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Participation of Rural Women in Community and Social Development Project in Kogi State, Nigeria: A Double - Hurdle Model of Participation Approach

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***Abstract*:** The study investigates the level of participation of women in the Community and Social Development Project in Kogi state, Nigeria. Multi-stage random sampling technique was used to select 313 respondents. The study employs the double – hurdle model with the assumption that, the participation and level of participation of rural women in Community and Social Development Project (CSDP) are two independent decisions. The results of the first tier hurdle model of the maximum likelihood estimates of the probit model indicated that, the Wald statistic estimate was 62.29 and was significant at 1% level of probability, the average partial effects (APE) in the interpretation of the model indicated that household size was positively and significantly related to the decision to participate in CSDP by women at 10% level of probability. The second tier hurdle shows the maximum likelihood estimates of the truncated regression model for the expected level of participation in CSDP by rural women in Kogi State indicated that the level of participation of women will be increased by 0.35 stage which is about 4 stages in the programme out of 10. The study therefore concludes that the decision to participate in CSDP was found to be positively correlated with household size, urban exposure and membership of Community. Based on the findings the study recommends that advocates and awareness campaign programmes for deeper sensitization of rural communities on the need to encourage women to actively participate in social/community development meetings should be encourage at all levels.

Keywords: *Participation, Rural Women, Community, Development, Project, Double - Hurdle Model.*

I. INTRODUCTION

Although Nigeria is endowed with abundant resources Oshewolo (2010), poverty in Nigeria remains significant despite high economic growth it first started with sometimes during the British Empire (Margwa*et al.*, 2015). This is because; Nigeria has been classified as one of the poor countries in the world in terms of per capita income, consumption standard, provision of basic needs, shelter and overall economic performance ibid. According to Adeyemo*et al.* (2014), this state of affairs prevails despite prolonged efforts by many governments to improve rural and urban services and development programs. It is important to find out how communities can be empowered to contribute to their own development and, in the process, improve infrastructure, governance, services, economic and social development—that is, ultimately, the broad range of activities for sustainable poverty reduction. To this therefore, one of the major problems confronting Nigeria today is how to improve the quality of life of its people especially those living in rural areas and reducing their level of poverty (Adamu *et al.*, 2013). In response to this, development quest, the World Development Report (1990) suggests that, approaches that involve the poor (communities) in the design, implementation and evaluation of projects have been successful, particularly for the less complicated projects. Projects which have incorporated gender issues, as well as projects which make use of human labour, were said to have also proven effective.

According to, the terms and conditions of women's involvement in the economic sphere are important issues that continue to dominate the debate on gender relations in other words, the new developments led to an increase in the number of women in labour force, but the impact on their quality of life and decision making process is still to be felt (Kabeer 2011). There is overwhelming evidence that development policies and projects formulated, bypasses the involvement of rural women in most African Countries (Hunger Project, 2000).Their voices are less likely to be heard, they have less access to decision –making and less time to participate (World Bank, 2011).

The Federal Government of Nigeria, the World Bank and other international donor agencies such as the Department for International Development (DFID), International Fund for Agricultural Development (IFAD), and the United States Agency for International Development (USAID) saw the need for service delivery mechanisms that are demand-driven, covering multiple sectors and depending on the specific community determined needs. This led to policy designs to involve communities in the design, implementation and evaluation of their own development agenda known as the Community Driven Development (CDD).

In Nigeria, several projects have been implemented that seem successful using this approach, these include the: (1) Second National Fadama Development Project (NFDP-II Project, 2003-2009), (2) Community-Based Poverty Reduction Project (CPRP, 2001 - 2009), (3) Local Empowerment and Environmental Management Project (LEEMP, 2003 - 2009), Community-Based Agricultural and Rural Development Project (CBARDP, 2003 - 2010), Third National Fadama Development Project (NFDP-III, 2008 - 2017), Community and Social Development Project (CSDP, 2009 to 2013).

The CDD approach has been propelled by its potential to develop projects and programmes that are sustainable and

responsive to local priorities, empower local communities to manage and govern their own development programmes and more effectively target poor and vulnerable groups (Gillespie, 2004).Studies have shown that women make up the majority of rural poor and play vital roles in poverty reduction especially in Nigeria, yet they form part of the vulnerable and marginalized group in the society. Without improving the social and economic situation of women who make up the majority of the poor in Nigeria, sustainable human and economic progress will be elusive. In Nigeria, common socio-cultural practices, lack of or limited access to political, economic and social power further deepen the vulnerability of women in particular, and by multiplier effect, of children and other vulnerable groups. This situation is not different in Kogi State where Community Driven Development Projects iscurrently intervening. Despite the Social Inclusion principle of the CDD process, the participation of women in development process especially in the rural areas is still a big issue. It is in this regards that this study is intended to fill this gap and to determine the decision variables that influence the level of participation of women in the Community and Social Development Project (CSDP) which uses the CDD approach to developmentim Kogi state, Nigeria.

