Socioeconomic Factors Influencing the Participation of Rice Farmers in Value Chain Development Programme (VCDP) in Southeast Nigeria

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Abstract
This study evaluates Socioeconomic Factors Influencing the Participation of Rice Farmers in Value Chain Development Programme in Southeast Nigeria. Specifically, the study described the socioeconomic characteristics of the farmers; identified available VCDP capacity-building interventions; determined the extent of participation and its determinants and examined the constraints to implementation of the programme. A multistage sampling procedure was employed, and primary data were collected through structured questionnaires, key informant interviews. Secondary data were sources through baseline survey data of the programme. Analytical tools used included descriptive statistics and ordered probit regression. The results revealed that most beneficiaries were female (58.4%), dominated with secondary school graduates of (41.6%) within the active age range of 37–46 years, with an average age of 42 years and 17 years of farming experience. The average farm size was 2.32 ha, Farmers participated widely in capacity-building programmes, notably good agronomic practices (85.8%), financial literacy (83.0%), and extension services (77.9%), which significantly enhanced productivity and market access. Ordered probit regression showed that sex, marital status, and education increased participation, while age, distance to training venues, poor access to credit, and low relevance of training reduced participation. Major constraints to implementation included late approval of annual work plans (100%), poor staff incentives (68%), inadequate project vehicles (64%), and bureaucratic bottlenecks (44%). The study concluded that age, sex, marital status, education and distance from home to training venue were the major determinants of the rice farmers participations in VCDP in Southeast Nigeria and there were disparities in extent of participation reflecting socioeconomic and contextual factors. Revealed structural and managerial challenges. The study therefore recommended that concerted effort should be integrated to enhance the alignment of VCDP interventions with farmers' specific needs of the farmers. Also, IFAD-VCDP should conduct their capacity-building trainings closer to farmers or provide stipend to beneficiaries to enable them participate fully in the programme and provide context-specific strategies to reduce bureaucratic delays, and improve sustainability mechanisms for VCDP interventions.

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Introduction

The Value Chain Development Programme (VCDP) is an intervention of the International Fund for Agricultural Development (IFAD) under the United Nations Industrial Development Organization (UNIDO) that is meant to boost the economic development of poorer countries by improving the products and services available in international markets and stimulating domestically owned businesses. (Olawale, 2020) [12]. The programme which is domiciled in the Federal Ministry of Agriculture and Rural Development is focused on three components which are:(i) Agricultural market development; which aim at enhancing the income and profitability of smallholder farmers and small-scale agro-processors by improving their access to market and adding value to their local marketable produce, (ii) smallholder productivity aim at increasing the volume of smallholder products, (iii) programme coordination and management which ensure that the programme is efficiently and effectively

managed. The goal of the VCDP is to enhance the income and food security of smallholder farmers who are engaged in rice and cassava production, processing, and marketing through increasing productivity and the quality of marketable produce by improving the process and packaging on a sustainable basis. Moreover, the programme engages in strengthening farmers' organizations, good governance and business development, capacity building, and financial literacy to ensure financial inclusiveness, particularly for women and youth, 50% input support to farmers, 70% support to farmers on farm machinery, contiguous land development to support mechanized agriculture, and construction of farm access roads, among others. A needs assessment is carried out before each intervention to know what a particular area needs and the intervention being delivered on time (Obianefo, *et al*., 2020) [9]. Simultaneously, the programme deeply emphasizes the Local Government developing commodity-specific Value Chain Action Plans, which serve as the basis for implementing sustainable activities to reduce poverty and enhance economic growth. The aim is to directly improve the livelihoods of approximately 53,480 households (45,000 smallholder farmers, 7,680 processors, and 800 traders) from the inception of the programme to 2020 (IFAD, 2015). The programme employs multiple approaches, including capacity building, infrastructure development, and providing access to technical information and business management tools. These activities are intended to promote the creation of gainful employment opportunities, increased access to value-added markets, improved infrastructure access and delivery of business services, promotion of green industrialization, and to increase the competitiveness of enterprises within the target countries (Oruonye, *et al*., 2021) [15].

