National Directorate of Employment (NDE) Training and Performance of Selected Agricultural Small and Medium Enterprises in South-West, Nigeria

Ajayi O. Bolaji
Department of Entrepreneurship, Joseph Ayo Babalola University, Osun State, Nigeria.
e-mail:f4ajayi @gmail.com

Afolayan A. Fisayo
Institute for Sustainable Develpoment, First Technical University, Ibadan, Nigeria.
e-mail:ayofafolayan @gmail.com

Festus M. Epetimehin
Dean, College of Management Sciences, Joseph Ayo Babalola University, Osun State, Nigeria.

Kayode Y. Adeigbe
Head of Department, Department of Business Administration, Joseph Ayo Babalola University, Osun State, Nigeria.

ABSTRACT

The backbone of industries remains the presence and proliferation of entrepreneurial activities that define small and medium scale Enterprises (SMEs).This study was conducted to identify the effect of NDE training on the profit of Agricultural Small and Medium Enterprises (SMEs) and evaluate the factors that influenced farmers' participation in NDE training, as well as the type and frequency of training farmers and other agro-allied entrepreneurs in Nigeria. Using multi-stage sampling procedure, a total of 384 respondents were sampled including 194 beneficiaries and 194 non-beneficiaries in Oyo and Lagos States, respectively. Data were analysed using Binary Logit regression and Propensity Score Matching techniques. According to the binary logit analysis, respondents' gender, availability to extension services, and the location of respondents operation were determinant factors influencing NDE training enrolment. Propensity score matching revealed that Agricultural Small and Medium Enterprises (Agri-SMEs) who participated in the NDE program boosted their profit by ₦341, 072.18. The positive outcome of the effect implies that NDE trainings enhance Agri-SME performance in Nigeria. The study concluded that greater funding should be provided for the NDE for performance enhancing trainings of the Agri-SMEs. It was recommended that there should be more support for the extension services by improving the ease of access of the services by the farmers, both in terms of cost and availability. An alternative suggestion is to ensure more quotas is given to other states in participation in the NDE capacity training.

Keywords: *Propensity Score Matching (PSM), Binary Logit model, Agri-SME, NDE, Agro-allied*

1.1 Introduction

Agricultural small and medium enterprises (Agri-SMEs) is a term used to refer to Small and Medium Scale agricultural enterprises that produce, process or market agricultural products or produce. Being an extract of the popular Small and Medium Scale enterprises but for farmers (Iorun, 2014), Agri-SMEs is gaining traction, playing an important role in the development and growth of the country and economy as a whole by generating employment, income, food security for majority of the population who dwells in rural, peri-urban centres, and even in the urban areas (Taiwo M. A., Ayodeji A. M. & Yusuf B. A. (2012).; Uzoejinwa B. B., Ani A. O., Abada U. C., Ugwuishiwu B.O., Ohagwu C.J. & Nwakaire J.N. (2016). However, recent global food price increases and high levels of inflation brought about

inadvertently by the COVID-19 lockdown affecting major agricultural production firms have provided an opportunity to increase farmers' profitability (Mgbanya, J. C., Onwumere, J. C., Eze, A. V., Nwokenekwu, A. V., & Igwe, E. O. (2018). However, to realize the benefit of higher prices, farmers need to access a wider range of information, related not only to production technologies but also to post harvest processes, access to remunerative markets, price information, and business development (Sulaiman & van den Ban, 2003, Donovan, J., Franzel, S., Cunha, M., Gyau, A., & Mithöfer, D. (2015).

1.2 Statement of the Problem

Access to proper and formal information by the farmers in Nigeria has been a major challenge from time past. Even with the continuing efforts of extension agents, other government personnel and coordinated efforts to bring needed productivity impacting information to the farmers in a timely fashion, this has not yielded to expected target as most farmers find timely information unaffordable, not readily available, or do not have access to the information directly or are in one way or the other disenfranchised. Even though extension agents abound and perform their tasks in disseminating information, it is just not enough to service the growing population of Agri-SMEs in Nigeria. Some of the requirements to ensure sufficient production and to produce certain exotic crops with special agronomic practice are provisions of need-based training and capital to the farmers (Ullah, A., Islam, M. N., Hossain, M. I., Sarkar, M. D., & Moniruzzaman, M. (2013). This is taking a toll on the profitability of these farmers. This informed the training exercise of National Directorate of employment (NDE) which is a government organization with the mandate to build capacity and to furnish the farmers with skills that lead to growth and high profitability.

