Twenty-three of the 38 students intended to consider wage employment, while 15 of the 38 students desired self-employment. The remaining 102 students stated that they would prefer to work without obtaining any specialized certification within the first five years.

In the second wave, which was concluded in May 2023, respondents communicated with the preliminary reports of the first wave for them to know the findings from the first wave to know how many of the respondents would change their initial decisions strictly under the proposed new policy strategies of "when the University Curriculum and Programme were reviewed to allow Undergraduate Students to Acquire Technical/Soft/Artisanal Skills or Take any Specialized Professional Examination while in school and receive a refund of the Cost of the Training/Examination for Passing the Advanced Trade Test/Professional Cadre

Examination at once and with assurance of paid employment, for those who would prefer that option of wage employment".

2.4. Analytical Procedure

Based on the respondents' aspirations within the first five years after graduation, D1=Graduates with Technical/Soft/Semi-Entrepreneurial Skill; D2=Graduates with neither Technical/Soft/Semi-Entrepreneurial Skill nor Professional Competence; D3=Graduates with Professional Certification with interest in wage employment; and D4=Graduates with Professional Certification with interest in self-employment), relevant data were obtained. Each respondent was asked in the questionnaire to provide sufficient information about how they intended to integrate into the economy's labour structure. As a result, based on their projections, they were asked to choose their economic engagement after graduation: self-employment or wage employment. Those who preferred self-employment were asked to specify the type of soft entrepreneurial skills or specialized professional qualifications/certifications they desired, the expected costs of acquiring these skills, and the costs required for a start-up within five years. For those seeking wage employment, some insisted on being professionally certified and inducted before accepting any wage employment. They were questioned about the type of skills/competence they desired, the cost of acquiring such specialized skills, and the cost of starting a business. In an open-ended question, respondents were asked to state their expected income for all categories. STUTERN's approach was used to calculate the average annual income for each decision group (2018). STUTERN (2018) examined the five-year transition of fresh graduates from a state of unemployment to a state of employment (either wage employment or self-employment). According to the study, after 5 years, approximately 60.3% of Nigerian university graduates remained unemployed, approximately 26.3% secured wage employment, and approximately 13.4% started their businesses. The literature provides sufficient evidence to support the conclusion that wage employment (both in the public and private sectors) is only guaranteed for less than 27% of graduates in their first five years after graduation. This finding is well established in the literature (STUTERN, 2018; Nwosu and Chuckwudi, 2018; Sodipo, 2014; and Akanmu, 2011). As a result, in accordance with other studies, the assigned probabilities for each state of nature in terms of employment/unemployment in Nigeria are as follows: unemployment is 60.30%, wages are 26.30%, and self-employment is 13.40% (STUTERN, 2018). Therefore. The table of payoffs shows the payoff table that was created for each alternative and the associated probabilities. The expected value criterion was used to make the final decision.

2.5. Decision-making criteria under uncertainty based on expected values

Let the objective function or the net benefits (benefits net of risks) of choosing a career path or making a labour market decision j from the decision options be denoted by $\beta_j(\theta)$, where θ is a vector of stochastic parameters that generate the stochastic nature of $\beta_j(\theta)$. Under the assumption that the decision criterion to choose a career path follows a maximum of the expected $\beta_j(\theta)$, one can write the expected value of perfect information (EVPI) as:

$$EVPI = E_\theta\left(max_j \beta_j(\theta)\right) - max_j E_\theta\left(\beta_j(\theta)\right) \quad 1$$

However, the Maximin criterion, as a decision-making methodology, has distinct advantages over both the decision criterion and value of information (VOI) analysis. In the realm of risk-averse decision-making, the Maximin criterion focuses on maximizing the minimum potential return, especially in worst-case scenarios (Hassan et al., 2012; Ouwens & Berger, 2006). This approach proves valuable for individuals who prioritize mitigating losses or negative outcomes. In contrast, decision criteria, depending on their type, might overlook explicit considerations of risk aversion, relying instead on metrics such as expected values that may not fully encapsulate the cautious approach of risk-averse decision-makers (Basu & Meltzer, 2018). Similarly, VOI analysis, while effective in quantifying the value of additional information, may not directly cater to the risk preferences of individuals.

The Maximin criterion excels in ensuring robustness in outcome optimization by maximizing the minimum return (Ouwens et al., 2002). This approach seeks resilience in the chosen option against adverse conditions or uncertainties. On the other hand, decision criteria may prioritize measures such as expected values that do not inherently ensure robustness against unfavourable outcomes. VOI analysis, although valuable for assessing the impact of additional information, may not inherently foster robust decision-making, primarily aiming to quantify the value of reducing uncertainty (Meltzer et al., 2010)

The simplicity and intuitiveness of the Maximin criterion set it apart. It involves selecting the option that guarantees the best outcome under the worst circumstances, aligning well with common risk-averse tendencies. Decision criteria, however, can vary in complexity, with some involving intricate calculations that might be less intuitive for decision-makers. Moreover, VOI analysis necessitates a nuanced understanding of statistical concepts and decision theory, potentially making it less intuitive for certain decision-makers.

Therefore, this study adopts the maximin criterion model to calculate the expected returns on the cost of education and other investments incurred in acquiring relevant skills to be suitable for quality jobs in the economy.

2.6. Maximin criterion model

This model aims to optimize the lowest return among various labour market decisions or career path options, considering a constraint on the minimum acceptable average return across the observed cross-section. The model's objective functions employ the maximin criterion, seeking the minimum return across the observed cross-section and then identifying the maximum value of this minimum return. The formulation of the maximin criterion, as adapted from the work of Hassan, Slew and Shen (2012), is expressed as follows:

$$\max\ M_p (where\ M_p = min_i \sum_{j=i}^{N} x_i y_i) \quad 2$$

Subject to

$$\sum_{j=i}^{N} x_i y_i - M_p \geq 0,\ (i = 1,\ldots\ldots,N) \quad 3$$

$$\sum_{j=i}^{N} x_i \overline{y_i} \geq G \quad 4$$

$$\sum_{j=i}^{N} x_i \geq 1 \quad 5$$

$$x_i \geq 0 \quad 6$$

In the context of this model, y_i represents the return on investment in education, additional training, or knowledge acquisition for the cross-section of respondents, and $\overline{y_i}$ represents the average return on the choice of the selected career path or labour market decision. The variable x_i denotes the investment allocated to education or the cost of additional training/knowledge acquisition. M_p represents the minimum return on investment, and

"G" signifies the minimum level of return. The mean return on investment (MRI) is calculated as follows:

$$MRI = \sum_{j=i}^{n} r_i x_i \quad 7$$

In the given context, "r" represents the anticipated return on investment associated with acquiring the necessary knowledge or skills in preparation for a future career path or labour market decision, and "x" signifies the amount invested in obtaining this relevant knowledge or skills. Constraint (3) guarantees that "Mp" is the minimum return on investment observed across all instances in the cross-section. At the same time, constraint (4) stipulates that the mean return on investment (MRI) must reach the targeted return. Constraint (5) ensures that the combined weight of the cost and benefit equals one, while constraint (6) ensures that all weights remain nonnegative during the computation of the Table of Regrets.

2.7. Expected Value Criterion

The expected value criterion seeks to maximize expected returns while minimizing expected costs. This approach presupposes that the payoff (or cost) associated with each alternative decision is probabilistic (carries some element of risk). The criterion requires the calculation of the expected value of each alternative, which is the sum of the alternative's weighted payoffs. The weights are the probabilities assigned to natural states (unemployment, self-employment, and wage employment). All of this information is displayed in the Table of Payoff, from which the solution to the decision problem is offered. Thus, if dij is the decision alternative, pi is the probability and V(di) is the expected monetary value (EMV), then it is expressed as

$$V(d_i) = \sum_{i=1}^{n} \sum_{i=j}^{m} p_i \, d_{ij} \quad 8$$

where i = 1, 2, 3 …, n is the number of alternative decisions, and j = 1, 2, 3, …, m is the number of states of nature and ($V(d_i)$ is the EMV. The alternative with the highest EMV was selected as the best.

A confirmatory test including the expected opportunity loss (EOL)/maximum value of regret was also used to confirm the expected value criterion results for robustness. It was used to show how much the three decisions will reduce expected or possible maximum returns (income). The estimation procedure was the same as in equation 7, with the exception that in EOL, the final computation was obtained from the regret or opportunity loss found in the Table of Payoff. The optimal alternative decision was the course of action that minimized these losses or reductions.

