# DETERMINANTS OF RURAL FARMING HOUSEHOLDS' LEVEL OF PARTICIPATION IN MICRO PROJECTS IN ENUGU STATE, NIGERIA.

**Ibeagwa, O.B.[1] and Benson, D.N.[2]**
[1]Department of Agricultural Economics, Federal University of Technology Owerri.
[2]Department of Agricultural Education, Federal College of Education (Technical) Omoku
Corresponding author's email: okwyibeagwa2@gmail.com

## ABSTRACT
The level of participation of target population in the numerous micro projects introduced to increase productivity and improve standard of living in rural areas have been of concern to project initiators and policy makers in Nigeria. This study sets out to investigate the factors responsible for the level of participation of rural farming households in Micro projects in Enugu State. It specifically determined the level of participation and its determinants. Primary data used for the study were collected from 84 farmers drawn from across the State. Descriptive statistics, participation index and the Ordinary Least Squares multiple regression were used to analyze data. Results showed that most of the beneficiaries were males, married and having some level of formal education. The National Fadama Development Project had the highest level of participation among the respondents while the mean participation index was 0.881. Age, educational level, farm income, membership of cooperative and farm size were the determinants of level of participation among the respondents. The study recommended the introduction of more educational facilities as well as creation of more cooperative societies as a way of mobilizing rural farming households to participate in micro-projects.
**Key words**: Micro projects, participation, Farming, Enugu

## INTRODUCTION
Nigeria is largely an agrarian country despite its large oil earnings. The agricultural sector employs over 70% of the total labor force, thus making it the most important sector in this respect (Chauvin et at., 2012). Nigeria's varied climate which ranges from the tropical areas of the coast to the arid zone of the north affords her the opportunity to cultivate nearly all the types of agricultural produce grown in the tropics and semi-tropical parts of the world (Olayemi*et al.* 2012).Agriculture in the Country is characterized by small-scale production which is mainly subsistence and involves the use of simple crude tools and generally traditional farming methods (Chauvin et at., 2012). Despite these characteristics, 80% of food in Nigeria is produced by these small-scale farmers.

Although Nigeria has a huge agricultural endowment, hunger characterizes the majority of the population. About64.4% and 83.7% of the population live below the poverty line of US$1.25 and US$2 per person per day, respectively (Aye, 2013). Nigeria faces a lot of challenges including that of attaining food security, which is one of the sustainable development goals.Some of these challenges are caused by natural resources (soil, water and climate), faulty micro economies, agricultural policies, bad economy, etc. Due to these challenges, smallholder farmers in Nigeria are poverty stricken. These challenges affect individual farmers and put the household welfare of the farmer at danger or at risk. Consequently, this risk encourages farmers to diversify into other non-farm activities which are expected to supplement their income. The inadequacies of income farmers earn from their farming activities has caused government to create schemes and projects that will help develop the rural areas and help farmers improve their output and livelihood.

In Nigeria, the agrarian sector has a strong rural base; hence concerns for agriculture and rural development have become synonymous, with a common root. Support for agriculture is widely driven by the public sector, which has established institutional support in form of agricultural research, extension, commodity marketing, input supply, and land use legislation, to fast-track development of agriculture. These are aside the private sector participation which is not limited to local or foreign direct and portfolio investment financing, but also to sponsorship of research and breakthrough on agricultural issues in universities, capacity building for farmers and, most importantly, the provision of financing to farm businesses (International Fund for Agricultural Development IFAD, 2016). International governmental and non-governmental agencies including the World Bank, Food and Agricultural Organization of the United Nations, etc., also contribute through on-farm and off-farm support in form of finance, input supply, strengthening of technical capacity of other support institutions, etc.

Despite the strategies adopted by various governments in Nigeria to address agriculture and rural underdevelopment problems, the story remains the same. There are still inequality and poverty particularly in the rural areas and this may constitute a threat to Nigeria's vision of becoming one of the twenty strongest economies by the year 2020 (Nigeria Vision 2020, 2010). A lot of resources (financial) have been injected, but all in vain.