During the rule of General Ibrahim Babangida, Nigeria established the National Directorate of Employment (NDE) in March 1986, and its programs were publicly inaugurated in January 1987. The major goal of the National Directorate of Employment (NDE) was to be in charge of creating jobs for Nigeria's burgeoning unemployed population. The program's goal was to develop and articulate solutions to address the economy's overall unemployment problem. Obtaining and maintaining a data bank on declared vacancies and employment in the economy in order to cut job search costs is part of this.NDE's efforts touch on every aspect of the economy. It implements a variety of programs, including job counseling and placement, vocational skills acquisition training, entrepreneurial training and enterprise creation, training for rural employment promotion, training for labor-based transient work, and collaboration with other relevant agencies and organizations, to name a few (Adofu & Ocheja, 2013). NDE has been protected by law from its inception during the military administration, with its continuous existence guaranteed by the Federal Republic of Nigeria's enabling act, CAP 250 (FGN, 2020). Despite its continuous operation and funding, which gulped N5,905,302,638 in the 2016 budget (FGN, 2016), Nigeria's unemployment rate continues to rise, and the set target is not being met. Inadequate funding and late distribution of funds from the Federation Account, managerial deficiencies, policy distortions, and corruption are some of the obstacles that prevent NDE from realizing its full potential (Odey & Okoye, 2004). In 1996, an upgrade to the NDE kernel program outline from 1987 was released. Vocational Skills Development (VSD) Program, Small Scale Enterprise (SSE) Program, Special Public Works (SPW) Program, and Rural Employment Promotion (REP) Program were reorganized as the NDE's primary employment generation programs (Oyemomi, 2003).

Despite the fact that several studies have been conducted to evaluate the profitability and performance of farming and agro-allied enterprises (Opata & Arua, 2017; Opata & Ezeibe, 2018), there are few resources available to examine the impact of NDE training on the profit of AGRISMEs (Oyemomi, 2003; Obike, K. C., Ukoha, O. O., & Nwajiuba, C. U. (2007), which is why this research was conducted.

1.3 Objective of the Study.

The main objective of the study is to identify the effect of NDE training on Agri-SMEs performance in Nigeria. The specific objectives are to:

i) identify the effect of NDE training on the profit of Agri-SMEs in Nigeria.

ii) evaluate the factors that influence farmers' participation in NDE training, as well as the type and frequency of training farmers and other agro-allied entrepreneurs in Nigeria.

1.4 Research Questions

For the purpose of this study, the following questions would be asked:

i) What is the effect of NDE training on the profit of Agri-SMEs in Nigeria?
ii) What are the factors that influence the farmers' participation in NDE training in Nigeria?

1.5 Research Hypothesis

The following hypotheses were formulated in line with the research objective.

i) Ho1: There is no significant effect between NDE training and the profit of Agri-SMEs in Nigeria.
ii) Ho2: There are no significant factors that influence the farmers' participation in NDE training in Nigeria.

2.0 Literature review

Training, by definition can be described as, the dynamic process of ensuring a worker (be it employee or employer) reach an expected level of competence. For SMEs, Davies & Ryan (2005) assert that training is a specialized function and employees should acquire the specified operating procedure for a job and not just another worker's version. According to Markin (2009), training remains one of the critical zones of human resource development and knowledge management besides the internal function of assessing the challenges of learning and development so as to achieve set enterprise goal. It is pertinent to note that several enterprises satisfy their training needs using a non-definite methods and time thereby varying the amount and quality of training enormously for the target audience. This variation can be adduced to the several factors like internal and external changes, workers adaptability and motivation, management commitment, enterprise goal, the characteristics of the trainers' themselves.

Training is a salient issue that has to be faced by every organization, whether large or small, and must be perceived more as an opportunity than a hindrance. The whole doctrine is to gain knowledge and skills, whether formally or informally, that would create tangible benefits for all stakeholders. Operated in a supportive environment, it will produce positive outcomes and this cannot be over-emphasized. Its relevance and effectiveness, whether in amount or quality, would result in significantly improved yields. After all, as Clark (2001) relates, 'knowledge is the only instrument of production that is not subject to diminishing returns'- it ought to remain that way and be appreciated by SMEs.