VCDP was originally implemented in six States, which included Anambra, Benue, Ebonyi, Ogun, Niger, and Taraba but due to the result of the success of the programme, VCDP received additional finance for expansion in 3 States, namely Kogi, Nasarawa, and Enugu (FGN/IFAD/VCDP,2020). VCDP is a counterpart agricultural (loan) programme of the International Fund for Agricultural Development (IFAD) of the United Nations and the Federal Ministry of Agriculture and Rural Development (Obianefo *et al*., 2022) [10]. The programme, which was approved for a loan of USD 104.4 million on October 26, 2012, for the Federal Government of Nigeria through the Ministry of Finance, entered into force in 2014 and became operational in 2015. In South-East Nigeria, the programme was originally implemented in Anambra and Ebonyi States based on comparative advantage in rice and cassava commodities, and during the additional financial phase of the programme, Enugu was brought on board, making it three States out of the five States that make up South-East, which are Anambra, Ebonyi, and Enugu. The baseline information provides a comprehensive overview of the status of rice production in Southeast Nigeria before the inception of the IFAD-assisted Value Chain Development Programme. Currently, VCDP runs in eight Local Government Areas in Anambra State, eight in Ebonyi State, and five in Enugu State. In Anambra State, VCDP has registered about 11,730 farmers and 940 farmers' cooperatives and given out equipment to improve the efficiency of the farmers' production, processing, and sale of their produce (Agwuncha, 2018; Agricultural development programme IFAD-VCDP office, 2020). It has provided seven irrigation centers in the State to help boost rice production both in the rainy and dry seasons and trained rice farmers on how to use the improved rice nursery to achieve a maximum rice yield. Also, in Ebonyi State, VCDP has supported about 370 farmers with farm implements, and due to progress in the programme, it has extended its operation to three more Local Government Areas. While in Enugu State, VCDP has distributed equipment worth 40 million to beneficiaries from the participating local government areas, such as distoners, weighing machines, carriage tricycles, and so on (FGN/IFAD/VCDP,2023).

However, despite the approach of the Value Chain Development Programme, the beneficiary rice farmers' participation remains constrained by several socioeconomic factors (yusuf *et al*., 2025) [17]. According to Abdullahi *et al*. (2019) [1], education is one the factors the influence farmers participation in VCDP especially the women amongst them. There is a need to assess the influence of the socioeconomic characteristics of beneficiary rice farmers on their participation in the programme's capacity-building intervention to identify strategies to improve the farmers' engagement and the pogramme's overall impact. These VCDP capacity-building intervention programmes available in the study area need to be identified and assessed for their effectiveness in improving farmers' income. This will help gauge the programme's performance before and during participation.

The broad objective of this study is to examine the factors influencing the participation of beneficiary rice farmers in Value Chain Development programme (VCDP).

The specific objectives of the study were to:

1. describe the socioeconomic characteristics of the VCDP beneficiary rice farmers in the study area;
2. identify the various VCDP capacity-building intervention programmes available in the study area;
3. determine the extent of rice farmers' participation in VCDP capacity-building intervention;
4. determine the factors affecting the rice farmers' extent of participation in VCDP in the area and
5. identify the constraints of implementation of the VCDP in the study area.

Hypothesis

The farmers' socioeconomic characteristics do not significantly influence their extent of participation in the VCDP capacity-building intervention.

Methodology

The study was carried out in Southeast Nigeria. It is bounded in the east by Akwa Ibom and the Cross-River States, in the north by Benue and Kogi States, in the west by Edo and Delta States, and in the south by Rivers and Bayelsa States. Since the last official census; the National bureau of Statistics (NBC,2023) reported that Southeast had a population of 28,415,006 people. Southeaast is located between Latitudes 5ºN and 6ºN, and longitudes 6ºE and 8ºE (Nwaiwu, *et al*., 2013). The region has a land area of about 28987 square kilometers (NBS, 2010) and it is made up of Abia, Imo, Enugu, Anambra and Ebonyi States. The Southeast states fall within the rainforest ecological zone. The rainy season in this zone usually begins in February or March and the beginning of the rains is usually marked by the incidence of high winds while the dry season usually lasts from November to December or February (BNRCC, 2011) [5]. The inhabitants of Southeast zone are mainly traders, farmers, civil servants and

artisans. The major crops grown in the zone include rice, cassava, maize, sweet potatoes, yams, plantains, bananas, and various vegetables (Ohajianya & Osuji, 2012) [11].