The expected regret criterion (ERC) or expected opportunity loss (EOL) is determined by the following steps:

i. The maximum for each state of nature is identified from the Payoff Table (Equation 7).
ii. The regret or the opportunity loss table is obtained using: (Regret = Maximum Payoff –Payoff) for each of the states of nature
iii. The expected opportunity loss (EOL) for each alternative decision is calculated by multiplying the value of the regret in the table in step ii by the associated probabilities and then adding the values.

The alternative that yields the minimum EOL is selected.

2.8. Operationalizing the Expected Value Criterion in this Study

The research methodology of this study employs the expected value criterion to evaluate both the cost (risk) associated with selecting a particular career path and the benefit of forgoing the next alternative career path. This criterion facilitates the quantitative assessment of potential outcomes linked to diverse career choices, emphasizing the valency, or cost-benefit ratio, between the chosen career path and the alternative forgone. Essentially, it considers whether the potential net benefits in one career path exceed the benefits foregone in the next alternative. If this condition is met, the risk in the chosen option is deemed to have minimal risk (risk below the threshold—no regret). However, when the anticipated benefit in the chosen option is estimated to be lower than that of the forgone alternative, the chosen option surpasses the risk threshold, implying that individuals might be less efficient and thus ineffectively contributing to economic growth. Such individuals may suffer from social exclusion when an economic safety net is lacking from the government.

Henceforth, two classes of qualitative responses (state of nature and labour market decisions) as well as the probability of being in a state of nature are captured based on the literature and are quantified as follows:

a. State of Nature: The state of nature explains three possible states that a graduate can reach within five years after graduation. These states are explained below:
   i. state of unemployment: When someone is unemployed, a person who has completed his or her education is unable to secure employment or start his or her own business. There are various reasons for this, such as a mismatch between the skills possessed by the individual and the skills demanded by employers, a lack of entrepreneurial skills, or simply a lack of available job opportunities. As this study aims to analyse the costs and benefits of decisions made by undergraduates in light of current labour market conditions, two main issues can arise during periods of unemployment;
   ii. if an individual is not interested in gaining new knowledge or skills, he or she will not incur any training costs during the unemployment phase. However, the consequence of this decision is that they will not incur any annual cost of postschool training, as the cost is 0.00 due to the absence of training expenses;
   iii. the given objective states that if an individual decides to acquire other in-demand skills or knowledge while waiting for a suitable job, the annual cost of postschool training will be estimated based on the specific type of entrepreneurial skill or professional certification they pursue. This estimated cost will be represented as a negative value in the unemployment column because it is an expense. The objective emphasizes that the cost incurred for gaining additional skills or knowledge is considered a negative figure in the unemployment column;
   iv. state of Wage Employment: For wage employment, individuals earn income, which is recorded as a benefit in this column based on the average income expected by the respondents. However, if an individual is not interested in wage employment, their benefit in this column is recorded as 0.00;
   v. state of Self-Employment: In the scenario of being self-employed, individuals can earn income. The average income for self-employment, as expected by the respondents, is recorded as a benefit in this column.

However, if individuals are not interested in self-employment, their benefit in this case will be recorded as 0.00.

vi. % Probability: This study determined the probability of being in different states of nature based on the prevailing (un)employment rates in the country. The researchers collected 5 years of statistics on the proportion of graduates who would be unemployed, in wage employment, or self-employed in their first 5 years after graduation. These proportions represent the likelihood of a graduate being in any of these states of nature.

The study explicitly acknowledges the financial aspect of career decisions and integrates it with educational investments. The research framework focuses on four common labour market decisions made by students based on their future career path aspirations, denoted D1, D2, D3, and D4. These choices were determined by thoughtful examinations of various career options that graduates typically favour, particularly within the initial five years of postgraduate education. Professionals were consulted to condense approximately nine primary responses into the four choices we currently have. In the first decision (D1), graduates with technical/soft/semi-entrepreneurial skills express a desire to be self-employed within the initial five years of postgraduation. This study aims to understand the factors influencing this choice, including expected financial returns, risks, and investments associated with entrepreneurship. The second decision (D2) involves graduates who lack technical/soft/semi-entrepreneurial skills or professional competence and opting for wage employment. This study explores the motivations behind this decision, considering potential challenges or advantages associated with pursuing a job without specialized skills.

The third decision (D3) entails graduates with professional certification planning to work as wage employees. This study investigates the motivations behind obtaining professional certification and subsequently choosing wage employment, taking into account factors such as job security, job stability, and personal preferences. The fourth decision (D4) involves graduates with professional certifications aspiring to work as self-employed individuals. This study delves into the factors influencing this choice by exploring the perceived benefits and challenges associated with entrepreneurship within a professional domain.

It is crucial to note that, in this context, professional certification is distinct from academic qualifications such as M.Sc., M.A., or PhD; instead, it refers to specialized training tailored to acquire specific skills necessary for addressing organizational problems. This research aims to offer a comprehensive understanding of how students make career choices based on their future economic expectations within the first five years postgraduation, considering the financial implications, risks, and investments associated with each option.

In the second phase of the experiment, the study introduces hypothetical favourable policy interventions aiming to assist students in mitigating the substantial costs of professional examinations. These interventions aim to ensure a competitive edge in the labour market or the entrepreneurial sphere. This study sought to assess whether respondents' responses obtained in the first phase would change in light of these policy interventions.

2.9. Multinomial logistic regression

The multinomial logistic regression (MLR) model is essentially an extension of the binary model and is closely related to logit analysis or logistic regression. However, when the dependent variable has three or more categories without a ranking between them, multinomial logistic regression analysis is employed to understand the causal relationship between the independent variables and the dependent variable. In essence, the multinomial logistic regression model expands upon the binary model to accommodate multiple categories (j categories), resulting in "j-1" multinomial logistic regression models. This approach allows for the response probabilities to be influenced by nonlinear transformations of the linear function outlined in the equation below.

$$X_i'\beta_j = \sum_{k=0}^{k} \beta_{jk} X_{ik} \quad (9)$$

The multinomial logit model expands upon the binary logit model, incorporating multiple predictors (K) and categories (J) for the independent variables (x) and dependent variables (j), respectively. For instance, when dealing with three categories (J=3), the probabilities can be represented as follows:

$$P_{i1} = P(Y = 1|x_i) = \frac{1}{1 + \exp(X_i'\beta_2) + \exp(X_i'\beta_2)} \quad (10)$$

$$P_{i1} = P(Y = 2|x_i) = \frac{\exp(X_i'\beta_2)}{1 + \exp(X_i'\beta_2) + \exp(X_i'\beta_2)} \quad (11)$$

$$P_{i1} = P(Y = 3|x_i) = \frac{\exp(X_i'\beta_3)}{1 + \exp(X_i'\beta_3) + \exp(X_i'\beta_3)} \quad (12)$$

where β2 and β3 represent the effects of covariates specific to the second and third response categories, respectively, with the first category serving as the reference point. In this study, the dependent variables D1, D2, D3, D4, and D2 were selected as the reference points, in line with the study of Hosmer and Lemeshow (2000). For instance, the equation ensures that the probabilities for all three categories sum to 1, thus providing a comprehensive analysis framework.

$$P_{i1} = 1 - (P_{i2} + P_{i3+} + P_{i4}) \quad (13)$$

In the binary logit model, the total probabilities across all categories of the dependent variable must add up to 1. For example, if the dependent variable is structured into three categories, the combined probabilities for each category will equal 1, as demonstrated below (Hosmer et al., 2013):

$$[P(Y_i = 1|X_i)] + [P(Y_i = 2|X_i)] + [P(Y_i = 3|X_i)] + [P(Y_i = 4|X_i)] = 1 \quad (14)$$

Typically, the probabilities associated with a dependent variable that has j categories can be represented in multinomial logit models as illustrated below:

$$P_{ij} = P(Y_i = j|X_i) = \frac{\exp(X_i'\beta_j)}{1 + \sum_{j=i}^{j} \exp(X_i'\beta_j)} \quad (15)$$

It is interesting to note that the likelihood of occurring in category j of the dependent variable can be articulated as shown below (Liao, 1994).

$$P_{i1} = P(Y_i = 1|X_1) = \frac{1}{1 + \sum_{j=1}^{j} \exp(X_1'\beta_1)} \quad (16)$$

The multinomial logit model is computed through maximum likelihood estimation, utilizing the log-likelihood function for a set of n observations, which is expressed as follows:

$$lnL = \sum_{i=1}^{n}\sum_{j=1}^{j} d_{ij} \log (P_{ij}) \quad 17$$

The dummy variable dij takes a value of 1 if observation i falls into the jth category and 0 otherwise due to the nonlinear nature of Pij, which depends on the regression model's parameters. When dealing with such situations, an iterative estimation method such as Newton-Raphson's method is utilized to estimate the model's parameters (Dajcman, 2013).

