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Determinants of Market Participation in Nigerian Small-Scale Fishery Sector: Evidence from Niger Delta Region

Anthony O. Onoja
Department of Agricultural Economics and Extension,
University of Port Harcourt, Nigeria
email: tonyojonimi@gmail.com

B. B. Usoroh
Department of Agricultural Economics,
University of Nigeria, Nsukka

D. T. Adieme
Department of Marketing,
University of Port Harcourt, Nigeria

N.J. Deedam
Department of Food Science and Technology,
Rivers State University of Science and Technology, Port Harcourt, Nigeria

Abstract

This study was designed to determine the factors that influence fisher farmers to participate in the marketing of their produce in the Niger Delta region of Nigeria. A total of 120 fish farmers were randomly selected for the study. The data gathered through the use of a structured questionnaire were analyzed using the logistic regression model. The probability of participating in fish marketing was significantly determined by household size, distant to the nearest marketing channel, price of the commodity and sex of the fish farmer/marketer. Market infrastructure development, provision of marketing incentives to women and development of an institutionalized marketing information service are recommended.

Keywords: market participation, fish marketing, rural livelihood, logistic regression, Niger Delta, Nigeria.

1. Introduction

1.1 Introduction

Commodity production and trade have significant bearing on sustainable livelihoods of the poor, as well as on the exports and growth of a number of commodity-dependent developing countries (Developing Countries in International Trade, 2005). Fish marketing is one of the few livelihood activities that hold great

potential for income generation and poverty reduction especially among communities or households living near water resources.

It has been estimated that about 200 million Africans eat fish regularly. FAO estimates that fish provides 22 percent of the protein intake in Sub-Saharan Africa; this figure increases to 40% in Nigeria and to as high as 80% in coastal and riverine communities. (Areola, 2007). In fact, fishing provides 6 and 9 million full- and part-time jobs, respectively, the income from which supports 30.45 million people. Many involved in fish processing and trade are women who lead single-headed households (Hall, 2005). For them, fish is the primary and sometimes the only source of income to support their livelihood and their children. World Fish Center (2005) maintained that the contributions of fisheries to the Millennium Development Goals (MDG's) of reducing hunger and poverty by half come 2015 are of two kinds: direct contribution to specific goals and indirect support to all the goals through enhanced livelihoods. For example, FAO (2007) indicated that fish marketing was providing increased income to the many Nigerians who distribute fresh and processed fish throughout the country. It is not uncommon to find markets for smoked fish products along inter-city highways and in Onitsha, Lokoja, Jebba, Makurdi, Aba, Port Harcourt, etc. At such locations, there are back-up facilities to maintain the quality of unsold product day in, day out. For the consumers, fish is an important part of their nutrition, accounting for a large percentage of their animal protein, since it is often the most affordable source. Thus, the fish market contributes to the food security drive of the country. Fisheries can therefore play a role in eradicating extreme poverty and hunger especially in the Niger Delta region where most households in states such as Bayelsa, Akwa Ibom Delta, Rivers and Cross River States depend heavily on fishing and fish marketing (Kingdom & Alfred-Ockiya, 2009).

Recent poverty analysis confirmed that households that produce fish for the market are generally better off than those producing for self-consumption (International Fund for Agricultural Development, IFAD, 2010). In a more explicit form IFAD noted that the potential benefits of higher product prices and lower input prices due to commercialization are effectively transmitted to poor households when market access is guaranteed (IFAD, 2001). Unfortunately, not much research has been conducted to verify the major factors responsible for dismal market participation by farmers, especially those in developing economies such as Nigeria. This work is an attempt to fill this research gap and contribute to the generation of evidence for policy makers to realize informed decisions on poverty alleviation. It is necessary to do this research especially as fish farming has been shown to be a predominant agricultural activity in the coastal states of Nigeria where there is a currently observed increase in the population of fish farms and farmers in the face of rising poverty (Ogboma, 2010). Ogboma noted that fishing is no longer restricted to the wild alone in this region; fish farms can be found around towns and villages, and even behind homes. To sustain this development, they recommended that information on and for them be provided; hence the need for this study.