Sampling Procedure and Data Collection

A multistage Sampling procedure was used in the selection of respondents for the study. At the first stage, Anambra and Ebonyi States were purposively selected because they are the only States in the Southeast that have implemented the programme since inception when the baseline survey was conducted. Second stage, the first 3 Local Government Areas (LGAs) which were the initial VCDP-implementing LGAs that took part in the baseline survey were purposively selected from the two selected States for the study. VCDP operates on a cluster basis, hence a sample was drawn from sixty-six (66) clusters, and a proportionate sample representation was applied to allocate respondents to each cluster. Lastly, a sample was drawn from the clusters in the six LGAs given 76, 13 and 30 farmers for Anambra State and 125, 39 and 111 farmers for Ebonyi State to give a total number of 394 beneficiary rice farmers for the study. Data were collected through both primary and secondary sources. Primary data were sourced from structured questionnaire, personal interview and focus group discussion while Secondary data were obtained through the baseline survey data of the programme.

Analytical Techniques

The socioeconomic characteristics, the various VCDP capacity-building intervention programme and the farmers' extent of participation available were analyzed using descriptive statistics and the ordered Probit model was used to determine the factors affecting the rice farmers' extent of participation in the VCDP capacity-building intervention.

The ordered probit model following Amusa and Simonyan (2016) is stated thus:

$$Y^{*(partici)} = bo + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + b_5 X_5 + b_6 X_6 + b_7 X_7 + b_8 X_8 + b_9 X_9 + b_{10} X_{10} + b_{11} X_{11} + e \ldots.$$

Where $Y^{*(participation)}$ = Extent of rice farmers' participation (1= low participation, 2 = medium participation and 3 = high participation). Note: there were 12 trainings that farmers participated in which their extent of participation were measured. Farmers that actively participated from 1-4 trainings were classified as low, 5- 7 were classified as medium and 8-12 were classified as high participation.

X_1= Age (years)
X_2= Sex (Dummy: 1= male, 0= female)
X_3= Farming experience (Years)
X_4= Educational level (Years)
X_5= Farm size (ha)
X_6= Access to credit (Dummy: Yes = 1; No = 0)
X_7= Extension contact (number of visit)
X_8= Marital Status (Dummy: male = 1; female = 0)
X_9= Market linkages (Dummy: Yes = 1; No = 0)
X_{10} = Distance from home to training Centre (km)
X_{11} = Relevance to farmers need (Dummy: Yes = 1; No = 0)
X_{12} = Household Size (No)
X_{13} = Monetary Incentives (Dummy: Yes = 1; No = 0)
e = Error term

Results and Discussion

Socioeconomic characteristics of the VCDP beneficiary rice farmers in Southeast

The results of sex of the respondents in Figure1 revealed that more than half (58.4%) of VCDP beneficiary rice farmers in the Southeast were female, with rest 41.6% are male. This finding contradicts the report of Alabi *et al*. (2023) [3], who found that men dominated the participation in their study, accounting for 65.81%, in an evaluation of the economic impact of the Value Chain Development Programme on the productivity of rice farmers in Niger State. However, the dominance of female participation in the VCDP aligns with the programme's objective of empowering women economically. Women, who are traditionally central to agricultural labour and household welfare, are well-positioned to benefit from enhanced access to resources, training, and value-chain support. This empowerment may lead to improved household food security and income stability.