Odds and odds ratios are significant in multinomial logit models, similar to binary logit models. While odds ratios can be computed for the model's categories, the model needs to be transformed into a linear form by taking the natural logarithm of the odds ratio to estimate the parameters. In multinomial logit, the odds between categories j and 1 for a given are expressed as follows:

$$Pij/Pi1 = \exp\left(X_i'\beta_j\right), j = 2, \dots jth \quad 18$$

Furthermore, the log-odds (logit) represents a linear relationship with X_i

$$\ln (Pij/Pi1) = \left(X_i'\beta_j\right), , j = 2, \dots jth \quad 19$$

where X_i' are the variables of interest in this study (X_1-X_{11}) and β_j is the slope coefficient for each of the variables.

2.10. Interpretation

The logit and logarithm of the odds have a linear approximation relationship. The logit is calculated as the logarithm of the odds. The parameter β determines the rate of increase or decrease of the S-shaped curve of π(x). The sign of β indicates whether the curve increases (β > 0) or decreases (β < 0), and the rate of change increases as the absolute value of β increases. To determine the parameter β based on the rate of increase or decrease of the S-shaped curve of π(x), we need to understand that the logit has a linear approximation relationship and is equal to the logarithm of the odds. The parameter β is determined by the rate of increase or decrease of the S-shaped curve of π(x).

A positive parameter for an independent variable x indicates that as x increases, there is an increased likelihood of observing an observation in category j rather than in category 1. This relationship holds while keeping the other covariates constant. On the other hand, a negative parameter suggests that as x increases, the chances of being in the baseline category (category 1) are greater than those in category j. If x is a dummy variable coded with values of 0 and 1, then the parameter β represents the log-odds ratio.

Table 1 shows the distribution of respondents based on their socioeconomic status. Males make up approximately 56% of the sample, while females make up 44%. Students in the school of science and technology make up slightly more than 29% of the sample, while those in business and social science/management and agriculture make up close to 29% and 13%, respectively. Although the table shows that the average age of the respondents is 26.4 years, approximately 56% of the respondents are over the age of 26%, while 35% attend a state-owned university and 27% attend a private-owned university. Although 64% of respondents were single, 26% were married, implying that they had marital responsibilities as well as greater financial obligations. Christians and Muslims make up 51% and 40% of the sample, respectively. Nigeria is a religious country, and religious sects carry out many interventions, such as building entrepreneurship centres to train and empower their members for start-ups.

Table 1. Distribution of Respondents by Socioeconomic Characteristics

Parameter	Frequency	Percentages
Gender		
Male	106	56.4
Female	82	43.6
Total	188	100.0
Course of study (paradigm)		
Art & Humanities	55	29.3
Business & Social Science/Management	54	28.7
Agriculture	24	12.8
Science & Technology	55	29.3
Total	188	100.0
Age		
< 22years	83	44.1
>22years	105	55.9
Total	188	100.0
Mean	26.4	
Standard Deviation	5.27	
Type of university		
Federal Government Owned	72	38.3
State Government Owned	65	34.6
Private Owned	51	27.1
Total	188	100.0
Marital status		
Married	49	26.1
Single	121	64.4
Divorced	5	2.7
Widowed	2	1.1
Separated	11	5.9
Total	188	100.0
RELIGION		
Christian	95	50.5
Muslim	75	39.9
Others	18	9.6
Total	188	100.0
Lesson learnt from COVID-19		
understand the need to be deliberately conscious of living and working in a clean and hygienic environment	37	19.7
Understand the need to develop skills that can enable you to be self-employed	50	26.6
Need to be able to work remotely	83	44.1
appreciate the hungry people	18	9.6
Total	188	100

Table 1 also shows respondents' perceptions of the lessons learned as a result of the COVID-19 pandemic. The majority (44%) of respondents stated that the pandemic has taught them to develop skills that will allow them to work remotely as a strategy to protect themselves from similar challenges in the future. Because of the constraints faced by employees during the pandemic period, approximately 26% said it helped them understand the need to develop skills that would allow them to become self-employed. Nearly 20% now prioritize the importance of living and working in a clean and sanitary environment. While COVID-19 has significantly disrupted the global economy, with a particular impact on poor living in distressed economies, its impact on reordering the dynamics of labour market decisions and others throughout sub-Saharan Africa cannot be overstated. According to available data from the National Bureau of Statistics (2020), more than 30% of Nigeria's employees have lost their jobs, 47% are unable to receive their salaries and wages on time, and the impact of inflation has decreased the value of money. According to the IMF,

Table 2: Expected Costs and Returns on the Respondents' Choice of Self-Employment

Variable	Students planning for entrepreneurial skills (N=48)		Students planning for professional certification (N=15)	
	Category	%	Category	%
Number of Respondents=63	>₦ 51000	8.2	<₦ 200,000	10.2
Cost of acquiring soft skills/professional Certification	₦ 51,000- ₦ 100,000	79.2	₦ 200,001-₦ 400,000	19.4
	>₦ 100,000	14.6	>₦ 400,000	70.4
Mean	₦ 71,875.00		₦ 470,382.67	
Standard Deviation	18,069,63		118,520.27	
	<₦ 50,001	14.6	< ₦ 300,001	15.3
	₦ 50,001- ₦ 100,000	56.3	₦ 300,001- ₦ 600,000	17.2
The minimum cost required to set up your desired Enterprise	₦ 100,001- ₦ 150,000	16.7	₦ 600,000- ₦ 900,000	21.4
	>₦ 150,000	12.5	>₦ 900,000	46.1
Mean	₦ 81,696.43		₦ 1,508,114.52	
Standard Deviation	39,359.63		455,863.88	
	Fashion/Laundry	14.2	ICAN/FRM/CFA	21.7
	Painting/Building	10.5	CIPM/PHRI	2.5
Choice of Soft/Semi skill/professional certification that you want to be trained	Technique/Carpentry/Woodwork Crafting Fabricating Technique/Automobile repair/Panel beating/Plumbing	10.0	DMC	14.9
	Electrical work/Solar installation & Repair Technique/Computer hardware repair	16.4		
	Farming/Agribusiness Technique	5.5	COREN/PMP	26.1
	Real Estate & Property Mgt/Building Contractors	12.2	DATA ANALYTICS/IT-related professional certification	34.8
	Entertainment/Photography/Spar/Decoration	15.8		
	Digital Marketing/Online Trading	15.4		
	Personal Savings	35.4	Personal Savings	32.7
	Family support	25.1	Family Support	57.4
How do you plan/hope to source for the initial capital?	Commercial Bank	8.7	Commercial Bank	4.6
	Microfinance Bank	16.3	Microfinance Bank	2.5
	Government Support	14.5	Government Support	2.8
	<₦ 600,001	12.4	<₦ 1,800,001	4.6
	<₦ 600,001-₦ 1,000,000	6.3	<₦ 1,800,001-₦ 3,600,000	11.4
As an intending entrepreneur, how much do you think you can earn from all sources annually in the first 5 years	₦ 1,000,001-₦ 1,500,000	77.1	₦ 3,600,001-₦ 4,800,000	32.8
	>₦ 1,500,000	4.2	>₦ 4,800,001	55.2
Mean	₦ 1,247,272.73		₦ 5,772,903.42	
Standard Deviation	172,082.97		1,407,153.38	

if drastic measures to address the lingering effects of COVID-19 are not taken, approximately 3% of Nigerians will return to poverty by 2023. In light of this trend, the lessons learned are a good place to start a new orientation for knowledge acquisition, types of careers to pursue, and the mode to operationalize their economic activities to meet their future economic expectations and obligations.