Several researches highlighted that within the SMEs, as reported by Kotey and Folker (2007), that there are differences in attitudes to training which can be ascribed to to firm size and ownership. This gives credence to efforts into investigating details of small business failure where Everett and Watson (1997) posit that inadequate capital and a deficiency of appropriate human resource skills are the primary factors. Freel (2000) emphatically reiterate that any lack of training constitute a major hindrance to achieve effective levels of management skills within SMEs whilst Coleman (2004) asserts that about 20 per cent of employers believe that their workforce's skills are distinctly inadequate.

For most organizations, training must be present to ensure that all employees understand not only their role, but also the organizational goals, policies and procedures so that they can assimilate and feel more comfortable in their work environment. But, Bone &Stainer (2005) emphasize that there are five main barriers to 'learning' : resistance to change, stress, responsibility and commitment, poor communication and, lastly, training gap, the latter being the most relevant when assessing performance and productivity outcomes. Thus, it is essential for employees in SMEs to receive the 'right' training; this is because, often enough, according to Davies & Ryan (2005), it is a 'hit and miss' occurrence. Informal or unplanned training seems to be at the heart of the SME culture and, as propounded by Hill & Stewart (2000), it can easily be integrated into daily operations, with the perception of being less costly. Sadly, such a concept is very much short-term oriented.

2.1 Theoretical review

The theoretical underpinning for this work is the dynamic capabilities theories which have acquired immense relevance in strategic management research (Laaksonen & Peltoniemi, 2016; Rashidirad, & Salimian, 2020). The theory of dynamic capabilities was propounded by Teece, Pisano and Shuen (1997), but further expatiated by the efforts of Prahalad and Hamel (1990). Teece (2017) highlighted that ordinary capabilities are mostly about busineses doing the right thing, while dynamic capabilities were about doing the thing right in terms of new product and system growth, unique management orchestration process, change-oriented organisational culture, and accurate assessment of business climate and technology trends at the right time. It is highlighted that strong and dynamic capabilities are indeed possessed by few, not by many (Teece, 2017). Dynamic capabilities and strategic management examine how the firm can surpass sustainable competitive advantages, especially in times of change and uncertainty. Constant differences in corporate commitments to sustainability have led to an increasing discuss (Wu, 2017). With rapid innovation and unique business models, a business with high dynamic capabilities could indeed stay ahead (Schoemaker, Heaton &Teece, 2018; Cuervo-Cazurra et al., 2020).

Since the world economy has become much more accessible and the characteristics of innovation and production have become much more diversified, geographically and organisationally, the relevance of dynamic capabilities has been reinforced in recent times (Teece, 2011; Kuuluvainen, 2012). Findings by Salunke et al., (2011) has shown that businesses intentionally use, develop, expand and adjust processes to establish and develop essential dynamic capabilities. Dynamic capabilities can be effectively separated into three central clusters of actions other than for application purposes such as "(i) identification, development, co-development and assessment of technological opportunities in relation to customer needs (sensing); (ii) mobilisation of resources to address needs and opportunities, and to capture value from doing so (seizing); and (iii) continued renewal (transforming)" (Teece, 2017b).

Moreover, with regard to strategic business models, the strategic business model clearly indicates the planned control-related initiatives for future processes, which included four modes of organisational management control activities such as finance, diversification, information and innovation (Betz, 2016). Likewise, Teece (2018) pointed out that the business model, dynamic capabilities and strategy were indeed interdependent, leading to the choice of specific business models, target markets with a go-to-market strategy over all other strategic analyses.

In the same vein, Ritter and Lettl (2018) found that business model studies have been configured as a network connecting a component to the further growth of strategic management literature. Teece (2017) noted that dynamic capabilities encourage business models, mostly in the sense that an adaptively capable firm would be dynamic, that could quickly transform, test and reconfigure new and revised business models. This is a simple way of looking at any enterprise. A model of business (enterprise system) can be constructed as (1) overhead activities beyond (2) changing open-system; and the open-system share attains material, capital and workforces resources from the economy, transforming into goods or services and selling the goods and services within the marketplace of the economy (Betz, 2016), that would further enhance sustainable growth of SMEs. Therefore, in this study, relating dynamic capabilities theory with the innovation elements of organizational culture, strategic orientation, technology orientation and strategic business model alongside innovation competitive advantage and sustainable growth of SMEs would be necessary.