The broad objective of this research therefore is to provide empirical information on likely causes of households' involvement in the commercialization of fish in the Niger Delta area of Nigeria using an appropriate econometric approach. Specifically, the study determined the factors influencing market participation in fishing households and markets.

1.2 Literature Review

New Partnership for African Development, NEPAD (NEPAD, 2002) noted that Africa faced trade challenges at many levels: the farmer faces non-remunerative markets and loses the incentive to produce; the nation-state fails to find rewarding markets both within the region and globally. Africa as a region is often marginalized as uncompetitive in the international marketplace. Furthermore, Africa continues to offer mostly unprocessed produce, for which prices are static or falling. Responses to these issues pose challenges that NEPAD would need to address at the appropriate level. In terms of trade and market access, the importance of domestic markets should not be neglected, warned NEPAD. A strong domestic market is a building block for export markets and there should be broad participation in domestic markets by farmers, women, etc. But to tap their potential requires strong institutional capacities and the implementation of relevant policies (e.g. competition, tariff policy, financing, market development, etc.).

Until a decade or so ago, for smallholder farmers, major markets were organized by governments, and exchanges were not critically influenced by farmer knowledge and organization. Nearly everywhere the situation has changed radically. Smallholder farmers no longer face an assured market for their produce at fixed, pan-territorial prices that often represent a large tax on the value of their produce. Similarly, they no longer face a predictable supply situation for inputs and, in today's world, they may not be able to afford to buy what becomes available. A market environment offered farmers some degree of security, though far from perfect, has been replaced by a new one that is highly uncertain with regards to prices. New commercial relations must be struck with a myriad of suppliers and buyers (NEPAD, 2002).

Market access is a critical determinant of farmers' production habits: those who live close to better roads and have more frequent and direct contacts with the market appeared more willing to produce more systematically for the market, while those with poor market access have little incentive to produce crops other than those required for domestic consumption. In other words, improved market access is a prerequisite to increased farmer incomes.

According to NEPAD, smallholder farmers are ill equipped to tackle the challenges they face in the market; farmers operate in an uncertain production environment and also have trouble accessing the markets because they live far away and transportation costs are high. In many cases, there are few buyers of their produce. Poor farmers in Africa are also constrained by the lack of market information, business and negotiation experience, and collective bargaining power. The result is poor terms of exchange and little influence over what they are offered. Remunerative markets are an essential element in progressively making African agriculture more entrepreneurial; income from well-functioning markets, when combined with credit, can offer the real prospect of sustainable farmer investments needed for productive agriculture in future. The situation is often no better on the other side of the market equation - that is, for the wholesalers who purchase farm surplus and those who sell technical inputs and provide finance to smallholders.

Some other empirical studies attempt to determine the factors influencing market participation and intensities among agricultural enterprises. For instance,

Kenya, Omiti, Otieno, Nyanamba and Mc Cullough (2009) found that farmers in peri-urban areas sold higher proportions of their output than those in rural areas. They found that distance from farm to point of sale was a major constraint to the intensity of market participation while better output price and market information were key incentives for increased sales. They therefore concluded that there was urgent need for Kenyan authorities to strengthen market information delivery systems, upgrade roads in both rural and peri-urban areas, encourage market integration initiatives, and establish more retail outlets with improved market facilities in the remote rural villages in order to promote production and trade in high value commodities by rural farmers.

Other variables that were attempted but did not result in significant slope coefficients were household size, age of the household head, education level of the household head, proportion of non-farm income in total monthly income, and total quantity of output produced per season. Komarek (2010) found that sub-county prices in Uganda had stronger influence on initial market entry decisions while quantities had a larger impact on volumes traded. It was also indicated that market information significantly influenced market participation in the survey.

Bartha and Bauer (2007) observed that factors which proved to have a significant impact on small-scale South African livestock farmers' decision to participate in market were: (i) market information, (ii) distance to the preferred marketing channel, (iii) the level of training (iv) extension visits, and (v) births (or prolificacy).