2.11 Self-Employment: Expected Cost and Returns

Table 2 shows the expected costs and returns from self-employment. In this category, 63 respondents were interviewed (48 preferred to be trained in any of the technical/soft/semi-entrepreneurial skills, while 15 preferred any of the highly specialized professional certifications). According to Table 2, approximately 79% of those who desired technical/soft/semi-entrepreneurial skills estimated the cost of their training for skill acquisition to be between ₦ 51,000 and ₦ 100,000, with the average training cost being ₦ 71,875.00. According to the study, the respondents' most preferred technical/soft/semi-entrepreneurial skills are electrical work/solar installation and repair technique/computer hardware repair (16%), entertainment/photography/spar/decoration (16%), digital marketing/online trading (15%), and fashion/laundry (14%). Table 2 shows the expected costs and returns from self-employment. In this category, 26% of respondents preferred to be trained in any of the technical/soft/semi-entrepreneurial skills to be self-employed after graduation (D1), while approximately 8% preferred any of the

highly specialized professional certifications for self-employment after graduation (D4). According to Table 2, approximately 79% of those who desired technical/soft/semi-entrepreneurial skills estimated the cost of their training for skill acquisition to be between ₦ 51,000 and ₦ 100,000, with the average training cost being ₦ 71,875.00. According to the study, the respondents' most preferred technical/soft/semi-entrepreneurial skills are electrical work/solar installation and repair technique/computer hardware repair (16%), entertainment/photography/spar/decoration (16%), digital marketing/online trading (15%), and fashion/laundry (14%). Only approximately 15% proposed applying for financial assistance or loans from relevant government institutions. Respondents in this group expected to earn an average of ₦ 1,247,272.73 per year and were thus encouraged to become self-employed with soft/semi-entrepreneurial skills. Surprisingly, the average costs and income statistics obtained here and the national statistics documented by the National Bureau of Statistics have striking similarities.

Similarly, Table 2 includes descriptive information about recent respondents who stated that they would like to acquire any specialized professional skills/certifications before starting a business. According to the findings of this study, the most preferred professional certificates are Data Analytics/IT (35%), certified fellows of the Council for the Regulation of Engineering Nigeria [COREN]/Project Management Professional [PMP] (26%), and certified fellows of the Institute of Chartered Accountants of Nigeria (ICAN)/Certified Financial Analyst (CFA)/Financial Risk Management (22%). The professional certification with the lowest desire/subscription was to become a certified fellow of the Chattered Institute of Personnel Management (CIPM)/Professional in Human Resources International [PHRI] (2.5%). The respondents in this category estimated that they would need an average of ₦ 470,382.67 to be trained and certified as a fellow in any specialized/professional competence area of their choice and an average of ₦ 1.5 million for a start-up in the expectation of earning an average of ₦ 5.8 million annually. In this category, approximately 57% and 33% of respondents planned to raise the initial capital for training and start-ups through family support and personal savings, respectively.

This study revealed a noticeable surge in the inclination of students, approximately 33%, towards embracing postgraduation entrepreneurship. This shift is underscored by a discernible disjuncture between curricular offerings in tertiary institutions and the practical demands of the job market, as has been extensively documented in recent literature (Nwosu & Chukwudi, 2018; Ayinla and Ogunmeru, 2018; Anabaraonye et al., 2021). However, the intricate questions of the mechanisms, venues, and parties responsible for shouldering the financial burden of acquiring the requisite skills for job competence remain largely unanswered. This quandary has motivated professional bodies to actively engage in providing extracurricular professional training for recent graduates and even those who are already employed. Remarkably, in the absence of formal resource centres, some graduates have demonstrated humility by seeking retraining from informal vendors and artisans who possess less formal education but who are proficient in technical, soft, or semi-entrepreneurial skills conducive to self-employment.

As a prerequisite for venturing into self-employment, this retraining endeavour imparts tailor-made skills and competence. Nevertheless, a recurrent challenge identified in this study, regarding the ambition to bolster the ranks of entrepreneurs, revolves around the daunting task of accumulating sufficient capital for retraining to acquire desired tailor-made skills and competence. The study revealed that more than 60% of respondents aspire to augment their capital through personal savings and familial support. However, a stark reality looms—many parents are already grappling with financial constraints, rendering the cost of postgraduation learning and retraining potentially unattainable for financially burdened parents. Respondents' reluctance to explore initial capital sources from banks and government institutions can be linked to the perceived stringency, bottlenecks, and conditions associated with loan procurement, especially from commercial banks (Ndofirepi and Rambe, 2017).

This study also scrutinized potential government interventions to aid students in achieving their entrepreneurial aspirations. The findings indicate that a substantial majority of fresh graduates anticipate challenges in raising start-up capital, underscoring the complexities of securing funds for personal development and entrepreneurial ventures. Multiple reasons have been posited for this predicament.

2.11. Paid Employment: Expected Cost and Returns

Table 3 shows the expected costs and returns on respondents' wage employment choices. It should be noted that 125 (66.5%) of the 188 respondents chose paid employment. Only 12% (23 respondents) of the 188 respondents willing to seek wage employment after graduation were willing to obtain specialized professional certification before applying for any paid employment. Approximately 33% of these 23 respondents wanted to be certified fellows of the Council for the Regulation of Engineering Nigeria (COREN)/Project Management Professional (PMP), while 27% wanted to be certified fellows of the Institute of Chartered Accountants of Nigeria (ICAN)/Certified Financial Analyst (CFA)/Financial Risk Management (FRM). Before starting a paid job, 24% of them planned to become certified in Data Analytics/Information Technology. This group of respondents

claimed that the average cost of professional certification is approximately ₦ 434,486.01, whereas more than 65% estimated that the cost of professional certification is much higher than ₦ 400,000. Over 80% of these respondents intended to obtain this money from personal savings. However, nearly 74% of the respondents expected a basic annual income between ₦ 1,000,001 and ₦ 1,500,000. This is significantly higher than the national average wage for a recent graduate in Nigeria, particularly in the public sector. However, many of those with these specialized certifications prefer private and blue-chip companies such as oil and gas, banks, and so on, where they can be well compensated. This is almost certainly due to the increased productivity associated with these specialists' additional professional qualifications. As a result, it is a form of compensation for human capital. As a result, additional professional qualifications beyond the first degree increase youth acceptability by high-paying employers (Sule et al., 2015; Akanmu, 2011;). Muo (2013) backed this up by claiming that employers who want high productivity will always prioritize quality human capital.

However, one of the most difficult aspects of obtaining this additional professional qualification is funding. According to Table 3, more than 82% of respondents in this category hoped to raise funds for additional professional qualifications through personal savings. One might wonder how or what kind of work would be available for these students once they graduate, especially given the rising rate of unemployment. Even if meniscal and temporary jobs are available, will such income be sufficient to fund personal development? Given the current economic climate, some graduates may be hesitant to incur additional costs for personal development in a highly volatile labour market and uncertain future economy. As a result, they have chosen to pursue neither soft/semiskilled nor specialized professional qualifications. This

Table 3: Expected costs and returns on the respondents' choice of paid employment

Variable	Category	%
Paid employment; are you willing to be professionally certified before seeking any paid employment	Yes (23)	18.4
	No (102)	81.6
Total Respondent	125	100
Mention the professional certification of interest to you	ICAN/FRM/CFA	27.4
	CIPM/PHRI	15.2
	DMC	1.5
	COREN	32.5
	Analytics/IT-related professional certification	23.4
Total Respondents	23	100
The minimum cost you will require to acquire professional certification before seeking	<₦ 200,000	8.7
	₦ 200,001-₦ 400,000	26.1
	>₦ 400,000	65.2
Total Respondents	23	100
Mean	₦ 435,486.34	
Standard Deviation	₦ 145,226.52	
How do you plan to source for the money	Personal Savings	82.6
	Family Support	17.4
Total Respondents	23	100
As a certified professional in wage employment, how much do you think you could earn from wage employment sources annually (Basic Salary)	<₦ 600,0001	0.0
	₦ 600,0001-₦ 1,000,000	17.4
	₦ 1,000,001-₦ 1,500,000	73.9
	>₦ 1,500,000	8.7
Total Respondents	23	100
Mean	₦ 1037308.76	
Standard Deviation	₦ 396652.66	
As a graduate with neither specialized entrepreneurship skills nor professional competence but in wage employment, how much is your expected income (Basic Salary)	< ₦ 360,001	7.5
	₦ 360,001-₦ 720,000	57.5
	₦ 720,001-₦ 1,080,000	32.5
	>₦ 1,080,000	2.5
Total respondent	102	100
Mean	₦ 680,392.44	
Standard deviation	₦ 216,333.15	

option, like all other alternatives, carries some risk and opportunity loss. One example is a low expected income. Approximately 68% desired an annual net income of ₦ 360,001 - ₦ 720,000. This is about the minimum wage for newly graduated public sector employees. Thirty-six per cent of them desired between ₦ 720,001 and ₦ 1,000,000. This category of respondents' intentions could be high-paying public parastatals or private companies.