Agricultural innovations which are integral components of agricultural and rural projects include new knowledge or technology related to primary production and commercialization that erects

productivity, competitiveness and livelihood of farmers.Okoli (2004) and Ibeagwa (2011) listed some developmental policies and projects propagated by the Federal Government to increase the output and livelihood of farmers. These include: The 1st National Development Plan (1962-1968); 2nd National Development Plan (1970-1974); 3rd National Development Plan (1975-1980); 4th National Development Plan (1981-1985); the three Rolling Plans 1990-1992, 1993-1995, 1996-1998. There was also Vision 2010 and Nigeria 20:2020, and the National Economic Empowerment and Development Strategy (NEEDS). There have been attempts by successive regimes in Nigeria at poverty reduction and rural development; the approaches have usually been determined by the interpretation given to rural development by the different regimes or interventionists (Sam 2014, Ibeagwa, 2011). Prominent among these programmes as he noted are:

•        1972-National Accelerated Food Production Programme and the Nigeria Agricultural and Cooperative Bank,

•        1976-Operation Feed the Nation: to teach the rural farmers how to use modern farming tools,

•        1979-Green Revolution Programme: to reduce food importation and increase local food production,

•        1986-Directorate of Food, Roads and Rural Infrastructure (DFFRI),

•        1987-National Directorate of Employment (NDE),

•        1993-Family Support Programme and the Family Economic Advancement Programme,

•        2001-National Poverty Eradication Programme (NAPEP) to replace the previously failed Poverty Alleviation Programme, and

•        2004-National Economic Empowerments and Development Strategy. (NEEDS): Meant to achieve poverty reduction through wealth creation, employment generation and value re-orientation.

In Nigeria, over the years the stated objectives and strategies of the aforementioned rural and community development projects have been planned and executed by policy makers and others concerned with issues of development with hardly any intake from the farmers who are the target of these policies and projects. There still exist enormous gap between policy formulation and implementation and the reality of the level of the development of the rural populace.

There is little doubt that Nigerians have reaped more deficits than dividends of rural development programmes. Okhankhuele and Opafunso (2013) claimed that several methods to remove rural-urban development gap have been carried out in Nigeria with little success, therefore the rural areas still remain highly underdeveloped in comparison with the urban areas. They believed that numerous studies have been carried out on the causes and consequences of rural-urban migration and also related the consequences of rural-urban migration on the urban centers to serious problems such as overpopulation, insufficient physical and social infrastructural amenities.

Many rural people are predominantly engaged in agriculture which is one of the greatest channels to foster a rapid development in the rural communities. Therefore efforts at rural development impact considerably on farmers who constitute the focus of agricultural development programme. It is on this premise that the integrated rural development projects in Nigeria were implemented to ensure that agricultural and rural development projects became part of a package of services offered to farmers and the rural population.In light with the aforementioned, an investigation on the level of participation of farmers in micro developmental projects in Enugu is therefore necessary. The objectives of the study are to i. describe the socioeconomic characteristics of farmers beneficiaries of micro projects in the study area; ii determine the level of participation of beneficiaries in the micro projects; iii. to identify the determinants of the level of participation of beneficiaries in the micro projects.

## METHODOLOGY

The study was carried out in Enugu State of Nigeria. Enugu State is located in the South-east geopolitical zone of Nigeria. The State is located within the following geographical coordinates: $5^0$56'N to $7^0$06'N, and $6^0$53' to $7^0$55'E. Enugu State is bounded on the east by Cross River State, on the north by Benue and Kogi States, on the south by Abia State and Imo State on the west by Anambra State and North-East by Ebonyi State. It occupies an area of about 8,022.95km2 (Ezike, 1998) and has a population of about 3,257,298 (NPC, 1992).