2.2 Empirical review

In the study on the Impact of the National Directorate of Employment's Programs on Graduate Employment and Unemployment in Kaduna State, Nigeria, Ogunlela (2012) portrayed a bleak image of job creation based on NDE's efforts. In a study conducted by Obike et al. (2007) to investigate the role of the National Directorate of Employment (NDE) in poverty reduction among farmers in Abia State, Nigeria, it was discovered that beneficiaries of various NDE trainings had more access to productive resources and made more use of those resources than non-beneficiaries, resulting in higher production and profitability.

3.0 METHODOLOGY

Study Area:

The study was carried out in South-western geopolitical zone of Nigeria, precisely in Lagos and Oyo states based on the predominance of Small and Medium Enterprises (SMEs) in the area. The zone has six (6) States which are Ekiti, Oyo, Osun, Ogun, Ondo and Lagos is characterized with low land tropical forest types with distinct wet and dry seasons which favour the growth of varieties of food and cash crops. The South-western region of Nigeria is homogeneous in culture and populated by the Yoruba ethnic group and hence unified by a general language known as Yoruba. Main occupation of the people is farming as well as other agricultural related activities along with trading and craft specialization. According to national population census of 2006, the zone has a total population of 27,511,992 with male having a number of 14,049,594 and female has 13,462,398 (NPC, 2007).

Sampling Technique:

Multi-stage sampling technique was used to select the respondents for the study. The first stage involved purposive selection of Oyo and Lagos States based on predominance of agricultural entrepreneurship ventures in the study area. In the second stage, four Local Government Areas were purposively selected based on heavy presence of agricultural entrepreneurial activities in each of the two states. The third stage was done using random sampling of 48 entrepreneurs engaged in agriculture comprising of both beneficiaries and non-beneficiaries of NDE Training in Nigeria with the proportion shared equally. Yamane (1967) sample size determination formula was used for sample size determination. This was done for the study at 95% confidence level and margin error of 5, a sample size of 384 was obtained. After data collection, there were 131 sampled participants and 254 non-beneficiaries in the training exercise.

Sources of Data:

Survey research design, with focus on descriptive cross sectional research design was used for this research to collect primary data. The research design involved one-time observation of independent and dependent variables and was used to assess the thoughts, opinions and feelings of different groups of individual with honest feedbacks.

Analytical technique

The data collected were analyzed using binary logit regression and the propensity score matching technique.

Binary Logit regression

The binary logit regression model was used to identify the factors that impacted farmers' involvement in NDE training, as well as to estimate propensity scores. The model is stated formally as follows:

$$Y= \beta_0+\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_4+\beta_5X_5+\beta_6X_6+\beta_7X_7+\beta_8X_8+\beta_9X_9+\beta_{10}X_{10}+\beta_{11}X_{11}+\beta_{12}X_{12}+(1)\ \beta_{13}X_{13}+e$$

Where:

Y_i = participation in NDE training, X_1 = Gender (male=1, female =0); X_2 = Age (years); X_3 = Household Size (number); X_4 = Years of education (number); X_5 = Marital status (married =1,otherwise =0); X_6 =farming experience (number); X_7 = Access to credit (yes =1, no=0); X_8 = Access to extension service (yes =1, no=0); X_9 = membership of association (yes =1, no=0); X_{10}= land ownership (yes =1, otherwise = 0); X_{11} = primary occupation (farming=1, otherwise=0); X_{12} = other occupation (yes =1, no=0);X_{13} = state of operation (Lagos = 1, otherwise = 0); ε_i = error term.

Propensity Score Matching

PSM is a non-parametric approach that has been frequently used to investigate the effects of program participation on farm outcomes and household wellbeing (Bidzakin et al., 2019; Balirwa et al., 2016; Abdulai and Hoffman, 2014). Because the PSM model is non-parametric, it corrects the treatment effect of self-selection and nullifies assumptions about the specification of functional form between predictors and outcome variables, making it more suitable for studies with self-selection properties (Bidzakin et

al., 2019; Ayinde et al., 2018; Manda et al., 2016). PSM is primarily concerned with comparing observable factors between participants and non-participants in order to generate a balanced outcome distribution.To put it another way, PSM creates conditions in a randomized experiment in order to assess causal effects gained in a controlled experiment (Diaz and Honda, 2004; Rosenbaum and Rubin, 1983; Heckman et al., 1997).