The consequences of being unable to obtain additional qualifications due to a poor educational environment that does not ensure quality learning include, among other things, these graduates being unable to maximize their potential, similar to their counterparts with these specialized qualifications. Employees may have to work hard to save money to pursue additional specialized qualifications, and upon return, they may want more responsibility and/or change to another high-paying job. This may disrupt the flow and stability of production and service delivery, affecting productivity. The aggregate of this shortfall across the country could have an impact on national output and even national income. When national output falls, the employment rate also decreases.

2.12. Maximum Value Criterion

The expected value criterion outputs are summarized in Table 4. Making a career decision as a graduate is one of the most important steps to take. Taking appropriate career decisions in the face of uncertainty, on the other hand, is a trait of a wise and well-informed individual. The expected monetary value (EMV) of the alternative decisions made under uncertainty is shown in Table 4. D1 = graduates with technical/soft/semi-entrepreneurial skills and willing to be self-employed; D2 = Graduates with neither technical/soft/semi-entrepreneurial skills nor professional competence and willing to be in wage employment; D3 = graduates with professional certification with interest in wage employment; D4 = graduate with professional certification with interest in self-employment) (unemployment; wage employment; and self-employment). Table 4 shows that at the end of the first year of employment, those in D2 have the highest EMV (₦ 178943.21) and the lowest risk, followed by those in D1, with an EMV of ₦ 74530.97. D3 residents have an EMV of ₦ 10213.94. The riskiest of the four alternatives is for a graduate to pursue professional certification while also working as a self-employed individual (D4).

Therefore, despite having the highest net return at the end of the first year of employment, D2 has the lowest long-term compensation (₦ 680,392.44) despite having the lowest risk (no risk at all). The lack of risk associated with this alternative decision may account for why the majority of respondents preferred it. The case of D4 is the riskiest because the table shows that respondents will still be in debt up to ₦ 419,464.75 at the end of their first year of employment. However, there is complete assurance that all else being equal, they will receive massive

Table 4: Summary of the Output of the Expected Value Criterion

Category	State of Nature			
% Probability Alternative Decisions	Unemployment	Wage-employment	Self-employment	EMV (₦)
	60.30%	26.30%	13.40%	100%
Probability of being in one state of nature in 5 years	0.603	0.263	0.134	1
Graduate with technical/soft/semi-entrepreneurial skills willing to be self-employed	-153571.43	0.00	1,247,272.73	74530.97
Graduate with neither soft/semi-entrepreneurial skills nor professional competence willing to be in wage-employment	0.00	680,392.44	0.00	178943.21
Graduate with a professional certificate but planning to work as a wage-employee	-435486.34	1037308.76	0.00	10213.94
Graduate with a professional certificate working as a self-employed	-1978497.19	0.00	5,772,903.42	-419464.75

The above values are expressed in NGN (Nigeria currency): 860.50NGN = 1 USD

compensation ₦ 5,772,903.42 for that massive initial cost/capital outlay for acquiring specialized certification and launching an enterprise. The case of those in group D1 is very similar to that of those in group 4, except that those in D1 would spend far less to acquire technical/soft/semi-skills and even start-up (₦ 153571.43), and their net return was also found to be minimal at the end of the first year of operation. Group D3 is unique in that they aspire to spend a significant amount of money on personal development before seeking employment, but they are not interested in becoming self-employed. Without a doubt, applicants with professional skills and competence who are prepared to run their business have a better chance in today's competitive labour market. This is consistent with Tomlinson's submission (2012).

Two scenarios are deduced from the findings of this study: those who want to be at their best in terms of productivity and its associated benefits would always find the need for human capital development, despite its burden (risk and cost). It makes no difference to them whether they are self-employed or employed. The assumption is that wages are directly related to productivity in a fair economy, and wages are a motivator for increased productivity (Sule et al., 2015). Individuals who can invest in their personal development have more opportunities and possibilities for advancement in their careers. This not only helps to build a strong capacity but also serves as a valuable tool for attracting and retaining top-tier talent (Ditse, 2020). Employee performance is heavily reliant on organizational performance because human resource capital is critical to an organization's growth and performance.

On the other hand, many recent graduates are unwilling to incur additional costs (or take any risks) to acquire any soft skills or specialized certification, resulting in their decision to seek wage employment despite low returns. Furthermore, an organization's growth prospects significantly increase the likelihood of a person remaining in their current position (Mishra, 2023). Developing a solid internal training programme and offering opportunities for advancement not only helps to build a strong team of current employees but is also a valuable weapon for attracting and retaining top talent (Ditse, 2020). Employee performance is heavily reliant on organizational performance because human resource capital is critical to an organization's growth and performance.

2.12. Expected Opportunity Loss

Table 5 summarizes the outputs of the calculation of the expected opportunity loss (EOL) or maximum value of regret. This is a different approach to EMVs. It depicts the amount by which the maximum expected or possible returns (income) will be reduced under the four alternative decisions. The best course of action is the one that minimizes these losses or reductions. Based on the EOL in Table 5, D2 produces the shortest EOL of the four alternative decisions. N774834.49 is the smallest of the four. These findings corroborate the findings in EMV in Table 5.

2.13. Second Wave: Summary of Students' New Decisions After the Proposal of Policy Interventions

Table 6 summarizes students' decisions when the university curriculum and programme are reviewed to allow undergraduate students to acquire technical/soft/artisanal skills or take specialized professional examinations as undergraduates and receive a refund of the training/examination cost if they pass everything at once. According to the table, only 87% of respondents returned their questionnaires following the second wave of the survey, which was conducted to determine whether the respondents' previous decisions about personal development/career remained unchanged. Each respondent received an email containing a document containing the simulations of EMV and EOL, as shown in Tables 4 and 5, as well

Table 5: Summary of Regret or Opportunity Loss

Category	State of Nature			
	Unemployment	Wage-employment	Self-employment	EOL in (N)
Graduate with technical/soft/semi-entrepreneurial skills willing to be self-employed	0.00	1037309	4,525,630.69	879246.72
Graduate with neither soft/semi-entrepreneurial skills nor professional competence willing to be in wage-employment	-153571.43	356916.3	5,772,903.42	774834.49
Graduate with a professional certificate but planning to work as a wage-employee	281914.91	0.00	5,772,903.42	943563.75
Graduate with professional certificate working as a self-employed	1824925.76	1037309.01	0.00	1373242.44
Probability of being in a state of nature in 5 years	0.603	0.263	0.134	1

The above figures are expressed in NGN (Nigeria currency): 860.50NGN = 1 USD

Table 6. Summary of Students' New Decisions After the Proposal of Policy Interventions

Category	1st Return	Unreturned Instrument	Porting (%)	2nd Return	No. in the New Cohorts	Diff.
Graduate with technical/soft/semi-entrepreneurial skills willing to be self-employed = D1	48	11	D2=27.02 D3=5.4 D4=0.0	37	41	+4
Graduate with neither soft/semi-entrepreneurial skills nor professional competence willing to be in wage-employment = D2	102	13	D1=13.5 D3=43.8 D4=18.0	89	31	-58
Graduate with Professional Certificate but planning to work as a wage-employee=D3	23	1	D1=13.6 D2=0 D4=22.7	22	60	+38
Graduate with Professional Certificate with interest to work as a self-employed=D4	15	1	D1=0 D2=0 D3=35.7	14	30	+16

Diff. = difference
Note: Students' Decisions when the University Curriculum and Programme were reviewed to allow Undergraduate Students to Acquire Technical/Soft/ Artisanal Skills or Take any Specialized Professional Examination while in school and receive a refund of the Cost of the Training/Examination for Passing the Advanced Trade Test/Professional Cadre Examination at once and with Assurance of Paid Employment, for those who would prefer that option of wage employment).

as their interpretations to help them evaluate their initial decisions. As shown in Table 6, some respondents switched from their previous cohorts to other categories after reading through interpretations. In the second wave of D1, only 77% of respondents returned their properly completed questionnaire. Only 27% of them ported to D2, while 5.4% ported to D3. Of the 91% who returned their completed questionnaires in group D2, 13.5% ported to D1, 43.8% ported to D3, and approximately 18% ported to D4. Similarly, 96% of those who returned for the second wave in D3 ported to D4, while 22.7% ported to D4. On D4, 93% of the first-wave respondents returned their questionnaires correctly, and 33.7% of these respondents returned to D3 when confronted with the new policy recommendations.