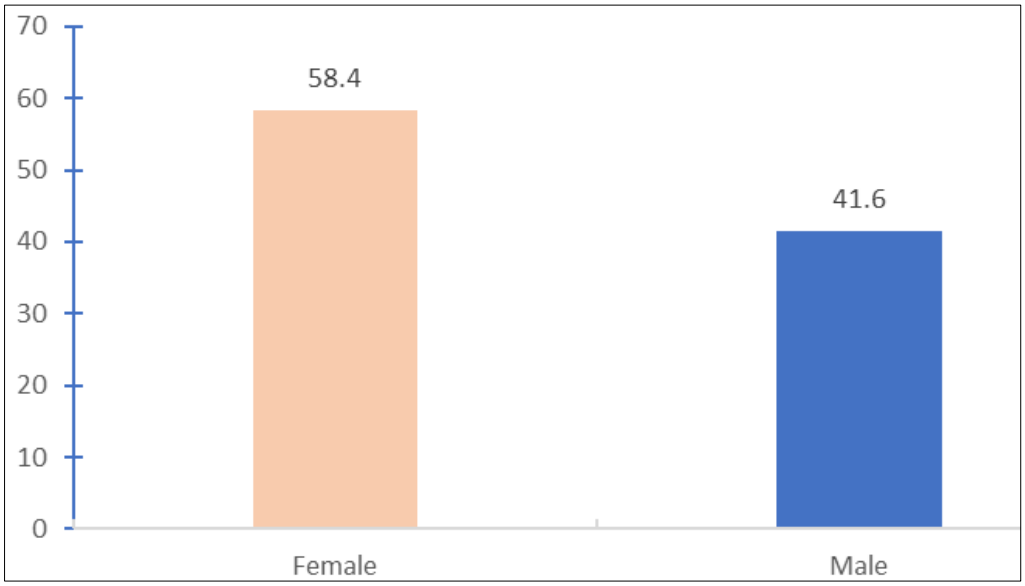

Fig 1: Sex distribution of VCDP beneficiary rice farmers

Educational qualification of VCDP beneficiary rice farmers

The study revealed that a greater proportion (41.6%) of farmers had secondary education. Furthermore, the remaining 36.5%, 8.6%, and 0.5% had primary education, tertiary, and postgraduate degree respectively. Furthermore, 12.7% of the farmers did not have any formal level of education. This result corroborates with Obianefo *et al*., (2022) [10] which stated in their study that secondary school graduates dominated the VCDP in Southeast, Nigeria which is advantageous as it enables the farmers to better understand and implement agronomic practices to boost rice production that translates to better income. Conversely, the lower literacy level of 12.7% of the farmers suggests the need to re-strategize programme implementation, ensuring that beneficiaries with limited education can fully participate and benefit from the intervention.

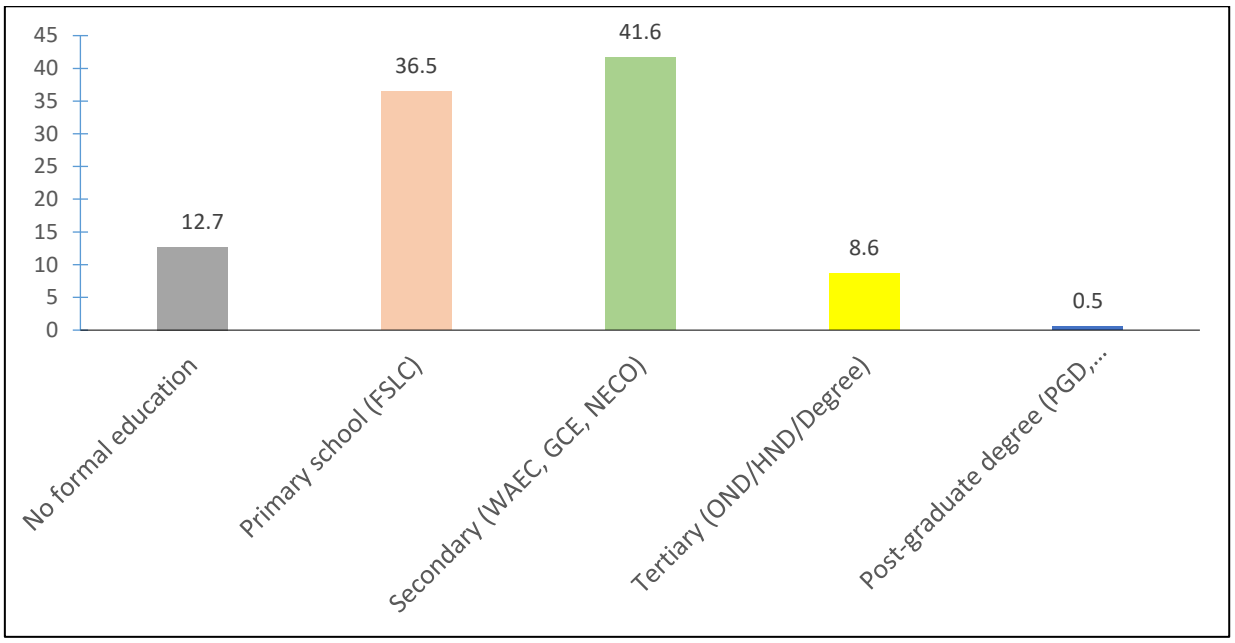

Fig 2: Educational qualification of the VCDP beneficiary rice farmers

Age: The findings of age revealed that greater proportion of the VCDP rice farmers fell within the active age group of 37–46 years, with an average age of 42 years. This average age is not in agreement with the 46 years' average reported by Abdullahi *et al.* (2019) [1] in their study in Ebonyi State VCDP, while the 42 years average closely aligned with the 40 years reported by Vihi *et al.* (2023) [16] in their study. This result confirmed that VCDP is an intervention that empowers younger farmers for sustainability of agriculture sector in Nigeria.