PSM (Propensity Score Matching) is a popular evaluation tool for comparing the average result of intervention beneficiaries and non-beneficiaries. This model, which is based on strong identifiers and propensity score values, computes the average treatment effect. Multiple endogenous and exogenous elements, such as socioeconomic indicators, serve as identifiers (Ayinde et al., 2018). However, if a counterfactual condition is not formed, the change generated by a treatment may be difficult to detect (Bidzakin et al., 2019). Given that the outcome variable may be linked to participation or non-participation decisions, the issue of self-selection becomes critical.

Expected outcome for participants and non-participants, $Y_{iOP}$and Y_{iNOP} are given as

$E(Y_{iOP}|D_i = 1) = X\beta_{iOP} - \sigma_{iOPe},\lambda_{OP}$ .....(1)

$E(Y_{iNOP}|D_i = 0) = X\beta_{iNOP} - \sigma_{iNOPe},\lambda_{NOP}$ .....(2)

According to Lokshin and Sajaia (2004), the predicted outcome yields an unbiased assessment of the participation effects, which is referred to as the "average treatment effect" on the treated (ATT). This encapsulates the impact of NDE training on farmer profitability and reads as follows:

$ATT=E(Y_{iOP}|D_i = 1) - E(Y_{iNOP}|D_i = 1)$.....(3)

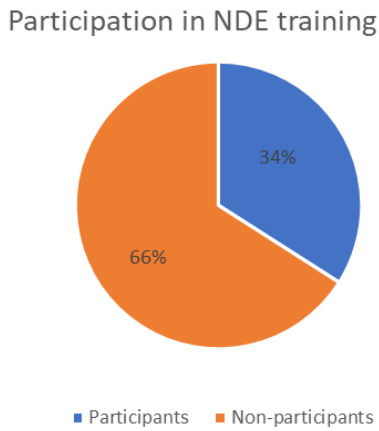
4.0 RESULT AND DISCUSSION

Table 1: Descriptive statistics of respondents (socio-economic characteristics) n=384

Variable	Description of variable	Mean	SD
Participation	1 for participation, 0 for otherwise	0.34	0.47
Gender	1 if male, 0 if female	0.68	0.47
Age of respondent	Age of entrepreneur	44.66	8.94
Education	Years of education of the entrepreneur	12.48	2.30
Marital status	1 if married, 0 if otherwise	0.51	0.50
Years of farming experience	Years of experience in farm agribusiness	13.40	8.33
Access to credit	1 if entrepreneur has access, 0 if otherwise	0.36	0.48
Access to extension service	1 if entrepreneur has access, 0 if otherwise	0.53	0.50
Membership of cooperative society	1 if entrepreneur is a member, 0 if otherwise	0.45	0.50
Land ownership	1 if entrepreneur owned land, 0 if otherwise	0.49	0.50

From Table 1, most of the AgriSMEs sampled were not beneficiaries of NDE trainings. Majority of the respondents were male and with an average age of about 45 years. This indicates that most of the respondents were within their active age group and can maximize information to the fullest. Likewise, most of the respondents had long years of education with the mean years of education being about 13 years indicative of secondary education. This implies that the respondents can read, write and keep proper record of production and other useful information that are keen to production success. Majority of the sampled Agri-SMEs were also married with about 14 years of farming experience in chosen farming enterprise. Access to credit was poor as 36% of the respondents had access, while majority (53%) had access to extension services. 45% of the sampled Agri-SMEs were members of cooperative societies while majority (51%) do not own their farm lands.