Occupation of the people is predominantly farming and specialized most in the production of yam, cocoa yam, cassava and maize and Cattle, Poultry Sheep and Goat which are mostly carried out in small scale. Most famers in this area are peasants. Many agricultural programmes and projects are very effective in Enugu State. Such programmes/projects include: the Agricultural Development Programme (ADP), National Agricultural Land Development Authority (NALDA) River Basin Development Authority (RBDA), Directorate of Food Road and Infrastructure (DFRRI), the National Fadama Development Project, Anchor Borrowers Programme,etc

Multi-stage sampling technique was used in selecting the respondents for the study because it showed the peculiarities at each stage of the sampling procedure.In the first stage, two Local Government Areas were randomly selected from the three agricultural zones for the study. In the second stage, one community was randomly selected from each Local government areas to give a total of six town communities. In the third stage, two villages were

randomly selected from the six communities to give a total of twelve villages in the study area. In the final stage, seven farmers were randomly selected from the twelve (12) villages in the study area to give a total of eighty-four (84) farmers for the study

**Method of Data Collection**

Data for this study were collected using a set of structured questionnaire forms which was administered to the farmers and face to face interview. Data were collected on the following variables: age, sex, household size, educational level, farm size, membership of social group, farming experience, farming experience and among others.

Descriptive statistics were used to describe the socioeconomic characteristics of the respondents.

The participation level of the respondents was captured using the participation index. The model as shown

$$A = \frac{number\ of\ micro\ projects\ the\ respondents\ participated\ in}{total\ number\ of\ micro\ projects\ in\ the\ area}$$

The determinants of farmers participation in the project was achieved using ordinary least square regression model. The model is specified as;

$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9)$

Where

$Y$ = participation index

$X_1$ = Age of the respondent (years)

$X_2$ = Sex (dummy; male = 1, female = 0)

$X_3$ = Marital status (dummy; married =1, others =0)

$X_4$ = Education (number of years in school)

$X_5$ = Farm income (Naira)

$X_6$ = Non-Farm income (Naira)

$X_7$ = Farming experience (years)

$X_8$ = Membership of social group (number of social group the respondent belongs to)

$X_9$ = fixed assets (depreciation value of assets)

$X_{10}$ = farm size (hectare)

**RESULTS AND DISCUSSION**

The socioeconomic characteristics of the respondents are presented in Table 1.

The result in Table 1 shows that greater percentage (48.81%) of the respondents were in the age bracket of 46-55. The mean age of the respondents in the study area is 46. The implication of this is that the respondents in the study area are young and in still in the economically productive age range. They may therefore be more aware of the benefits of micro projects and the need to be part of such projects. This should be an advantage for higher agricultural production and greater rural development in the area. This agrees with the findings of Ibeagwa(2011), who asserted that this age bracket contained the innovative and adoptable individuals.AlaoEtwire et al (2013) noted that a younger farmer is likely to participate in an agricultural project because younger farmers are usually innovative, risk loving and may want to try new concepts

Also, majority (51.19%) of the respondents were males while 48.81% are females. This shows that more male are involve in farming system and in micro development projects in the study. This may not be unconnected with the greater access males in these communities have to productive resources than their female counterparts. This result agrees with the findings of Ezeobi, (2015) who worked on farmers' level of participation in agricultural technology

development in Aguata LGA of Anambra state, Nigeria and reported that 60.90% of the beneficiaries were males while 39.1% were female, thus indicating a greater percentages of the participation populace being males.

Majority of the farmers (66.67) in the study area were married, while and 8.33% were single. The high proportion of married individuals may be an indication of the value placed on marriage and family life in the area. Many rural farming communities place high values on marriage not just as a means of companionship but much more as a means of forming alliances which could be beneficial to all parties. Marriage is also a sign that the respondents in the area have high cultural and family values and are responsible. This result agrees with the assertion of Oladejo*et al.* (2008) that marriage indicates some level of responsibility, commitment and stability. Furthermore, Etwire et al (2013) posits that A married farmer may have access to information and resources of the spouse and may therefore be more likely to participate in an agricultural project as compared to a farmer who is not married

A greater percentage (45.24%) of the farmers had household size of between 4-6 persons. The mean household size of the farmers in the study area was Six(6) persons. The respondents may be said to have relatively large households. The relatively large household size may be an advantage in the area of provision of labor for agricultural production. Also, a farmer with a large household may more easily participate in an agricultural programme since he has the opportunity of assigning other important activities to other household members. This result agrees with the findings of Ibeagwa (2011) and the assertion of Farid*et al.* (2009)that the more the increase in household size, the higher the likelihood of coming into contact with an agricultural programme.