The Niger Delta Region is rated as one of the largest wetlands in the world (Nigerian National Petroleum Corporation, NNPC, 2005). The minorities of Southern Nigeria primarily occupy the geopolitical zone. It covers an area of 70,000 square kilometers, with sandy coastal ridge barriers, brackish or saline mangroves, permanent and seasonal swamp forests as well as low land rain forests. The entire area is crossed by a large number of rivers, rivulets, streams, canals and creeks (NNPC, 2005). Ogboma (2010) noted that four of the states of this region sampled in this study (Akwa Ibom, Bayelsa, Rivers and Delta states) are endowed with many rivers and waterways. One other feature common to fish farmers in the region is the fish storage technology adopted by the fish farmers and marketers. Davies R. M., Davies O. A. and Abowei (2009) noted that in Niger Delta, the most common fish processing and preservation methods was smoke-drying They indicated that the costs of maintaining modern technologies were very high compared to traditional storage technologies. Their study further found that the majority of the traditional fish storage operators used thatched houses (61%). However, other storage facilities recorded were hanging of processed fish on roofs of huts (3%), eaves of houses (1.5%), kitchen roofs (3%), smoke houses (8%) and racks (5%). Fish products were generally packaged in woven bags, jute bags, wooden trays, raffia baskets, plastic bags, sturdy boxes, wooden crates and boxes.

1.3 Theoretical Framework

The theory of market participation has developed many different perspectives, including asset-based approaches and agricultural developmental theory approaches. Boughton et al (2007) viewed market participation as both a cause and a

consequence of economic development. Markets offer households the opportunity to specialize according to comparative advantage and thereby enjoy welfare gains from trade. Recognition of the potential of markets as engines of economic development and structural transformation gave rise to a market-led paradigm of agricultural development during the 1980's (Reardon and Timmer, 2006) in which market liberalization policy agendas were widely promoted in Sub-Saharan Africa (SSA) and other low-income regions. Furthermore, as households' disposable income increases, so does demand for variety in goods and services, thereby increasing demand-side market participation, which further increased the demand for cash and thus supply-side market participation. The standard process of agrarian and rural transformation therefore involves households' transition from a model of subsistence, in which most inputs are provided for and most outputs consumed internally, to a market engagement mode, with inputs and products increasingly purchased and sold off the farm (Timmer, 1988; Staatz, 1994). The asset-based theory was summarized by Omiti et al (2009), who held that as the market share of agricultural output increases, input utilization decisions and output combinations are progressively guided by profit maximization objectives. This process leads to the systematic substitution of non-traded inputs with purchased inputs, the gradual decline of integrated farming systems, and the emergence of specialized high-value farm enterprises.

Several models have been proposed to explain why limited market participation may exist. In short, Allen and Gale (1994), Williamson (1994), Vissing-Jorgensen (1999), and Yaron and Zhang (2000) have focused on how entry costs and/or liquidity needs have created limited market participation.

1.4 Analytical Framework

Haddad & Bouis (1990) indicated that agricultural commercialization involves the transition from subsistence farming to increased market-oriented production or participation. This is commonly measured as the ratio of percentage value of marketed output to total farm production. This present study will rely on this approach in deriving the rate of commercialization or market participation by fish farmers. The determinants of participation is a qualitative decision that is based on probabilities of either choosing to participate or not (in this case in commercialization of fishery produce). One qualitative choice model of interest in this type of decision is the logistic regression model. Several econometric and statistics literature explains the processes and theory behind this model (See Wuensch, 2006, Gujarati and Sangeetha, 2007 and Greene, 2008). Logistic regression is a very powerful, convenient and flexible tool used in predicting a categorical (usually dichotomous) variable from a set of predictor variables. It is often chosen if the predictor variables are a mix of continuous and categorical variables and/or if they are not normally distributed. With a categorical dependent variable, discriminant function analysis is usually employed if all of the predictors are continuous and normally distributed and logit analysis is usually employed if all of the predictors are categorical. By using the logistic regression the probability of a result being in one of two response groups (binary response) is modeled as a function of the level of one or more explanatory variables. Thus, the probability whether or not the farmer sells

fish may be modeled as a function of the level of one or more independent variables. For this study, the response variable is 1 when the farmer sold fish in the past twelve months and 0 when the farmer did not sell. The functional form is denoted in equation (1).