a. Pictorial representation of type of trainings



Source : Field Survey 2021

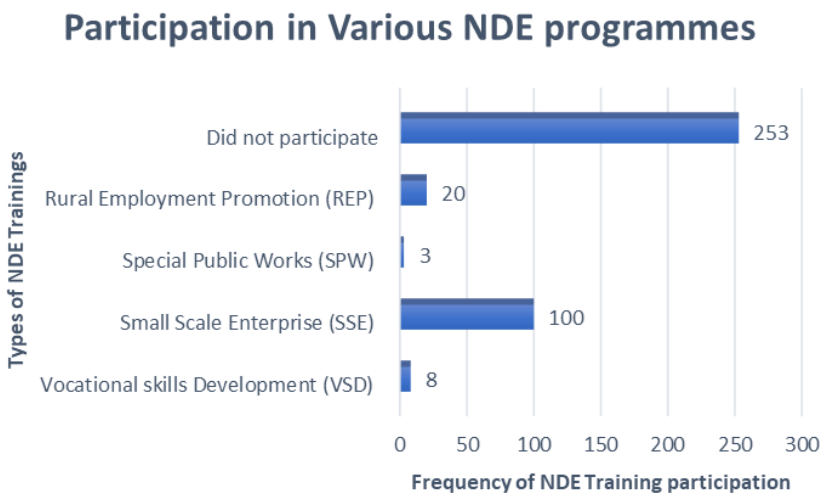


Table 2: Factors affecting participation in the NDE training for the AgriSMEs

Variables	Coefficient	SE	P value	Marginal Effect
Gender	0.525**	0.256	0.040	0.682
Age	0.009	0.020	0.638	44.662
Household size	0.003	0.004	0.426	21.372
Years of education	-0.071	0.055	0.193	12.477
Marital status	0.240	0.248	0.333	0.513
Farming experience	-0.020	0.020	0.325	13.396
Access to credit	-0.034	0.261	0.897	0.362
Access to extension services	0.702**	0.247	0.005	0.466
Membership of cooperatives	0.357	0.243	0.142	0.445
Ownership of land	-0.155	0.226	0.491	0.490
Primary occupation	-0.116	0.271	0.668	0.693
Secondary occupation	-0.014	0.296	0.961	0.198
State of operation	0.601**	0.243	0.013	0.500
Constant	-1.131	0.918	0.218	
LR chi2 (13)	27.99			
Prob >chi2	0.0091			
Pseudo R^2	0.568			
Log likelihood	-232.45169			

** significant at 5%

Source: Field Survey 2021

Factors affecting participation in the National Directorate of Employment training for the AgriSMEs.

The factors relevant in the influence on participation in NDE training among AGRISMS in the research region include farmers' gender, access to extension services, and state from where the farmers operate (Table 2). Being a man has a beneficial effect and leads to a 0.53-unit increase in the chance of farmers participating in NDE training. This lends support to...

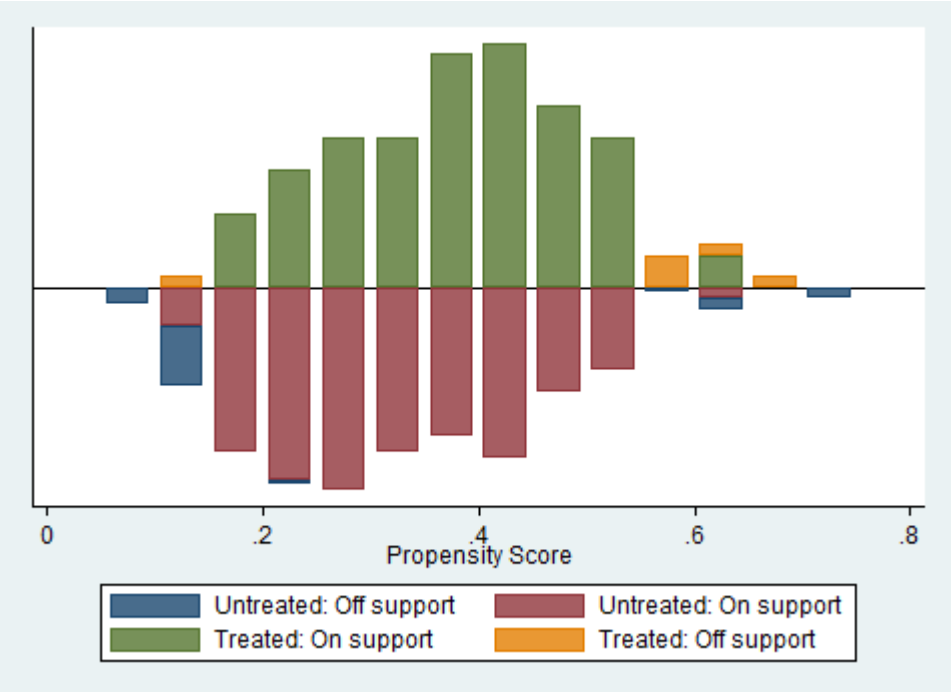
Farmers' involvement in NDE trainings is also influenced positively by access to extension services. Extension visits enhance the probability of participation in training by 0.702 units on average.

Also, the state at which farmer operates determines the likelihood of participation. Farming in Lagos state increases the chances of benefiting from the NDE training. On the average, operating in Lagos the likelihood of participation by 0.601 unit.

