Enhancing the Access of Rural Households to Output Markets for Increased Farm Incomes

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Abstract

In spite of various agricultural development efforts by national and international agencies, which have brought about technological innovations such as improved crop varieties and animal breeds as well as better production techniques, the resultant increase in farm output has not necessarily translated to increased farm income for farmers in Nigeria. This is mostly due to lack of market access and other market related factors. Suffice it to say that the development efforts had hitherto concentrated on the upstream agriculture at the expense of the downstream.

Thus the objective of this study is to determine the role of market factors in the translation of incremental agricultural outputs into incremental farm incomes of rural households. Data from 400 households, randomly selected from 100 villages spread across 10 Local Government Areas in the four Agricultural Development Programme (ADP) Zones of Kebbi state, Nigeria were used to model the effect of some market-specific factors on rural households' farm income using Tobit Regression analysis.

The result of the analysis revealed that the distance of the farm to the market, cost of transportation, medium of sales of farm produce, fees paid for space to display farm produce in the market and lack of up-to-date market information, had significant impacts on the farm income accruable to rural farming households in the study area. In addition to these, cost of transportation contributed the highest to the transaction cost of marketing farm produce. Therefore, the policies for increasing farming households' income require an integrated approach to intervention in downstream agriculture to enhance the market access, particularly in the area of fees paid to display farm produce in the market and transportation.

Key words: Farming households, output markets, farm incomes, Nigeria.

1.0 Introduction

In the past, production and storage problems were the major factors affecting agriculture in Nigeria. Most of the production problems had to do with reduced or no access to good quality inputs and reliance on local varieties of crops and livestock, whose outputs were usually low and were of poor quality. To mitigate these problems, various agricultural

development efforts by national and internat ional agencies, were geared toward technological innovations such as bree ding of improved crop varieties and animal breeds as well as better production techniques. However, the result ant increase in farm output has not nece ssarily translated to increased fa rm income for farmers in Nigeria as most of them still live below poverty line . This could be traced to market related factors a s most of the rural markets in Nigeria are still not developed. Suffice it to say that the development efforts had hitherto concentrated on th e upstream agriculture at the expense of the downstream. Further more the sustainable livelihood framework reinforce the need to increase the sustainability of the poor rural people's livelihoods through pr omoting a policy and institutional e nvironments that supports multiple livelihood s trategies and promotes equitable competitive markets for all (Scoones 2000) .

Thus the main objective of this study is to determine th e role of market factors in the translation of incre mental agricultural outputs into incremental fa rm incomes of rural households vis-à-vis the provision of empirical evidence to support rural m arket development policy .

2.0 Methodology

2.1 Study area

The study was carried out in Kebbi State in the North -western Nigeria, which falls in the dry savanna region with an ave rage annual rainfall of between 650mm and 1100mm. The vegetation largely comprises of drought resistant grasses, legumes and shrubs. There are two distinct seasons: the rainy and the dry season; with the dry season longer than the rainy season. Dry season is usually ac companied by very dry air known as the harmmertta n. The commonly practiced religion is Islam, although a few Christians are still in the state. La rgely dominated by families which are polygamous in nature, and

they reside in huts. Commonly cultivated crops in the State include maize, sorghum, millet, and rice. Others include pepper, tomatoes, cowpea, and so on. The area is famous for traditional arts and c rafts, beads, swords and glassware, and it is the site of the Argungu fishing festival, one of t he most popular tourist att ractions in Nigeria.

2.2 Sampling design and data colle ction

The sampling te chnique adopted in the study was multi-stage sampling technique. All the four Agricultural Development Project zones in the state were covered in the survey. The first stage was the random selection of 10 Local Government Areas (LGAs) from all the four ADP zones. The number of LGAs se lected fro m each of the zones was proportional to t he number of LGAs in the zone. The proportionality factor used is stated as f ollows:

$S = n/N*10$. Where, S= the number of LGA sampled from a zone; n= the number of Local Government Areas in a zone; N= the nu mber of Local Government Areas in a ll the zones in the state and 10= t he desired number of LGA for the survey.

In each L GA, a comprehensive list of the names of villages compiled by the Kebbi State Agricultural and Rural De velopment Agency (KARDA) was obtained. The second stage involved the random selection of 10 villages from each of the 10 selected LGAs to make a tota l of 100 villages sampled in the study area. However, villages or settlements that were non -rural in nature were excluded from the survey using the population criteria which stipulates tha t any settlement with a population less than twenty thousand (20,000) should be classified as rural (Adejobi, 2004).