Household Size: The household size of VCDP beneficiary rice farmers in Southeast was predominantly within the range of 1–5 persons (41.6%). The average household size was 7 members. The average household size was 7. This result contradicts the average household size of 9 persons reported in Vihi, *et al*., (2023) [16].

Farm Experience: The study revealed that greater proportion (41.1%) of the farmers had 11 - 20 years farming experience with average farming experience of 17 years. This implied that the farmers have been into rice production prior to the inception of VCDP programme. This result contradicts the report of Vihi *et al.* (2023) [16], who reported 12 years' average experience of rice farmers in their study. The high proportion of experienced farmers (17 years) also suggests that the VCDP beneficiaries have a strong foundation in rice farming practices.

Farm Size: This result showed that a greater proportion (34.3%) of rice farmers in the VCDP in Southeast cultivated on farms within the range of 2.01 - 3.0 ha with average farm size was 2.32 hectares, large enough for large scaled production.

Farm Income: The study revealed that more than half (55.6%) of the beneficiary rice farmers earned ₦100,001 - ₦150,000 monthly from rice farming. This suggests that the VCDP interventions in Southeast Nigeria, effectively improved farmers' income to meet the programme core objective.

Socio-Economic Characteristics of VCDP beneficiary Rice Farmers

S0cio-economic characteristics	Frequency	Percentage
Age		
17- 36	150	38.1
37- 56	183	46.4
61 70	58	15.5
Total	394	100
Household size		
1-5	164	41.6
6- 10	157	39.8
11- 15	73	18.5
Total	394	100
Mean		
Farming Experience		
1- 10	91	23.1
11- 20	162	41.1
21- 30	125	31.7
31- 40	16	4.1
Total	394	100
Mean	17years	
Farm Size		
0.01- 1 0	45	11.4
1.01-2.0	105	26.6
2.01- 3.0	135	34.3
3.01- 4.0	109	27.7
Total	394	100
Mean	2.32ha	
Farm income		
50,001-100,000	19	4.8
100,001-150,000	219	55.6
150,001-200,000	156	39.6
Total	394	
Mean	94,181.98	

Different Capacity-Building Interventions Available to the Beneficiary Rice Farmers

The results revealed the different capacity-building interventions available to the beneficiary rice farmers which they were exposed to improve their income in Southeast VCDP programme. Beneficiaries had access to multiple capacity-building training programmes, notably in good agronomic practices (85.8%), financial literacy (83.0%), extension services (77.9%), post-harvest management (53.6%), record-keeping (41.9%), and cooperative bulk purchases (60.9%). These interventions provided critical knowledge for improved productivity and financial discipline, contributing directly to increased farm incomes. These capacity-building programmes under the VCDP contributes significantly to improving farmers' productivity, market access, and financial resilience. This result aligned with the proven impact on yield and income improvement reported by (Obianefo *et al*., 2022) [10]. All these training supports identified in the study corresponds with the empirical results of Alhassan *et al*. (2021) [4]; Onyekaineso, & Nwankwo (2021); Oruonye *et al*. (2021) [15] and Obianefo *et al*. (2022) [10].

Various VCDP capacity-building intervention programme available

Capacity buildings	Frequency	Percentage (%)	Ranking
Good agronomic practices	338	85.8%	1st
Financial literacy training	327	83.0%	2nd
Extension services	307	77.9%	3rd
Training on the use of cooperative bulk purchase	240	60.9%	4th
Linkages to off-takers	224	56.9%	5th
Training on weight and measure (scaling)	218	55.3%	6th
Training on postharvest management	211	53.6%	7th
Training on target savings mobilization	181	45.9%	8th
Record keeping/bookkeeping	165	41.9%	9th
Training on simple maintenance of accessible farm roads	119	30.2%	10th
Training on water user's association to improve water quality and sanitation	103	26.1%	11th

Source: Field Survey, 2024

Extent of rice farmers' participation in VCDP capacity-building intervention

Multiple responses were recorded to enable the farmers to have adequate access to information for the study. Farmers were asked to indicate their extent of participation represented in the research instrument as 1 = low, 2 = medium and 3 = high participation. This was used to gauge the famers active involvement during the trainings. The farmers have to weigh their participation; for instance, the farmers that started the training to the end could be rated high compared to those that came late and much lower for those that came towards the end of the training.