Impact of participation in the training on AGRISMEs profit

Matching Indicators Before and After Matching

The balancing test was used to determine whether or not the differences in covariates between participants and non-participants in the NDE training in the matched sample had been removed, allowing the matched comparison group to be regarded an acceptable counterfactual (Ali and Abdulai, 2010). The results of the covariate balancing test before and after matching are shown in Table 3. In NNM and KBM, the mean bias of 13.2 was decreased to 5.7 and 2.9, respectively. In NNM and KBM, the Pseudo R^2 decreased dramatically from 0.057 to 0.013 and 0.003, respectively. The low Pseudo R^2, low mean bias, and negligible p-value of probability after matching indicated that the proposed propensity score specification is successful in terms of balancing the distribution of covariate between the two groups.



Source: Field Survey 2021

Table 3: Matching indicators before and after matching

Sample	Ps R^2	LR chi^2	p >chi^2	Mean Bias	% Bias reduction
Unmatched	0.057	28.250	0.008	13.200	
PSM (NNM)	0.013	4.430	0.986	5.700	25.000
PSM (KBM)	0.003	0.960	1.000	2.900	0.000

Impact of NDE Training on participation on AGRISME profit

Table 4 shows the impact of NDE training on the profit of AGRISMEs. The PSM (KBM) analysis found that training had a beneficial influence on AGRISMEs' profits, with an average treatment effect on treated (ATT) of ₦341,072.181. The NN match robustness result (ATT = ₦39,5242.2) was likewise similar to the Kernel based matching result.

Table 4: Impact of NDE Training on participation on AGRISME profit

Matching Algorithm	Unmatched (₦)	ATT (₦)	ATT t-stat	ATE (₦)	Hidden bias (r)
PSM (KBM)	339232.554	341072.181	3.40	304930.938	3.8
NNMatch		395242.2	3.74		

Rosenbaum sensitivity analysis for yield

The Rosenbaum sensitivity finding, which established the magnitude of crucial hidden bias due to unobserved confounders, is also included in Table 4. It calculated the degree of deviation whether a research was free of hidden bias. Γ for Profit is estimated to be 3.8 using the KBM Hodges-Lehmann point estimate, implying that bias might be as high as 3463.3 or as low as 510388. The findings were sensitive to probable hidden bias due to unobserved confounders, and NDE training had a positive treatment impact on the profit margin of AGRISMEs in the research region.

5.0 CONCLUSIONS

The findings presented in this study revealed the following. Binary Logit analysis shows that farmers' gender, access to extension services, and states from where the farmers operate are the significant factors that influence participation in the NDE training. All the significant variables have positive relationships with the likelihood of participation. Propensity score matching showed that the profit of AGRISMEs that participated in the NDE training increased by ₦341,072.18 due to their participation. The positive effect reflects the prospects and effectiveness of the NDE trainings on profitability of AGRISME productions.

The following are recommended:

i. Government should give more support for the extension services by improving the ease of access of the services to the farmers, both in terms of cost and availability.
ii. A research study should be carried out by the agricultural research institutes to determine the advantage Lagos state has that made it a significant factor so as to replicate the model for other states during policy making by the government.
iii. Government should allocate more quotas to other states concerning the participation of agri- SMEs and farmers in the NDE capacity training. This will have a good effect on the society.
iv. Furthermore, a detailed gender study is advised to be carried out so that various gender-limiting factors affecting female participation in NDE training and reducing its profit-maximizing ability are understood to reduce the gender gap.

References

Abdulai, A., & Huffman, W. (2014). The adoption and impact of soil and water conservation technology: An endogenous switching regression application. *Land Economics,* 90(1): 26–43. doi:10.3368/le.90.1.26

Adofu I, & Ocheja, A (2013) Alleviating Poverty through the use of Entrepreneurship Skill Acquisition in Kogi State, Nigeria. International Open Journal of Economics 1: 14-23.

Ayinde, O. E., Fatigun, O., K. Ogunbiyi, K. Ayinde, Y.O. Ambali (2018). Assessment of Central Bank Intervention on Rice Production in Kwara State, Nigeria: A Case-study of Anchor Borrower's Program. *30th International Conference of Agricultural Economics,* July 28th-August 2, 2018, Vancouver, Canada.

Balirwa, E. K., Nalunkuuma, J., & Sserunkuuma, D. (2016).Determinants of smallholder dairy farmers' volume of milk sales in Uganda's agro-ecological zones. International Journal of Applied and Pure Science and Agriculture, 2(8), 97-109.