Surprisingly, despite having the lowest risk of alternative decisions, D2 had the highest movement of respondents to other groups. The following group is D1. Surprisingly, group D3 experienced the most movement into its group. The group increased by more than 165% over the first return in the study's first wave. Group D4 also experienced a 107% increase in the number of other groups who changed their minds about becoming certified professionals and starting their businesses.

The findings from this study have empirically validated that D3 and D4 will attract high levels of interest in the face of favourable policy intervention, such as a review of the university curriculum to allow undergraduate students to acquire technical/soft/artisanal skills or take specialized professional examinations as an undergraduate and receive a refund of the cost of the training/examination for passing it at once and even when assured of immediate employment opportunity upon completion of the training/examination. It is well established in the literature that well-educated graduates not only form a quality labour force and entrepreneurs but also significantly increase productivity (Papadopoulus and Jones, 2023; Gutierrez, 2017; Sule et al., 2015; Muo, 2013; Tomlinson, 2012). According to Hanaysha and Tahir (2016), creating the right environment for young minds to learn is a form of empowerment, which they would undoubtedly feed back into the system through their entrepreneurial endeavour.

2.14. Socioeconomic Factors Influencing Career Path Changes After Risk Awareness and Policy Considerations

The t-test results comparing the socioeconomics of students who changed their earlier labour market decision after being presented with the risks associated with their first choice and hypothetical introduction of favourable policy frameworks to those who did not change presented in Table 7 reveal several significant findings.

First, in terms of age, there was a statistically significant difference between the two groups. Compared with those who did not change, students who changed their decisions tended to be older, with a mean age of 24 years, with a mean age of 21 years.

Second, the average monthly income of sponsors for students who changed their decisions is significantly lower than that of students who did not change. The mean monthly income of sponsors for the changing group is ₦ 91,048.05, while for the nonchanging group, it is ₦ 205,199.622.

Third, there was a significant difference in the monthly stipends between the two groups. Students who changed their decisions received lower stipends, with a mean of ₦ 15,118.28, than did those in the nonchanging group, with a mean of ₦ 32,402.74.

Furthermore, students who changed their decisions paid significantly lower total school fees over four years (mean of ₦ 512,702.16) than did those who did not change (mean of ₦ 728,388.08).

However, there was no statistically significant difference in the number of grants/scholarships between the two groups. Both groups show similar means in this respect.

Moreover, students who changed their decisions had significantly lower total costs for acquiring soft skills over four years (mean of ₦ 33,601.44) than did those who did not change (mean of ₦ 52,861.15).

Finally, the cost of professional certification over four years is significantly lower for students who changed their decisions (mean of ₦ 114,503.25) than for those who did not change (mean of ₦ 317,266.38).

Multinomial Regression Output

Table 8 presents the outcomes of the multinomial logistic regression analysis investigating factors influencing the career choices of undergraduate students. This statistical method is utilized to pinpoint significant variables that aid in predicting the probability of students selecting a specific career path within five years following graduation. In this research, the "Graduate with neither Soft/Semi-Entrepreneurial Skills nor Professional Competence willing to be in wage-employment=D2" category of the dependent variable was used as the baseline category for comparison, and the findings were analysed accordingly. The validity of the multinomial logistic regression model was assessed using the odds ratio test. Nagelkerke's R-squared value indicates that the model can explain approximately 74% of the variation in the outcome variable, which is the probability of choosing any of

Table 7. Impact of career change on socioeconomic status

Variables	Mean of Students who did not change their decision (104)	Mean of Students who changed their decision (58)	t-statistics (P value)
Age	21 (3.14)	24 (3.55)	-5.5609 (0.000)
Average Monthly Income of Sponsors (₦)	205,199.622 (15,671.21)	91,048.05 (11,042.18)	49,066 (0.000)
Monthly Stipends (₦)	32,402.74 (5,110.69)	15,118.28 (2,821.48)	23.7928 (0.000)
Total School Fees Paid in 4 years (₦)	728,388.08 (20,581.82)	512,702.16 (12,844.06)	72.2891 (0.000)
Grants/Scholarships to support your education in the last 4 years (₦)	122,060.45 (17,223.38)	48,072.55 (5,302.52)	0.3267 (0.7443)
Total Cost of Acquiring Soft Skills in 4yrs (₦)	52,861.15 (7,242.54)	33,601.44 (4,472.57)	18.3778 (0.000)
Cost of Professional Certification in 4yrs (₦)	317,266.38 (27,154.38)	114,503.25 (12,052.07)	53.9256 (0.000)

The above values are expressed in NGN (Nigeria currency): 860.50NGN = 1 USD; Stand. Dev in ()

the four career development path options within five years of graduation. The chi-square value of 160.19 suggests that the likelihood ratio statistics are highly significant ($p < 0.05$), indicating that the overall model has strong explanatory power. The −2 log-likelihood, which measures the remaining error in the model after accounting for all independent variables, is 23.08, indicating that no significant errors remain.

The impact of each independent variable on the dependent variable within the multinomial logistic regression model varies across different categories. The coefficients representing these effects, denoted as βs, indicate the slopes in the model, highlighting their distinctiveness. Significant coefficients within the multinomial logistic regression model allow for interpreting how much they alter the odds ratios compared to a specific baseline category, in this case, the third category. The detailed outcomes of the multinomial logistic regression analysis can be found in Table 8.

2.15. Comparing those who have Career Option "D2" to those who have Career Options "D1", "D3", and "D4"

Category "D1"

Age (X1) emerged as a significant determinant affecting the career decisions of undergraduate students from rural farming households. Older students showed a substantially greater probability of choosing to become graduates with technical/soft/semi-entrepreneurial skills and a greater willingness to be self-employed (category D1) than to become graduates without such skills but willing to be in wage employment (category D2). Specifically, the odds of an older student opting for category D1 concerning D2 were 8.012 times greater than those of a younger student.

The factor of willingness to take risks (X3) emerged as a significant influencer of the career decisions made by undergraduate students from rural farming households. Students who exhibited a greater inclination towards risk-taking showed a notably greater likelihood of opting for a career path as a graduate with technical/soft/semi-entrepreneurial skills and a willingness to be self-employed (category D1) compared to those who chose a path as a graduate without these skills but with a willingness to be in wage employment (category D2). Specifically, the odds of a student with a higher risk-taking propensity selecting category D1 with respect to D2 were 8.534 times greater than those of a student with a lower risk-taking propensity.

The choice of university attended (X5) emerged as a crucial factor impacting the career decisions of undergraduate students from rural farming households. Those who attended public universities exhibited a significantly reduced probability of choosing a career path as a graduate with technical/soft/semi-entrepreneurial skills and a willingness to be self-employed (category D1) compared to opting for a path as a graduate without these skills but with a readiness for wage employment (category D2). Specifically, the odds of a student from a public university selecting category D1 concerning D2 were 0.339 times lower than those of a student from a private university.

Participation in entrepreneurship or business-oriented training within the past year (X6) emerged as a critical factor influencing the career decisions of undergraduate students hailing from rural farming households. Those who engaged in such training demonstrated a significantly heightened likelihood of pursuing a career path as a graduate with technical/soft/semi-entrepreneurial skills and a willingness to be self-employed (category D1) compared to choosing a path as a graduate without these skills but with a readiness for wage employment (category D2). Specifically, the odds of a student who participated in entrepreneurship or business-oriented training within the last year selecting category D1 concerning D2 were 3.323 times greater than those of a student who did not participate in such training within the same timeframe.

The affordability of acquiring entrepreneurial skills was found to be a significant factor in the career decisions of undergraduate students from rural farming households. Students who had the financial means to invest more in acquiring entrepreneurial skills were more likely to pursue a career path as a graduate with technical/soft/semi-entrepreneurial skills and a preference for self-employment (category D1) rather than choosing a path as a graduate without these skills but with a readiness for wage employment (category D2). Specifically, students who could afford more resources for acquiring entrepreneurial skills had 3.174 times greater odds of selecting category D1 than D2 did compared to students who could afford less resources for acquiring these skills.