Majority (70.24%) of the respondents had some form of formal education implying that there is some appreciable level of enlightenment and awareness among farmers. This is an advantage in the sense that educated farmers should be more equipped to take advantage of the benefits that accrue from micro projects in their communities. This is supported

byNnadi and Akwiwu (2008) who assert that educated farmers are more likely to participate in agricultural programmes and micro projects in order to put into practice the knowledge they may have acquired in school. Also, Ibeagwa (2011) maintains that the attainment of higher educational status makes the farmer aware of the need for responsible behavior and livelihood pattern that would ensure sound wellbeing.

A greater percentage (40.48) of the farmers had more than 16 years of farming experience in the study area. This implies that farmers with high farming experience will easily decide which micro projects will benefit to him and his farm.

Majority (60.71%) of the farmers had farm size of less than 1 hectare. The mean farm size in the study area is 0.5ha. This is an indication that the farmers in the study area practice subsistence farming. This result agrees with the position of Daud*et al.,* (2015) that most farmers in southern Nigeria are small holder farmers and Nwaiwu*et al.* (2020) attributes the dominance of subsistence agriculture to the effects of land tenure system in the State.

Majority (71.43%) of the farmers belong to Age grade association, 64.29% of the farmers were members of social clubs. The implication of this is that farmers in the study area tend to participate in Age grade and social groups and may through these groups access information on how they and their families could benefit from projects being introduced in their communities and thus better the standard of living.

**Table 1: Socioeconomic characteristics of the respondents**

| Variable | Frequency | Percentage | Mean |
|---|---|---|---|
| **Age (years)** | | | |
| 26 – 35 | 20 | 23.81 | 46 |
| 46 – 55 | 41 | 48.81 | |
| **Gender** | | | |
| Female | 41 | 48.81 | |
| Male | 43 | 51.19 | |
| **Marital status** | | | |
| Single | 7 | 8.333 | |
| Married | 56 | 66.67 | |
| **Household size** | | | |
| 4 – 6 | 38 | 45.24 | 6 |
| 7 – 9 | 26 | 30.95 | |
| **Educational level** | | | |
| No formal Education | 25 | 29.76 | |
| Formal education | 59 | 70.24 | |
| **Farming experience (Years)** | | | |
| 11 – 15 | 27 | 32.14 | 15 |
| 16 and above | 34 | 40.48 | |
| Farm size (Ha) | | | |
| 0.1-0.99 | 51 | 60.71 | 0.5 |
| 1.0-1.88 | 32 | 38.10 | |
| Membership of social groups | | | |
| Age grade association | 60 | 71.43 | |
| Social Clubs | 54 | 64.29 | |

Source: Field Survey Data, 2018

**Farmers Level of Participation in the Projects/Programmes**

The levels of participation of farmers in the micro projects in the study area are analyzed in the table below.

As Table 2 shows that most respondents had participated in more than one agricultural project in the area. The various phases of the National Fadama development Project (also called Fadama I, II and III) were the most participated projects in the study area and is ranked highest. The implication of this is that Fadama project appears to be the most widely accepted agricultural project in the study area. This may not be unconnected with the Community Development Approach which the project uses to disseminate its activities. Agricultural Development Programmes and National Economic Empowerments and Development Strategy ranked 2nd and 3rd respectively. It is expected that the more the number of micro projects the farmer participates in, the higher would be his output and income. This in turn will have a significant effect on their standard of living. This agrees with Shuaibu*et al.* (2015) that participating in agricultural projects will promote farmers infrastructure and enlighten them about new technology on agricultural products.

**Table 2: Distribution of Farmers According To Level of Participation**

| MICRO PROJECTS | Level of Participation (SD) | Rank |
|---|---|---|
| National FADAMA Development Project | 3.56 | 1st |
| Agricultural Development Programmes | 3.44 | 2nd |
| National Economic Empowerments and Development Strategy | 3 | 3rd |
| Women in Agriculture Programme | 2.33 | 4rd |
| Anchor Borrowers Programme | 1.78 | 5th |
| Nigeria Agricultural Insurance Scheme | 1.67 | 6th |
| Structural Adjustment Programme (SAP) | 0.67 | 6th |
| National special Programme for Food Security | 1.56 | 8th |
| Anambra Imo River Basin Development Authority | 0 | 9th |

***Multiple responses**

Source: Field Survey Data, 2018 (SD = Standard Deviation)

**Participation Index**

The participation level of the respondents in various micro agricultural projects as measured by the participation index is presented in Table 3.