Bidzakin J. K., Fialor S. CAwunyo-Vitor D., & Yahaya I. (2019). Impact of contract farming on rice farm performance: Endogenous switching regression. Cogent Economics and Finance 7: 5-17. https://doi.org/10.1080/23322039.2019.1618229.

Diaz, J. J. & S. Handa (2004). Propensity Score Matching as a Non-Experimental Impact Estimator: Evidence from Mexico's PROGRESA. Mimeo, UNC-CH, Department of Public Policy (forthcoming in JHR).

Donovan, J., Franzel, S., Cunha, M., Gyau, A., & Mithöfer, D. (2015). Guides for value chain development: A comparative review. *Journal of Agribusiness in Developing and Emerging Economies*

Federal Republic of Nigeria, (2012). National Bureau of Statistics, Annual Abstract of Statistics, 2012.

Federal Republic of Nigeria. (2016). Appropriation Bill

Federal Republic of Nigeria: 2005-2009 Reports of the NDE

Heckman, J, Ichimura, H, & Todd P. (1997). Matching as an Econometric Evaluation Estimator: Evidence from Evaluating a job training program, *Review of Economic studies,* 64(4):605-654.

Iorun I. J. (2014). Evaluation of survival strategies of small and medium enterprises in Benue State, Nigeria. *Int. J. Acad. Res. Accounting, Finance Manage. Sci.*, 4 (2), 255-263

Lokshin, M., & Sajaia, Z. (2004).Maximum likelihood estimation of endogenous switching regression models. Stata Journal, 4, 282–289. doi:10.1177/1536867X0400400306

Manda, J., Gardebroek, C., Kuntashula, E., & Alene, A. D. (2018). Impact of improved maize varieties on food security in Eastern Zambia: A doubly robust analysis. Review of Development Economics, 22(4), 1709–1728. https://doi.org/10. 1111/rode.12516

Mgbanya, J. C., Onwumere, J. C., Eze, A. V., Nwokenekwu, A. V., & Igwe, E. O. (2018). Impact of national recurrent expenditure on Nigeria agricultural growth from 1990–2017.*Asian Journal of Agricultural Extension*, 12(30), 1–9.

Obike, K. C., Ukoha, O. O., & Nwajiuba, C. U. (2007). Poverty Reduction among Farmers in Nigeria: The Role of the National Directorate of Employment. Agricultural Journal, 2(4).

Odey, M. A., & Okoye, C. O. (2004). Poverty Reduction and Youth Unemployment in Nigeria Public Policy and Administration Research, 3(4).

Ogunlela, Y. I. (2012). Impact of the Programmes of the National Directorate of Employment on Graduate Employment and Unemployment in Kaduna State of Nigeria. Pakistan Journal of Social Sciences, 9(1), 40- 45

Opata, P. I., & Arua, R. N. (2017).Assessment of the performance of informal women entrepreneurs in Enugu State, Southeast Nigeria.*African Journal of Agricultural Research*, 12(11), 923–931.

Opata, P. I., & Ezeibe, A. B. (2018). Revenue drivers of women labour in crop production in Southeast Nigeria. *Journal of Agricultural Extension*, 22(3), 149–160.

Oyemomi, E. O. (2003). An Assessment of Poverty Reduction and Strategies in Nigeria (1983-2002). Unpublished PhD Dissertation, St. Clements University, 2003.

Rosenbaum, P.R. and Rubin, D.B. 1983. The Central Role of the Propensity Score in Observational Studies for Causal effects. *Biometrika*,.70, (1): 41–55.

Sulaiman, R., & van den Ban, A. W. (2003). Funding and delivering agricultural extension in India. *Journal of International Agricultural and Extension Education*, *10*(1), 21-30.

Taiwo M. A., Ayodeji A. M. & Yusuf B. A. (2012).Impact of small and medium enterprises on economic growth and development.*Am. J. Business Manage.*, 1 (1), 18-22

Ullah, A., Islam, M. N., Hossain, M. I., Sarkar, M. D., & Moniruzzaman, M. (2013).Effect of planting time and spacing on growth and yield of cabbage. *International journal of Bio-resource and Stress Management*, *4*(2), 182-186.

Uzoejinwa B. B., Ani A. O., Abada U. C., Ugwuishiwu B. O., Ohagwu C.J. & Nwakaire J.N. (2016). Smallscale food processing enterprises: measures for national development and addressing food security challenges in Nigeria. *Int. J. Scientific Technical Res. Engineering,* 1 (5), 72-82