Category "D3"

The age factor (X1) is a significant determinant affecting the career decisions of undergraduate students from rural farming households. Older students have a greater probability of choosing to become a graduate with a professional certificate but planning to work as a wage employee (category D3) than becoming a graduate without such skills but willing to be in wage employment (category D2). Specifically, the odds of an older student opting for category D3 with respect to D2 are 2.001 times greater than those of a younger student. This suggests that age plays a role in shaping the career decisions of undergraduate students from rural farming households, with older students being more likely to prioritize acquiring professional skills and planning to work as wage employees.

The gender factor (X2) plays a significant role in influencing the career decisions of undergraduate students from rural farming households. Male students are more inclined to choose a career path as a graduate with a professional certificate but planning to work as a wage employee (category D3) compared to becoming a graduate without such skills but willing to be in wage employment (category D2). Specifically, the odds of a male student opting for category D3 concerning D2 are 4.411 times greater than those of a female student. This indicates that gender is a determining factor in the career choices of undergraduate students from rural farming households, with male students showing a greater tendency to prioritize acquiring professional skills and planning to work as wage employees.

The average annual percentage (X4) is a significant factor influencing the career decisions of undergraduate students from rural farming backgrounds. Those receiving higher stipends are more likely to opt for a career path as a graduate with a professional certificate but intend to work as a wage employee (category D3) than those without such skills but who are willing to be in wage employment (category D2). Specifically, students with a higher average annual stipend had 3.483 times greater odds of choosing category D3 than D2. This indicates that gender plays a crucial role in shaping the career choices of these students, as male students are more inclined to prioritize acquiring professional skills and planning to work as wage employees.

The ability to afford to acquire professional skills emerged as a crucial factor influencing the career decisions of undergraduate students from rural farming backgrounds. Those with greater financial capacity to invest in professional certificates but intending to work as a wage employee (category D3) compared to those without such skills but willing to be in wage employment (category D2) rather than opting for a path as a graduate lacking these skills but ready for wage employment (category D2). Specifically, students who could afford a greater investment in professional competence and skills had 2.113 times greater odds of choosing category D3 than D2 compared to those with a lower investment capacity for acquiring these skills.

The expected annual income for new entry employees or beginner entrepreneurs (X11) has been identified as a critical factor influencing the career choices of undergraduate students from rural farming backgrounds. Those anticipating higher income levels in these roles are more likely to pursue a career path as a graduate with a professional certificate but planning to work as a wage employee (category D3) rather than opting for a path as a graduate lacking these skills but ready for wage employment (category D2). Specifically, students expecting higher income levels in these roles have 2.113 times greater odds of choosing category D4 over D2 than do those expecting lower income levels.

Category "D4"

Age (X1) significantly influenced the career choices of undergraduate students from rural farming backgrounds. Older students are more likely to opt for a career path as a Graduate with a Professional Certificate and a preference for self-employment (category D4) compared to becoming a graduate without these skills but willing to work in wage-employment (category D2). Specifically, the odds of an older student choosing category D4 over D2 are 1.499 times greater than those of a younger student.

The willingness to take risks factor (X3) has been identified as a significant influencer of career decisions among undergraduate students from rural farming backgrounds. Those demonstrating a stronger inclination towards risk-taking are notably more likely to opt for a career path as a Graduate with a Professional Certificate and a preference for self-employment (category D4) compared to choosing a path as a graduate lacking these skills but prepared for wage employment (category D2). Specifically, the odds of a student with a higher risk-taking propensity selecting category D4 over D2 were 1.937 times greater than those of a student with a lower risk-taking propensity. This suggests that the level of risk tolerance plays a role in shaping the career choices of undergraduate students from rural farming households, with risk-tolerant students leaning towards acquiring professional skills and planning to work as self-employed individuals.

The value of the average annual percentage (X4) significantly influences the career choices of undergraduate students from rural farming backgrounds. Those with higher stipends are more likely to pursue a career path as a graduate with a professional certificate and a preference for self-employment (category D4) compared to those lacking these skills but willing to work in wage employment (category D2). Specifically, students with a greater average annual number of stars had 3.483 times greater odds of choosing category D4 over D2 than did those with a lower number of stipends. This suggests that gender plays a crucial role in shaping the career choices of these students, as male students tend to prioritize acquiring professional skills and planning to work as wage employees more than female students do.

Participating in entrepreneurship or business-oriented training in the previous year (X6) has emerged as a crucial factor impacting the career choices of undergraduate students from rural farming backgrounds. Students who engaged in this training were significantly more inclined to pursue a career path as a Graduate with a Professional Certificate and a preference for self-employment (category D4) rather than opting for a path as a graduate lacking these skills but prepared for wage employment (category D2). Specifically, the odds of a student participating in such training within the last year choosing category D4 over D2 were 3.059 times greater than those of a student who did not participate in such training during the same timeframe.

Access to Education Credit/Loan/Grant Support within the last year (X7) has emerged as a critical factor influencing the career decisions of undergraduate students from rural farming backgrounds. Those who had access to such support were significantly more likely to pursue a career path as a Graduate with a Professional Certificate and a preference for self-employment (category D4) rather than opting for a path as a graduate lacking these skills but prepared for wage employment (category D2). Specifically, the odds of a student who had access to Education Credit/Loan/Grant Support choosing category D4 over D2 were 8.207 times greater than those of a student who did not have access to such support.

Table 8: Output of Multinomial Logistic Regression for the Determinant of the Choice of Students' Career Path within the First Five Years after Graduation

Variables	Category 1 (D1)				Category 3 (D3)				Category 4 (D4)			
	Coef. (β)	Stand. Error	Odds Ratio ($e\beta$)	p-value	Coeff. (β)	Stand. Error	Odds Ratio ($e\beta$)	p-value	Coef. (β)	Stand. Error	Odds Ratio ($e\beta$)	p-value
Intercept	-1.06	0.03	0	<0.000	2.047	0.005	8	<0.000	1.209	0.03	3	<0.000
X1=Age	2.081	1	8	<0.000	0.694	0.118	2	<0.000	0.405	0.11	1	0.0474
X2=Gender (Reference: Female=0)	0.938	0.56	3	0.1	1.484	0.1097	4	<0.000	1.325	0.91	0	0.1488
X3= Propensity to take risk, measured using 5 scale likert rating (very high=4 and not willing to take risk at all=0)=(Mean value)	2.144	0	9	<0.000	0.74032	0.161	2	<0.000	0.661	0.01	2	<0.000
X4=Average Annual Stipend	0.382	0.29	1	0.19	1.248	0.012	3	<0.000	1.185	0	3	<0.000
X5=University Attended: Public University=1; Private University=0 (Ref =0)	-1.08	0.04	0	<0.000	0.15456	0.291	1	0.596	0.138	0.09	1	0.1185
X6=Did you Participate in Entrepreneurship or Business Oriented Training in the last 1 year Yes=1; No=0 (Ref Category=0)	1.201	0.12	3	<0.000	-1.2522	1.011	0	0.217	1.118	0.01	3	<0.000
X7=Did you have Access to Education Credit/Loan/Grant Support in the last 1 year? Yes=1; No=0 (Ref Category=0)	1.428	0.85	4	0.1	-2.3576	1.504	0	0.119	2.105	0.82	8	0.011
X8= affordable amount for acquiring Entrepreneurial Skills	1.155	0.24	3	<0.000	1.54784	1.106	5	0.163	1.382	0.05	4	<0.000
X9= affordable amount for acquiring Professional Skills?	0.416	0.3	2	0.17	0.74816	0.113	2	<0.000	0.668	0	2	<0.000
X10=Marital Status: Single=1; Married=0 (Ref Category=1)	0.218	0.13	1	0.09	0.05264	0.35	1	0.881	0.047	0.03	1	0.1561
X11=Expected Annual Income as new entry employees or beginner entrepreneur	2.393	1.53	11	0.12	1.70464	0.0163	5	<0.000	1.522	0.14	5	<0.000
Nagelkerkes R-squared = 0.744												
chi-square value = 160.19 (P<0.05)												
−2 log-likelihood = 23.08												

Graduate with Technical/Soft/Semi-Entrepreneurial Skills willing to be self-employed=D1; Graduate with neither Soft/Semi-Entrepreneurial Skills nor Professional Competence willing to be in wage-employment=D2 (Reference Category); Graduate with Professional Certificate but planning to work as a wage-employee=D3; Graduate with Professional Certificate with interest in working as a self-employed=D4

The ability to afford to gain entrepreneurial and professional skills is a key factor affecting the career choices of undergraduate students from rural farming backgrounds. Those with more financial resources tend to pursue entrepreneurial skills and professional certification, aiming to become self-employed (category D4), while those without these skills are more inclined towards wage employment (category D2). Specifically, students who can invest more in entrepreneurial and professional

competence have almost 3.983- and 1.950-fold greater chances of opting for category D4 than D2, respectively, compared to those with lower investment capacity for acquiring entrepreneurial skills and entrepreneurial skills.