II. METHODOLOGY

A. Study Area

The study was conducted in Kogi State, Nigeria. The current population figure for Kogi State is 4,167,773 people based on projection from the 2006 population census figure (3,278,487), broken down into 2,150,617 males and 2,017,154 females (NPC, 2006). It is estimated that about 70% of the population live in rural areas (Ibitoye, 2006).Four Local Government Areas (L.G.As)namely: Dekina, Ofu, Adavi and Kabba/Bunuwere purposively selected from the four(A, B, C and D) Agricultural Zones of the State due to the high number of completed community projects for the study.Multi- stage random sampling procedure was used to select 313 respondents.

B. Source of Data and Sampling Procedure

Primary data was used for the study. Multi- stage random sampling procedure was used to select respondents for the study

Stage 1: Four Local Government Areas (L.G.As) namely: Dekina, Ofu, Adavi and Kabba/Bunu were purposively selected from the four (A, B, C and D) Agricultural Zones of the State due to the high number of completed community projects to represent the entire state.

Stage 2: All communities benefitting from the Community and Social Development Project in the selected LGAs are eligible to participate in the study. A list was obtained from the CSDP office in the state.

Stage 3: A total of 313 respondents benefitting from the project were randomly selected to serve as the sample size for the study.

C. Method of Data Analysis

This study employs the double – hurdle model with the assumption that, the participation and level of participation of rural women in Community and Social Development Project (CSDP) are two independent decisions.Double- hurdle model was formulated by Cragg (1971); the model assumes that rural women make two sequential decisions with regards to participation and level of participation in CSDP.

The first hurdle is the decision to participate or not to participate in CSDP and was estimated by using the probit model as described in equation 1.

$$p(y_i > 0|X_i) = \alpha_0 + \alpha_1 x_{1ij} + \alpha_2 x_{2ij} + \alpha_3 x_{3ij} + \alpha_4 x_{4ij} + \alpha_5 x_{5ij} + \alpha_6 x_{6ij} + \alpha_7 x_{7ij} + \alpha_8 x_{8ij} + \alpha_9 x_{9ij} + \alpha_{10} x_{10ij} + \alpha_{11} x_{11ij} + \alpha_{12} x_{12ij} + u_{ij} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

The second hurdle involves an outcome equation which uses a truncated model to determine the level of participation. This stage uses observations only from the rural women that reported positive participation in CSDP. The truncated regression model was presented as follows:

$$E(y_i|y_i > 0, Z_i) = \alpha_0 + \alpha_1 x_{1ij} + \alpha_2 x_{2ij} + \alpha_3 x_{3ij} + \alpha_4 x_{4ij} + \alpha_5 x_{5ij} + \alpha_6 x_{6ij} + x_{7ij} + \alpha_8 x_{8ij} + \alpha_9 x_{9ij} + \alpha_{10} x_{10ij} + \alpha_{11} x_{11ij} + \alpha_{12} x_{12ij} + \sigma + \lambda(x_2\beta/\sigma) + u_{ij} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Where $E(y_i|y_i > 0, x_{2i})$ =Conditional probabilityi.e the expected outcome condition on positive participation.

Where,p_{ij} is the conditional probability of observing a positive of participation and y_{ij} is the level of participation (Participation = 1, Non-Participation = 0), while the explanatory variables hypothesized to influence participation choice are defined as x_{1ij} = Age of respondent (years), x_{2ij} =Household size (Number), x_{3ij} = Urban exposure (Number of visit made to urban cities within the last 1 year), x_{4i} =Time (Number of hours spent on productive and other activities within 24 hours during the last farming season), x_{5ij} =Residence (Number of years spent in the study area since birth up to the time of Interview), x_{6ij} =Association membership (Yes = 1, NO = 0), x_{7ij} =Primary Occupation (Farming = 1, otherwise = 0), x_{8ij} = Marital Status (Married = 1, otherwise = 0), x_{9ij} = Leadership (If occupying any of the positions, Yes = 1, NO = 0), x_{10ij} =Primary education (Scored as 2), x_{11i} =Secondary education (Scored as 3), x_{12ij} =Tertiary education (Scored as 4), α_0 = Intercept/constant term, $\alpha_1 \ldots \alpha_{14}$ = Partial regression (Slope) coefficients, u_i = Stochastic error term, $j = 1, 2$ (1 = Participants, 2 = Non-participants).