$$\ln\left(\frac{\phi i}{1-\phi i}\right) = \beta_0 + \sum_{j=1}^{K} \beta_j X_{ij} + \varepsilon_i \quad \textbf{(1)}$$

Where: *j* is the response category (1 or 0), *i* denotes cases (1, 2, 3, 4., n), □□ is the conditional probability, βo is the coefficient of the constant term, βj is the coefficient of the independent variable, Xij is the matrix of observed values, εi is the matrix of unobserved random effects,

$\frac{\phi i}{1-\phi i}$ is .odd., and ln $\left(\frac{\phi i}{1-\phi i}\right)$ is the logarithm of .odds.

Equation (1) can be manipulated to give the odds ratio using equation (2):

$$\frac{\phi_i}{1-\phi_i} = \exp\left(\beta o + \sum_{i=1}^{k} \beta i Xi\right)$$

(2)

The probability that farm households sell livestock can be calculated using equation (3):

$$\phi_i = \frac{Exp\left(\beta_o + \sum_{i+1}^{k} \beta_j X i_j\right)}{1 + Exp\left(\beta o + \sum_{i=1}^{k2} \beta j X ij\right)}$$

(3)

Equation (3) is intrinsically linear since the logit is linear in Xi (Gujarati and Sangeetha, 2007); it indicates that probability ϕi lies between zero and one and vary non-linearly with Xi. The equation for calculating partial effects1 of continuous variable is denoted by:

$$\frac{\partial \phi_i}{\partial x_i} = \phi i\left(1-\phi\right)\beta j$$

(4)

The partial effects of the discrete variables will be calculated by taking the difference of the mean probabilities estimated for the respective discrete variable, Xi = 0 and Xi = 1.

2. Research Methods

2.1 Study Area

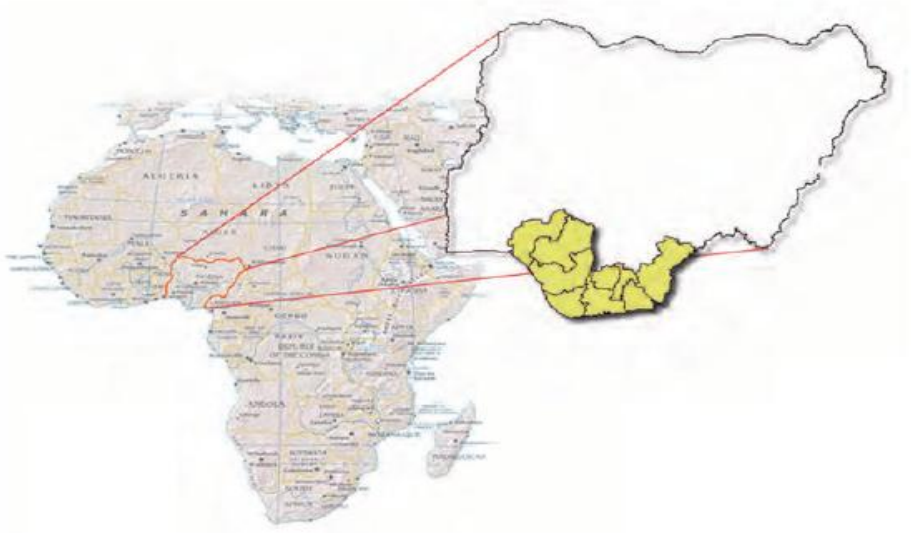

Figure 1: Map of Niger Delta shaded in the Nigerian Map, which is inset in African Map. (*Source*: Macmilan, 2007)