Participation levels varied across interventions. Financial literacy (36.3%) This result suggested that farmers are keen to enhance their business acumen, which can improve their financial management skills, ultimately boosting income and profitability. This is in tandem with the study of Chukwulobelu *et al*. (2024) [6], which said that financial literacy and inclusion help to improve the farmers ' access to credit and productivity. Extension services (49.7%) recorded relatively high participation, while Good agronomic practices (GAP) revealed that most (40.6%) of the farmers had medium participation. Training of water user's association to improve water quality and sanitation, showed that more than half (55.8%) of the rice farmers had low participation. The above results corroborate with the study of Obaniyi *et al*. (2019) which revealed that the beneficiary farmers' participation will be higher in some training and lower in some.

Extent of Rice Farmers' Participation in VCDP Capacity-Building Intervention

	Low participation		Medium participation		High participation	
Capacity buildings	Freq	Percentage	Freq	Percentage	Freq	Percentage
Financial literacy training	192	48.7%	59	15.0%	143	36.3%
Extension advisory services	75	19.0%	123	31.2%	196	49.7%
Linkages to off-takers	156	39.6%	151	38.3%	87	22.1%
Good agronomic practices	132	33.5%	160	40.6%	102	25.9%
Record keeping/bookkeeping	177	44.9%	149	37.8%	68	17.3%
Training on weight and measure (scaling)	196	49.7%	139	35.3%	59	15.0%
Training on the use of cooperative bulk purchase	164	41.6%	158	40.1%	72	18.3%
Training of water user's association to improve water quality and sanitation	220	55.8%	100	25.4%	74	18.8%
Training on postharvest management	176	44.7%	151	38.3%	67	17.0%
Training on target savings mobilization	176	44.7%	169	42.9%	49	12.4%
Training on simple maintenance of accessible farm roads	208	52.8%	156	39.6%	30	7.6%

Source: Field Survey, 2024. Key: 1= (low participation), 2= (medium participation) and 3= (high participation)

Factors affecting the rice farmers' extent of participation in VCDP

Table 4 presents the results of the ordered probit regression analysis. The dependent variable for the analysis represents the levels of farmers' participation in the VCDP capacity-building intervention, categorized as low (= 1), moderate (= 2), and high (= 3) participation. The Chi square statistics was significant ($P \leq 0.000$). The explanatory power of the factors reflected by Pseudo R^2 was 0.2663, indicating that the hypothesized variables were actually responsible for 26.6% of the variations in the level of participation of farmers in Southeast VCDP. An empirical study by Louviere *et al*. (2000) and Lusk *et al*. (2023) classified Pseudo R-square as 0.02 – 0.09 as poor fit, 0.10 – 0.29 as a moderate fit, and 0.30+ as good fit. These classifications confirmed the model fitness for this ordered probit regression as moderate.

The Likelihood Ratio (LR), which serves as a proxy for F-statistics, yielded significant values of 143.90*** at a 1% probability level. These results confirm that at least one of the independent variables included in the model significantly influences farmers' participation levels in the study area. Based on the fact that parameter estimates of ordered probit model only provided the direction of the effect of the independent variables to the dependent variables (levels of participation) and did not present the actual magnitude of change or probability in the coefficients; marginal effect was used which measured the expected change and magnitude in probability of the dependent variables with respect to unit change in the explanatory variables.

The ordered probit regression analysis highlighted several factors influencing participation levels. The coefficient (β = 0.313, z = 2.09**) of sex was positive and significant at a 5% level, implying that being male increased the likelihood of participating in the capacity-building intervention. The marginal effect suggesting that male farmers were 7.0% more likely to participate in VCDP interventions than female farmers. This result disagrees with that of Oloyede *et al*. (2020) who could not record any significant relationship with the sex of their respondents.