III. RESULTS AND DISCUSSION

The two tiers (hurdles or equations) which constitute the model were estimated separately given the separability nature of all double- hurdle models. This was estimated simultaneously using the Stata command *craggit* and a programme was developed in order to further estimate the quantities of interest in this study namely, the probability of observing a positive level of participation and the expected level of participation given a positive participation. Table 1 shows goodness of fit statistics of the double hurdle model of the factors influencing participation in CSDP by women in Kogi State. The Wald statistic estimate was 62.29 and was significant at 1% level of probability; this implies that the model significantly fitted the data.

Table 1: Goodness of fit of the double hurdle model for the socioeconomic factors affecting the level of participation in CSDP in Kogi State

Statistics	**Value**
Wald statistic	62.29***
Sigma	**4.71 (0.26)*** **
Number of observation	309
Source: *Author's estimates from survey data (2014)* ***Note:*** *** = Significant at 1% level of probability. Value in bracket is standard error*	

A. Factors that influence probability of participation and level of participation by rural women in Kogi State, Nigeria

The first tier hurdle model in Table 2 shows maximum shows the maximum likelihood estimates of the probit model for observing a positive level of participation in CSDP by women in Kogi State. The result indicates that household size, urban exposure,social participation and farming are statistically significant decision variables that influenced the probability of participating in CSDP by rural women. For the significant factors any positive or negative sign on a coefficient indicates an increase or decrease in the probability to participate in CSDP by women in the study area. It is worth pointing out that, the coefficients do not show direct relationship between the dependent and independent variables since they represent the partial effects of the independent variables on the latent ("true") decision to participate in CSDP. In order to overcome the shortcoming, average partial effects (APE) were estimated and used for the interpretation of the model.

Household size was positively and significantly related to the decision to participate in CSDP by women at 10% level of probability; this implies that if household size increases by 1 member, the average partial effect of household size on the probability to participate in CSDP or observe a positive level of participation will increase by about 0.006, *Ceteris paribus*. This is contrary to *a priori* expectations that community members with larger households will participate less in developmental activities than communities with smaller households, because of heavier burden of household sustenance. Imoh (2004) found a significant relationship between family size and participation of women in community development.Urban exposure was positively and significantly related to the decision to participate in CSDP at 10% level of probability; this implies, if the number of urban visit increases by 1 visit, the APE of the number of visit on the probability to participate in CSDP will increase by 0.09. The finding was consistent with *a priori* expectation. Social participation was positively and significantly related to the decision to participate in CSDP by women at 1% level of probability; specifically, a woman who is a member of the social group has a probability differential of 0.16 to participate in CSDP compared to a non-member of the association in the study area. This was consistent with *a priori* expectation as social participation. Engaging in farming as main occupation was found to be positively and significantly related to the probability to participate in CSDP by women at 10% level of probability; with a probability differential of 0.45 to participate in CSDP in the study area in comparison to their counterparts. This implies that women in the study area who were into farming as their primary occupation are more likely to participate in CSDP in the study area than their counterparts.

The second tier hurdle shows the maximum likelihood estimates of the truncated regression model for the expected level of participation in CSDP by rural women in Kogi State, given a positive participation. The same twelve independent variables included in the first hurdle were included in the second hurdle, out of which five were significant. The significant factors were urban exposure,time, social participation, leadership position and having a secondary level of education.Urban exposure was positively and significantly related to the expected level of participation at 1% level of probability, given that participation in CSDP was observed; the implication is that if the number of visit to cities increases by 1 visit, the expected level of participation in CSDP by women, will be increased by 0.35 stage which is about 4 stages in the programme out of 10, given that they have participated in CSDP and that all other factors in the model are being kept constant. Time was positively and significantly related to the expected level of participation at 1% level of probability; the implication is that if the number of hours spent in carrying out activities from morning till bed time increases by 1 hour, the expected level of participation in CSDP by women, provided that they have participated in CSDP, will be increased by 0.37 stage which is about 4 stages out of 10, given that all other factors in the model are being kept fixed. The finding was contrary to a priori expectation. Social participation was positively and significantly related at 5% level of probability to the expected level of participation this implies that if a woman is a member of the Community Based Association, her expected level of participation in CSDP will be greater than that of her counterpart by about 2 stages in the programme, given she has participated in CSDP and that all other regressors in the model are being kept fixed. Leadership was positively and significantly related at 1% level of probability; the implication is that if a woman occupies a leadership position, provided that she has participated in CSDP, her expected level of participation in CSDP will be greater than that of her counterparts (participants with no leadership position) by about 5 stages in the programme provided that all other factors in the model are being kept fixed. This result is in agreement with a priori expectation.Secondary level of education was positively and significantly related at 5% level of probability; the implication is that if a woman has a secondary level of education, her level of participation in CSDP will be greater than that of her counterparts by about 2 stages in CSDP, given that all other factors in the model are being kept constant.