The research was carried out in the Niger Delta region of Nigeria (See Map of Niger Delta in Figure 1). The Niger Delta region constitutes a significant proportion of southern Nigeria, comprising six of the thirty-six states of the country and politically delineated as the South-South. It lies within latitude 4.50 - 7.50 N and longitude 50 – 9.50 E and occupies a shoreline of about 580km, 72.5 percent of the 853 national coastlines, and a landmass of 84,616 km2. Delta, Bayelsa, Rivers, Akwa Ibom, Cross River, and Edo States constitute the Niger Delta (Macmillan 2007). Nigerian oil production takes place in this region. The major livelihood of the indigenes however is fishing and crop farming. According to the Federal Ministry of Agriculture and Rural Development (2005), fish production from the Niger Delta states constitutes 43 percent of national production.

2.2 Design, Sampling and Data Collection Method

The study relied on primary sources (responses from small-scale fish farmers/fisher folks) and secondary data such as textbooks, and books of readings, journal articles and online materials for this research. The study was a survey design covering one production year (2011). Primary data was obtained by the use of a structured questionnaire which elicited responses on their levels of participation in fish marketing in addition to socio-economic data such as age, education status, occupation, access to market information, distance to the nearest market, number of dependents in the household, sex etc. A multi-stage random sampling was used in

selecting the respondents of this research. First, four out of the nine states in the Niger Delta were randomly selected (See figure 1). These include: Akwa Ibom, Bayelsa, Rivers and Delta States. Then, in each state, one agricultural zone each was purposively selected based on availability of fisheries and fish markets in the area. The average number of agricultural zones is four in each state. In each agricultural zone, three markets (in communities where fishing is a major source of livelihood) were identified and selected, making a total of 12 markets in the four states of the Niger Delta sampled. From each market, 10 fish farmers/fish marketers were randomly selected from list of registered members of Fish Marketers Association in the agricultural zone. Thus, the total sample size of study was 120.

2.3 Empirical Data Estimation Method

The primary objective, which is to find out the determinants of level of fish farmers participation in marketing, was completed using logistic regression model. The implicit form of the model which was used to find out the rate of change in level of participation in fish marketing by the fisher folks in the survey was given by Ppt = f (Age + HHSZ + INCM + EDUCSTAT + DISTMKT + CRDTACS + MKTINF + PRICE + MKTEXP + SEX + u).

In explicit form the model is given by $Ppt_i = \beta_0 + \beta_1 Age + \beta_2 HHSZ + \beta_3 INCM + \beta_4 EDUCSTAT + \beta_5 DISTMKT + \beta_6 CRDTACS + \beta_7 MKTINF + \beta_8 PRICE + \beta_9 MKTEXP + \beta_{10} SEX + u$, where Ppt_i are probabilities of market participation ranging from 0 to 1; Ppt_i = probability of not selling fish produced; Ppt_i = probability of selling fish produce (or participating in selling activity); Age = age of respondent in years; HHSZ = household size of the respondent (categorical = 1 = 1-3, 2 = 4- 6, 3 = 7 – 9, 4 = 10 and above); Incm = monthly income in naira (Discrete variable where 1 = N0 – N5000; 2 = >N5000 – N10,000, 3 = >N10000 – N15,000; 4 = above N15,000 – N20,000, 5 = .>N20000 – N100,000, 6 = Above N100000); Educstat = educational status (categorical variable where 0 = No formal education, 1 = Primary Education, 2 = Secondary Education and 3 = Tertiary Education and above); CRDTACS = access to credit (Dummy, 0 = No access, 1 = access to credit); MKTINF = Access to Market Information (Dummy, 1= "yes", 0= "No access"); PRICE = Market price of fish per kilogramme in the farmer's area; MKTEXP = Years of marketing experience, SEX = Dummy (0=Male, 1 = Female); and DISTMKT = distance to the nearest market (in Kms); while u is the stochastic error term. The model was estimated using maximum likelihood method in SPSS software.

3. Results and Discussions

3.1 Characteristics of the Logistic Regression Model

The results of assessment of the estimated logistic regression model are presented in Table 1.