The coefficient (β = -0.014, z = -2.69**) of age was negative and significant at a 5% level, indicating that an increase in farmers' age is associated with a decreased likelihood of participation. The marginal effect suggests that each additional year in age reduces the probability of participating by 0.3%. This result is in agreement with the study by Ogunkunle *et al*. (2023) who observed a negative relationship between the age of rice farmers and the adoption and utilization of improved technologies in Southwest Nigeria. The economic implication is that younger farmers may perceive the programme as a viable means of enhancing their income and productivity, while older farmers may face challenges like limited adaptability or lower motivation.

The coefficient (β = 0.640, z = 5.80***) of marital status was positive and significant at a 1% level. This implies that married farmers are more likely to participate in capacity-building interventions. This indicates that married farmers are 14.4% more likely to participate than unmarried ones. This could be due to the responsibilities of married individuals to support their families, which incentivize them to engage in activities that promise increased income. The result was not in agreement with the report of Oloyede *et al*. (2020) who could not observe any significant relationship between the level of participation among farmers and marital status. Furthermore, the result highlights the importance of targeting households in designing VCDP interventions, as married participants often act as economic drivers in their

families. Again, support for married farmers, including family-oriented incentives like childcare during training sessions, could further enhance programme uptake

The coefficient (β = 0.052, z = 4.93***) of level of education was positive and significant at 1%, suggesting that higher education levels improve the likelihood of participation. The marginal effect indicates that each additional year of schooling increases the probability of participation by 1.2%. This result is in agreement with the findings from Vihi, *et al*., (2023) [16] who observed positive and significant between the level of education and participation in rice production technology in Plateau State.

The coefficient (β = -0.574, z = -3.80***) of distance to the training venue was negative and significant at 1%, indicating that farther distance to the training center reduces participation. The marginal effect size implied that for each unit increase in distance (e.g., km), the likelihood of participation drops by 12.9%.

The coefficient (β = -0.869, z = -5.62***) of relevance to farmers' needs was negative and significant at 1%, meaning that if the training is perceived as irrelevant, participation reduces. This indicates that perception of irrelevance reduces participation by 19.5%. This underscores the importance of aligning training content with farmers' specific needs (Rasanjal *et al*., 2021).

The coefficient (β = -0.548, z = -3.51***) of access to credit was negative and significant at 1% level, suggesting that lack of credit access reduces participation. The marginal effect size revealed that poor access to credit reduces participation by 12.3%. This finding is not in agreement with the study by Alabi *et al*. (2023) [3] who observed a significant and positive relationship between access to credit and the impact of VCDP intervention among rice farmers in Niger State. However, expanding credit access through microfinance initiatives or partnerships with financial institutions could enhance programme reach.

The null hypothesis which stated that the farmers' socioeconomic characteristics do not significantly influence their extent of participation in the VCDP capacity-building intervention was achieved from the ordered probit regression results in Southeast Nigeria. Several socioeconomic variables, such as sex, age, marital status, education level, household size, and farm size, were found to significantly influence participation levels, revealing the influence of socioeconomic factors. However, based on the significant results across the study areas, the researcher rejects H_{01} and concludes that farmers' socioeconomic characteristics significantly influence their participation in the VCDP capacity-building intervention.

Factors affecting the beneficiary rice farmers' extent of participation in VCDP

Parameter	Coef.	Std. Error	z-value	Marginal effect (dy/dx)	Std. Error	z-value
Sex	0.313	0.15	2.09	0.07	0.033	2.11**
Age	-0.014	0.005	-2.69	-0.003	0.001	-2.74**
Marital status	0.64	0.111	5.8	0.144	0.023	6.38***
Level of education	0.052	0.01	4.93	0.012	0.002	5.35***
Farming experience	-0.005	0.008	-0.65	-0.001	0.002	-0.65
Household size	-0.013	0.019	-0.7	-0.003	0.004	-0.7
Extension contacts	0.079	0.047	1.69	0.018	0.01	1.69
Farm size	-0.091	0.076	-1.2	-0.02	0.017	-1.2
Distance from home to the training venue	-0.574	0.151	-3.8	-0.129	0.033	-3.91***
Relevance to farmers need	-0.869	0.155	-5.62	-0.195	0.032	-6.10***
Monetary Incentive	0.132	0.155	0.85	0.03	0.035	0.85
Access to Credit	-0.548	0.156	-3.51	-0.123	0.034	-3.62***
Market linkage	0.071	0.039	1.83	0.016	0.009	1.85
Diagnostic tools						
Log-likelihood	-198.209					
LR	143.90***					
Pseudo R^2	0.2663					