The result presented in Table 3 shows that 53.57 of the farmers had participated in between 88% - 96% of all micro projects in the area. This implies that there is a high participation rate among the farmers and may also be an indication that the respondents are adequately aware of the benefits that they stand to gain by participating in these projects.

**Table 3: Farmers level of participation in micro projects in the study area**

| Participation index | Frequency | Percentage |
|---|---|---|
| 0.54 – 0.62 | 17 | 20.24 |
| 0.63 – 0.70 | 4 | 4.76 |
| 0.71 – 0.79 | 5 | 5.95 |
| 0.80 – 0.87 | 13 | 15.48 |
| 0.88 – 0.96 | 45 | 53.57 |
| Total | 84 | 100 |
| Mean | 0.881 | |

Source: Field Survey Data, 2018

**The Determinants of Farmers Participation in Micro Project**

The result of the Ordinary Least Squares multiple regression to identify the determinants of farmers level of participation in micro projects is presented in Table 4. It can be seen from the result that the double log functional form gave the best result in terms of highest $R^2$ value, number and sizes of significant parameter estimates, least number of standard error and highest number of F statistics and hence was therefore chosen as the lead equation.

The coefficient of multiple determination $R^2$ is 0.8259, implying that 82.59% variation in the level of participation of respondents in micro projects was accounted for by the predictor/regressors variables, hence the remaining 17.41% was due to random disturbance. The F-statistics value of 34.6338 was significant, an indication of overall significance of the regression.

The coefficients of age, level of education, farm income, farm experience, cooperative membership and farm size were found to be statistically significant.

The coefficient of age was significant (p<0.01) and negatively related to farmers level of participation in micro projects. This implies that the older the farmer, the lower his participation level. This may be accounted for by the lack of vigour and hence declining productivity that comes with aging. And since farmers production activities decline with age, they are more unlikely to be part of projects that could enhance their production. Furthermore, older farmers are less likely to be ready to adopt new technologies and innovations that these projects introduce. This result differs from the findings of Nnadi and Akwiwu (2008) and Nxumalo and Oladele(2013). It however agrees with that of Kahn et al. (2012)

The coefficient of level of education is positive and significant (p<0.01) which shows that the higher educational level attained by the farmer, the higher his level of participation in micro agricultural projects. Level of education equips the farmer with the ability to process information and thus allows the farmers to have better access to understanding and interpretation of information. This finding is in line with the work of Randela et al. (2008) who contend that higher education level is important as it is likely to lead to the reduction of search, screening and information cost. The findings however differs from that of Etwire et al. (2013) who reported that educated famers are less likely to participate in agricultural projects.

The coefficient of farm income was positive and significant (p<0.05). This implies that the level of income has a direct relationship with participation of farmers in micro projects as income increases; the tendency to participate in micro agricultural projects also increases. The income of the farmers provides him with a form of ready funds to get whatever necessary inputs he may need to be able to benefit from the micro project.

The coefficient of cooperative membership was positive and significant at 1% level of probability. This implies that membership of cooperative societies gave the respondents better chances for higher participation in micro developmental projects in the study area. This could be because the members of cooperative are more likely to access information and resources that could enhance their participation in micro projects. It is very plausible that members of cooperative societies through association with each other and government officials will be able to learn more about new projects government set aside that could benefit they and their households.