Table 2: Maximum likelihood estimates of the first tier of the double hurdle model for the socioeconomic factors affecting the level of participation in CSDP in Kogi State

	First Tier		
Characteristics	**Coefficients**	**APE**	**Z-statistic**
Age	0.01 (0.01)	0.001 (0.001)	1.07
Household size	0.05 (0.03)	0.006 (0.004)	1.65*
Urban exposure	0.09 (0.05)	0.010 (0.006)	1.7*
Time	0.04 (0.04)	0.004 (0.004)	1.02
Residence	-0.01 (0.01)	0.0007 (0.001)	-0.79
Association	1.44 (0.20)	0.16 (0.02)	7.15***
Farming	0.42 (0.24)	0.45(0.026)	1.72*
Married	-0.39 (0.26)	-0.04 (0.03)	-1.48

Leadership	4.94 (186.38)	0.54 (20.23)	0.03
Primary	-0.18 (0.26)	-0.02 (0.03)	-0.69
Secondary	0.03 (0.29)	0.003 (0.032)	0.11
Tertiary	0.07 (0.38)	0.008 (0.041)	0.19
Constant	-0.96 (0.54)		-1.77*

Source: *Author's estimates from survey data (2014)*
Note: **** and * = Significant at 1 and 10% level of probability. Values in brackets are standard deviations. APE = Average Partial Effect. Standard errors under APE were estimated using the Delta method*

Table 3: Maximum likelihood estimates of the second tier of the double hurdle model for the socioeconomic factors affecting the level of participation in CSDP, a positive that the level of participation is positive

	Second Tier		
Characteristics	**Coefficients**	**APE**	**Z-statistic**
Age	0.04 (0.04)	0.04 (0.03)	1.17
Household size	0.11 (0.07)	0.10 (0.06)	1.49
Urban exposure	0.35 (0.12)	0.31 (0.11)	2.89***
Time	0.37 (0.13)	0.33 (0.11)	2.86***
Residence	0.03 (0.03)	0.03 (0.03)	1.02
Association	1.66 (0.83)	1.47 (0.74)	1.99**
Farming	-0.53 (0.74)	-0.47 (0.66)	-0.72
Married	0.09 (0.90)	0.08 (0.80)	0.1
Leadership	4.85 (0.89)	4.30 (0.78)	5.48***
Primary	0.58 (0.93)	0.52 (0.83)	0.62
Secondary	2.07 (0.97)	1.83 (0.86)	2.13**
Tertiary	1.15 (1.17)	1.02 (1.03)	0.99
Constant	-0.73 (2.24)		

Source: *Author's estimates from survey data (2014)*
Note: **** and ** = Significant at 1 and 5% level of probability. Values in brackets are standard errors. APE = Average Partial Effect. Standard errors under APE were estimated using Delta method*

CONCLUSION AND RECOMMENDATION

On the basis of the findings of the study concludes that the decision to participate in CSDP was found to be positively correlated with household size, urban exposure, membership of Community Based Association (social participation) and the engaging in farming activities as the main occupation. The double hurdle was justified as different socioeconomic characteristics were found to affect the level of participation in the second hurdle. Precisely, urban exposure, time spent in carrying out activities from morning till bed time, membership of community based association and having a secondary level of education were significant in increasing the level of participation in CSDP in Kogi State. The study therefore recommends that, to increase the probability of rural women participation in Community and Social Development in Kogi State and Nigeria at large, advocates and awareness campaign programmes for deeper sensitization of rural communities on the need to encourage women to actively participate in social/community development meetings should be encourage at all levels. There is also the need for the three tiers of Government and Legislators at the State House of Assembly to develop policies and legal framework to facilitate increased secondary school enrolment by women in rural areas in the State. Finally, the State Government should intensify effort at investing in the construction of rural access roads and also improve the quality of roads that link communities to urban centers as this will enhance urban exposure of women.

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