Source: Field Survey, 2024

These findings were based on scheduled interviews with VCDP officers and provide insights into key challenges that affect the programme's implementation. The results indicated that a combination of administrative bottlenecks, resource inadequacies, and external pressures hinders the smooth implementation of the programme. Odekina *et al*. (2024) submitted that when the administrative bottlenecks challenging the implementation of the programme are addressed, it will result in a greater impact on the beneficiaries. Some of the challenges reported by the officers include:

Late Approval of Annual Work Plan and Budget (AWPB): All respondents (100.0%) identified late approval of the AWPB as the most critical constraint. Delayed approval disrupts the timely release of funds and affects the execution of planned activities, leading to missed planting seasons and reduced programme efficiency. This bottleneck undermines the programme's ability to deliver results, impacting farmers' productivity and income.

Poor Incentive and Remuneration of Staff: Poor incentives and remuneration were cited by 68.0% of respondents. However, insufficient motivation among VCDP staff can lead to low morale, reduced commitment, and inefficiencies in service delivery. This challenge may result in sub-optimal support for farmers, hindering the adoption of improved practices and limiting income growth.

Inadequate Project Vehicles: As reported by 64.0% of respondents, the lack of adequate transportation limits field officers' ability to monitor activities, provide timely extension services, and ensure effective implementation of interventions. This can reduce the outreach and impact of VCDP capacity-building interventions.

High Bureaucratic Process: Identified by 44.0% of beneficiary rice farmers. Excessive bureaucracy delays

decision-making and the execution of activities, increasing operational costs and reducing programme efficiency. This challenge can also discourage stakeholders from fully engaging with the programme.

High Expectations from Farmers: High expectations were reported by 40.0% of beneficiary rice farmers. Thus, unrealistic expectations from farmers may lead to dissatisfaction when programme outputs do not meet these expectations. This can erode trust and reduce farmers' willingness to participate in future initiatives.

The vandalization of Project Infrastructure and Interventions: Also reported by 40.0% of rice farmers, vandalization was ranked 5th alongside high expectations. Damage to project infrastructure increases repair and replacement costs, diverting funds from productive activities. It also disrupts service delivery, reducing the programme's overall impact.

These challenges disrupted timely fund disbursement, reduced staff morale, and limited field operations, ultimately affecting programme outcomes. By addressing these constraints, the VCDP can improve its implementation efficiency and amplify its positive impact on the income and livelihoods of rice farmers in Southeast Nigeria.

Table 1: Constraints to the Implementation of the VCDP in the Study Area

Factors Affecting Project Implementation	Frequency	Percentage	Rank
Late approval of Annual Work Plan and Budget (AWPB)	25	100.0%	1st
High bureaucratic process	11	44.0%	4th
Inadequate project vehicles	16	64.0%	3rd
Poor incentive and remuneration of staff	17	68.0%	2nd
High expectations from farmers	10	40.0%	5th
The vandalization of project infrastructures and interventions	10	40.0%	5th

Source: Field Survey, 2024

Conclusion and Recommendations that socioeconomic factors such as age, sex, marital status, education and distance from home to training venue

Based on the findings the study has shown influenced farmers' participation in VCDP activities, with younger, married, and more educated farmers engaging more actively. More so, longer distance from home, made farmers to participate less and there were disparities in the extent of participation among the beneficiary rice farmers. The study also reveals a structural, managerial, and institutional challenges that constrained program implementation like bureaucratic bottlenecks, and socio-political issues. These challenges underscore the need for context-specific strategies that reduce bureaucratic delays and improve sustainability mechanisms for VCDP interventions. Addressing these constraints is crucial to enhancing the programme's implementation efficiency and impact. The study recommends that since result of the finding showed that younger, married, and more educated farmers earned better income due to higher participation. To ensure equitable income gains, VCDP should design flexible training and delivery models that accommodate older farmers, women with domestic responsibilities, targeting States with low engagement levels to increase farmers' productivity by extension income. Also, IFAD-VCDP should conduct their capacity-building trainings closer to farmers or provide stipend to beneficiaries to enable them to participate fully in the programme to gain more knowledge to improve productivity and income. The study also recommends that State VCDP offices should streamline administrative processes, increase operational funding, and strengthen staff motivation.

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