		LR (Likelihood ratio)	$chi^2(10)$	=	119.83
		Prob	chi^2	=	0.000
Log likelihood	=	-14.2175	Pseudo R^2	=	0.8082
		Number of observations		=	120

Table 1. Logistic Regression Model Fitness Attributes

As a measure of goodness of fit, the Model Chi-Square was used and therefore, there should be no statistically significant difference between observed and predicted values if the model is a good one (Field, 2005). The Model Chi-Square statistic, which is the difference of the values of the two log likelihood functions (i.e. the null model -2 Log likelihood and the full model -2 Log Likelihood), is 119.83. If the P-value for the overall model fit statistic is less than the conventional 0.05 ($p<0.01$) indicating an evidence to show that that at least one of the independent variables contributes to the prediction of the outcome. The latter is true for the fitted model, i.e. the overall model fit statistic is less than 0.05 and highly significant at ($P<0.001$) with ten degrees of freedom, indicating that at least one of the parameters in the equation is nonzero. The Pseudo R^2 is also very high, approximately 0.81, indicating that variations in probabilities of participating in fish marketing in the sample surveyed was explained by about 81 percent of the covariates in the logistic model.

The result shows that, among the ten covariates (age, household size, education, income, distant to the nearest market, market information, price of the commodity, credit access, marketing experience and household head sex) considered for the model, participation in fish market is influenced to a great extent by the following four covariates: household size, distant to the nearest marketing channel, price of the commodity and sex of the fish farmer/marketer. Consequently, the other six (6) covariates were eliminated from the equation through the iterative backward variable selection process. As it is shown in table 2, all the variables showed signs that are in tandem with theoretical expectations. However, only four variables were significant determinants of market participation in the study.

The value of coefficients or β_j indicates the change in the predicted logged odds associated with a unit change in independent variables (equation 1). It should be noticed that the interpretation of logit coefficients differ from typical linear regressions (Field, 2005), and hence requires more manipulation in order to calculate the impact of the independent variables on the probability to sell fish.

The partial effects of the statistically significant variables on conditional probabilities can be used to determine the effect of changes in the respective variables on the probability to sell fish. Besides, the partial effects calculated from the logistic model show the effect of a change in an individual variable on the probability to sell fish when all other exogenous variables are held constant. Table 3 shows partial effects of the continuous variables (See Appendix 1 also).

Ppt		Odds Ratio	Std. Error	Z	P>|z|
Age	0.05	-0.30	0.05NS	0.76	
HHSZ	0.54	2.01	0.54**	0.04	
EDUCSTAT	0.26	1.37	0.26NS	0.17	
DISTMKT	0.13	-2.70	0.13**	0.01	
INCM	1.51	1.03	1.51NS	0.30	
CRDTACS	2.54	0.46	2.54NS	0.65	
MKTINF	1.23	-0.14	1.23NS	0.89	
PRICE	0.01	1.62	0.01*	0.10	
MKTEXP	0.52	0.18	0.52NS	0.86	
SEX	138.26	2.23	138.26**	0.03	

Table 2. Results of the Logistic Regression Model
NB: ***P<0.01, **P<0.05, *P<0.10

Determinants	Partial Effects
Household Size	0.599
Distance to the nearest marketing channel	-1.23
Mean market price of Fish	0.009

Table 3: Partial effects for the significant continuous variables

3.2 Distance to the Preferred Marketing Channel

From Table 3, distance to the preferred marketing channel is negatively and significantly correlated to the probability of selling fish. Hence, the partial effect of a unit increase in distance on the conditional probability of selling livestock is -0.02488. This means that with each unit increase (1km) in distance, the probability to sell will reduce by 1.23. Thus, this finding suggests that households which are closer to market outlets are more likely to sell their fish than those households living further away. It is interesting to mention that commercial farmers that are at the same distances from markets do sell their fish on a regular basis. Thus, this issue requires further investigation by incorporating the differences in transaction costs to sell fish over long distances. The findings about the significant effect of distance to market in this study is in tandem with empirical findings of Bartha and Bauer (2007),