Farm size was positive and significantly influence the level of participation of farmers to micro agricultural projects (p<0/05). Implying that the larger the size of the land the household uses the higher the production levels are likely to be and also the higher the level of micro participation. In other words, as the farm size increases theparticipation of farmers in micro developmental projects increases as well. Etwire*et al*. (2013) notes that farm size may be a proxy for commercialization and farmers who decide to cultivate an additional hectare of land are usually moving away from subsistence production and are therefore more likely to participate in an agricultural project in order to have access to inputs, technology and output market. Thisfinding is consistent with the work of Sewando(2012 who also reported positive relationship between farm size and farmers participation in agricultural projects. It differs from that of Farid et al who reported a negative relationship. Etwire*et al.* (2013) however did not find any significant relationship between farm size and farmers participation in agricultural projects.

The coefficient of age of the respondents was negative and significant at one percent. This indicates that there is an inverse relationship between age and participation in micro developmental projects. The implication of this findings is that the older the individual the less unlikely he is to participate in micro projects. In other words, younger people are more likely to engage in micro developmental projects than older ones in the area. Older farmers have been known to be more risk averse and thus less willing to engage in new technologies and techniques that accompany these micro projects. This finding is consistent with and Khan et al. (2012) who reported that as age increases there is a decrease in participation in farmers participation in projects.

**Table 4: Regression results for the determinants of farmers level of participation in Micro Projects in the study area.**

| Variable | Linear | Exponential | Semi-log | Double-log+ |
|---|---|---|---|---|
| Intercept | 152.106 (7.1824)*** | 9.0375 (8.9776)*** | 643.7177 (6.4164)*** | 33.1819 (6.8667)*** |
| Age | -0.8292 (-0.8142) | -0.0129 (-0.2828) | -175.061 (-4.3485)*** | -8.62835 (-4.4297)*** |
| Sex | 39.3515 (4.2612)*** | 1.8503 (4.3360)*** | 1.2682 (0.1276) | -0.59807 (-1.0837) |
| Marital status | -1.7855 (-0.1827) | -0.6300 (-1.4251) | -6.0223 (-0.2965) | -0.25051 (-0.1618) |
| Education | 9.3896 (6.9047)*** | 0.5065 (8.2953)*** | 47.2280 (4.3733)*** | 2.377 (4.9098)*** |
| Farm income | -0.00027 (-4.0751)*** | 0.000158 (2.3414)** | 0.9564 (0.4364) | 2.0968 (2.1773)** |
| Non-Farm income | 0.00193 (3.5944)*** | 0.00197 (2.4312)** | 4.3829 (3.7196)*** | 0.8569 (0.425) |
| Farming experience | 0.4188 (0.2981) | -0.0749 (-1.1886) | 49.6686 (2.6094)** | 1.4827 (1.6816) |

| Cooperative membership | 19.8641 | 0.4315 | 12.0913 | 0.9380 |
|---|---|---|---|---|
|  | (3.5206)*** | (1.727)* | (2.0585)** | (3.6874)*** |
| Fixed assets | -0.009012 | -0.00038 | -0.9279 | -0.0422 |
|  | (-1.00888) | (-0.9374) | (-1.1540) | (-1.2158) |
| farm size | 8.5105 | 0.5323 | 10.6929 | 1.01 |
|  | (2.5057)** | (3.5292)*** | (0.9723) | (2.1627)** |
|  |  | 0.8032 | 0.7904 | 0.8259 |
| R-squared | 0.7862 |  |  |  |
| Adjusted $R^2$ | 0.7569 | 0.776 | 0.7616 | 0.8021 |
| S.E. | 21.34383 | 0.9580 | 21.1367 | 0.9001 |
| F-statistic | 26.849 | 29.8018 | 27.521 | 34.6338 |

Source: Field Survey Data, 2018*** = sign at 1%, ** = sign at 5% and * = sign at 10%.
+ = Lead equation

## CONCLUSION
The study concludes that participation of rural farming households in micro projects is relatively high in the study area. This level of participation is influenced by education, age, farm size, farm income and cooperative membership.
The study recommends that
1. More educational facilities should be provided in the rural areas to increase their access to education and thus improve further their participation in micro projects;
2. Rural farmers should be encouraged to form cooperative societies to enable them benefit more from participation in micro projects;
3. Greater attention should be given to projects that enhance output and increase farm income in farming communities;
4. Rural women should be assisted with relevant resources to enable them participate more in micro projects in their communities.

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