The projected annual income for new entry employees or novice entrepreneurs (X11) has been pinpointed as a pivotal determinant influencing the career trajectories of undergraduate students hailing from rural farming backgrounds. Individuals foreseeing elevated income prospects in these roles demonstrate a greater inclination towards pursuing a career trajectory as a Graduate with a Professional Certificate, harbouring an interest in self-employment (category D4), as opposed to opting for a path as a graduate lacking these specific skills but prepared for wage employment (category D2). To be precise, students envisioning higher income levels in these capacities exhibit a 4.581 times greater likelihood of selecting category D4 over D2 compared to those envisioning lower income levels.

The connection between the demographic phenomenon known as youth migration, youth unemployment, and security, especially in sub-Saharan Africa, has been a significant topic in academic discussions for nearly twenty years. The heightened unemployment rate among rural youth in this area has made it challenging for previous policy efforts to effectively meet their intended goals. However, there is a lack of evidence in the literature regarding the impact of risk-taking tendencies, government policies related to funding support for students, access to pertinent entrepreneurial skills, and the acquisition of professional certifications on students' career decisions. Against this background, the paper's approach to exploring the risk associated with students' career choices and determinants of the career choices of undergraduate students from rural areas is very important not only at the individual level but also at the level of associational activity. From the literature and after a deep reflection on available jobs and career options available in the subregion, four career options were isolated for deep interrogation. Specifically, the first important contribution was made by identifying the risks associated with these career options. This paper examined the determinants related to the career choices of respondents (rural youth). Out of 188 completed questionnaires, 26% of the respondents preferred technical/soft/semi-entrepreneurial skills for self-employment (D1), 8% favoured highly specialized professional certification for self-employment (D4), and approximately 54% and 12% chose to become graduates with neither soft skills nor professional competence willing to work as wage employees (D2) and to become graduates with professional certificates but who intended to work as wage employees (D3), respectively. After analysing risks and presenting proposed policies, respondents were given the option to maintain or alter their decisions. This study underscores decision 2 (D2) as the most favourable alternative, emphasizing its significance among graduates. It also highlights the potential impact of favourable policy interventions on encouraging students to consider Decision 3 (D3) and Decision 4 (D4), particularly when addressing substantial costs tied to professional certifications. The observed socioeconomic variations between students who altered their decisions and those who did not underscore the profound impact of the presented risks and policy frameworks on shaping career trajectories.

An econometric method to determine the factors influencing rural youth (undergraduate students) revealed that age, gender, risk propensity, university type, entrepreneurship training, affordability of skills, annual stipends, education support and expected income were significant determinants. The study revealed that the average age of the undergraduate students in the study area was approximately 26 years. Similarly, older students from rural farming backgrounds are more likely to choose a career path with technical/soft/semi-entrepreneurial skills and a preference for self-employment over wage employment compared to younger students. However, Premand et al. (2016) found that the average age of student entrepreneurs is 23 years. This trend may indicate that older students, who are likely to have more exposure to challenges and opportunities in rural farming communities, are increasingly recognizing the value of acquiring technical, soft, or semi-entrepreneurial skills to pursue self-employment ventures. Compared with female students, male students show a greater tendency to pursue a career path with a professional certificate and a greater preference for wage employment over self-employment. This finding corroborates the findings of Love et al. (2024) and Iqbal (2024). This finding suggests that there may be gender disparities in the career paths chosen by male and female students. This indicates that there may be societal and cultural factors influencing career preferences and decisions, leading to different career trajectories for men and women. The study also revealed that rural students with a greater willingness to take risks are more inclined towards a career path involving technical/soft/semi-entrepreneurial skills and a preference for self-employment over wage employment. These findings align with those of Hakim et al. (2019), Yulianti et al. (2023) and Hennessy & Yip. (2021). This suggests the need to foster an environment that supports and encourages entrepreneurship among rural youth. Compared to attending a private university, attending a public university decreases the likelihood of choosing a career path with technical/soft/semi-entrepreneurial skills and a preference for self-employment. This suggests that the curriculum and teaching methods at public universities may need to be evaluated and potentially revised to better align with the needs of students interested in technical, soft, or semi-entrepreneurial skills. Participation in entrepreneurship or business-oriented training increases the likelihood of choosing a career path with technical/soft/semi-entrepreneurial skills and a preference for self-employment. Similarly, Badawi (2024) found that an entrepreneurial mindset encourages a culture of innovation and drives economic growth. The financial capacity to afford to acquire entrepreneurial and professional skills influences career choices, with higher affordability associated with a preference for self-employment. This finding corroborates that of Adekunle (2024), who posits that by increasing access to working capital, skills development, affordable utilities, and transportation infrastructure, entrepreneurs can more effectively enhance traditional production methods. Higher stipends are linked to a greater likelihood of choosing a career path with a professional certificate and a preference for wage employment. Providing higher stipends or financial aid to students pursuing professional certificates can encourage more individuals to choose these career paths. This can be particularly beneficial for students from low-income backgrounds who may have limited resources to invest in their education and training. Access to financial support for education significantly increases the likelihood of choosing a career path with a professional certificate and a preference for self-employment. This connection suggests that financial backing plays a crucial role in shaping career choices, particularly in terms of pursuing specialized qualifications and entrepreneurial endeavours. The anticipation of higher income as new entrants or novice entrepreneurs is associated with a greater likelihood of choosing a career path with a professional certificate and a preference for self-employment.

Conclusion

This study explores the complex interplay between youth migration, unemployment, and security in sub-Saharan Africa, focusing on the persistent challenge of high rural youth unemployment. It critically assesses various factors influencing career decisions among rural youth, including risk-taking tendencies, government funding policies, access to entrepreneurial skills, and the acquisition of professional certifications. Key findings highlight the crucial role of financial support in education, linking it to a greater likelihood of pursuing careers with professional certificates and a preference for self-employment. Demographic trends reveal age and gender disparities in career preferences, with older students and males leaning towards technical skills and wage-employment paths associated with professional certificates. The study also underscores the impact of educational institutions, noting public universities' tendency to discourage self-employment-oriented career paths compared to private universities. It emphasizes the importance of entrepreneurship training, the affordability of skills development, and financial capacity in fostering self-employment preferences among rural youth. This research provides valuable insights into the multifaceted factors shaping career decisions among rural youth in sub-Saharan Africa. These insights can inform targeted interventions by policymakers and educational stakeholders to empower young people with the necessary skills, resources, and opportunities for success in the evolving job market and entrepreneurial landscape.

The study's recommendations focus on addressing high rural youth unemployment and promoting self-employment opportunities in sub-Saharan Africa. Key recommendations include enhancing financial support for education through increased funding and scholarships, particularly for programmes leading to professional certificates and entrepreneurship training. Additionally, promoting entrepreneurship training, revising government funding policies to prioritize technical and entrepreneurial skills development, and improving accessibility to skills development in rural areas are crucial strategies. Targeted initiatives to address gender and age disparities in career preferences, support curriculum revisions in educational institutions, facilitate access to resources for self-employment ventures, and encourage policy dialogue and collaboration are also recommended. Overall, these recommendations aim to empower rural youth with the necessary skills, resources, and opportunities for success in the job market and entrepreneurial landscape, fostering inclusive economic development and social prosperity.

Abbreviation List

COREN: Certified Fellows of the Council for the Regulation of Engineering Nigeria
PMP: Project Management Professional
ICAN: Institute of Chartered Accountants of Nigeria
CFA: Certified Financial Analyst
FRM: Financial Risk Management
PHRI: Professional in Human Resources International
CIPM: Chattered Institute of Personnel Management
D1: Graduates with technical/soft/semi-entrepreneurial skills express a desire to be self-employed within the initial five years postgraduation.
D2: graduates lacking Technical/Soft/Semi-Entrepreneurial Skills or Professional Competence opting for wage employment
D3: graduates with professional certification planning to work as wage employees
D4: graduates with professional certification aspiring to work as self-employed individuals

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