3.3 Price of Fish

Furthermore, the price of fish is positively and significantly related to the probability of selling fish. Hence, the partial effect of a unit increase in household size in the conditional probability of selling fish is 0.009. This means that with each unit increase (naira increase) in the price of fish, the probability to sell fish will increase by 0.01, approximately. Thus, this finding suggests that households which have higher expectations of making higher profits from price signals are more likely to engage in or participate in fish marketing in the area. This is in line with earlier

findings of Komarek (2010) in Uganda where it was indicated that sub-county prices had a stronger influence on initial market entry decisions of some agricultural marketers. It is also related to the earlier assertion by The asset-based theory was summarized by Omiti et al (2009) who held that gain in market share of agricultural produce could be motivated by profit maximization motive (and this can be expected to come from a better price offer by consumers.

3.4 Sex as a Determinant of Fish Market Participation

Sex is a categorical variable but was found to be significant and contributed positively (sex was coded as "1" for females and "0" for males) towards fish market participation in the study. The result thus implies that there is a higher probability of fish commercialization if the head of the household is female. In other words, it seems women have more of a tendency to engage in fish marketing in the Niger Delta than men. Many studies in Niger Delta agricultural activities have confirmed that women do most of the value addition activities in farming and related industries. Likewise, women's roles as fish processors and marketers have also been reported in Nigeria by Adewale and Ikeola (2005) and Verstralen and Isebor (1997). The gendered nature of the fish trade arises from the fact that skills and tasks training for the acquisition of local knowledge is normally age and gender specific, and taught by members of the appropriate sex (Ruddle, 2000). These also suggest the 'gendered' nature of local knowledge and its systems because men and women usually have different and often complementary economically productive roles, different resource bases, and face different sets of social constraints (Omoto 2004).

4. Conclusion

The paper examined the factors influencing fish market participation. Factors that prove to have a significant impact on the ability of small-scale fish farmers' decisions to participate in market are the following: distance to the preferred marketing channel, household size, local market price of fish, and sex of the farmer. The fact that distance to the preferred marketing channel influenced the farmers' decision to participate in marketing of their produce underlies the need to develop the market infrastructure as recommended by NEPAD. Nigerian government can achieve this by encouraging Niger Delta Development Commission (NDDC) to build markets and good roads in rural areas, especially in fish markets of the Niger Delta region. NEPAD recognized the existence of poor quality or inadequate infrastructure as an inhibiting factor on the competitiveness of African agriculture. By increasing internal transport costs, reducing levels of value-added at origin and lowering transaction efficiencies in the marketing chains, African agriculture can compete nationally and internationally. Hence, we recommend the government provide adequate and cost-effective rural infrastructure in the Niger Delta region so as to enhance sustainable development of fisheries and fish marketing. Women appear to participate more in the marketing of fish in the Niger Delta region, so there will be a need to provide incentives to them such as training, supporting them

with credit, and reducing their market levies so that they can meet the challenges of fish marketing as well as household demands.

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APPENDIX 1
Results of Logistic Regression Analysis on Determinants of Fish Marketing Participation Showing Coefficients
(Note that the results in Table 12 shows the Odd Ratios)

Ppt	Coef.	Std. Err.	Z	P>|z|
Age	-0.02	0.05	-0.30	0.76NS
HHSZ	0.60	0.30	2.01	0.04**
EDUCSTAT	0.27	0.20	1.37	0.17NS
DISTMKT	-1.23	0.46	-2.70	0.01***
INCM	0.74	0.72	1.03	0.30NS
CRDTACS	0.63	1.36	0.46	0.65NS
MKTINF	-0.22	1.53	-0.14	0.89NS
PRICE	0.01	0.01	1.62	0.10*
MKTEXP	0.09	0.48	0.18	0.86NS
SEX	4.28	1.92	2.23	0.03**
Intercept	-13.62	7.80	-1.75	0.08*

NB: ***P<0.01 or figures significant at 1 percent statistical level; , **P<0.05, or or Figures significant at 5 percent statistical level; , *P<0.10 or or figures significant at 10 percent statistical level.