In the t hird stage, 400 households were randomly selected from the 100 villages earlier select ed. A proportionality factor was also introduced to determine the number of

respondents coming from each of the LGAs selected. The proportionality factor used is stated thus:

S=p/P*400. Where, S= sample size from a LGA; p= the population of a LGA selected[1]; P= the total population of all the selected LGAs, and 400 = the desired number of respondents for the study area.

2.3   Empirical models

The main analytical tools in this study are the descriptive statistics and multiple regression analysis. Having estimated the farmers' income for the study area, the various market factors and other household socio-economic variables were also described with the use of descriptive statistics, such as the mean and percentages .

To determine and quantify the relatio nship between farmer's income and the market-related variables, a multiple regression an alysis was carried out. The model, is expressed in equation 1

$$V_i \quad = \beta X_i + ei \qquad\qquad (1)$$

$$i \quad = \quad 1, 2, \text{-----------}n$$

Where,

V_i = Farmer's income

X_i =   Vector of explanatory variables

βT =   Vector of unknown parameters

e_i =   Independently distributed error term.

The independent variables, which describe rural household market access, are described as follows:

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[1] The population of the LGAs was obtained from the National Population Comm iss ion office in Kebbi State.

DFM   =   Distance of the farm to the market .

COT   =   Cost of transportat ion of farm produce to the nearest market.

MOS   =   Medium of sales of farm produce (D = 1 if farm produce is sold in the
market, otherwise D = 0).

FPS   =   Fees paid for space to display farm produce in the market

MIS   =   Access to market information (D = 1 if ye s, otherwise D = 0)

3.0   Results

3.1   Description of the Socio-Economic and Market -Related Factors

The descriptive statistics of the socio -economic profile of rural farming households and those of the market –related factors are presented in Table 1. From the table, it could be observed that 58 percent of the rural farming household s are poor, with an average poverty depth of 0.33. About 56 percent of the households commercialise their agricultural products, with an average index of 0.24, which impli es that an average of 24 percen t of t heir agricultural produce is commercial ised (See Figure 1).

Table 1: Summary description of rural farming household characteristics

Characteristics	Dominant Indicator	Mean Value
Farmer's income	58% of household have an average of ₦2500 per Ha per annum	₦4500.67
Extent of commercialization	56% commercialise their agricultural products	25% of farm output
Household size	70% between 7 -10	8.27 adult equivalent
Farm size	80% above 3 Hectares	5.5
Extent of agricultural producti on	54% diversified their farm	0.71

diversification	production	
Household production enterprise	47% are into crop production alone.	-
Household access to credit	86% did not have access to credit	-
Distance of the farm to the market.	62% travel about 20-25 kilometres to get to a market.	16.33 kilometres
Cost of transportation of farm produce to the nearest market.	53% of the farmers spent between ₦1000 and ₦1500 on transportation.	₦975.67
Medium of sales of farm produce (D = 1 if farm produce is sold in the market, otherwise D = 0).	83.5% sell their farm produce at farm gate or right on the farm.	-
Fees paid for space to display farm produce in the market	22.10% pay between ₦50 and ₦100 per market visit and amount paid is determined by quantity displayed.	₦45.00
Access to market information (D = 1 if yes, otherwise D = 0)	93% of the rural farmers had no access to market information.	-

Source: Field survey, 2001

From the Table1 most of the farmers sold their outputs at farm gate or right on the farm. They usually sold to commission agents or itinerant traders who often capitalized on the ignorance of the farmers particularly about price information to exploit them. In another vein it could also be observed that the distance of the farms to the nearest market was somewhat far and there were no efficient means of transportation this forced the farmers who want to sell their produce to sell at farm gate or insitu.

Furthermore the rural farming households in the study area were large having more than eight members who had to survive on an average farm income that was usually less than 5000.00 per Ha/annum. These have implications on the production and welfare status of the farming households in the study area.

3.2   Causal Relationships between Farm Incomes and Market-Related Factors

The causal relationships between the farmers' incomes and the respective market -

related factors were captured through the use of multiple linear regression analysis. The

result of the analysis is presented in Table 2.

Table 2: Regression Estimates

Variables	Parameter Estimates	t-values
Constant	0.354***	2.145
DFM	-0.011***	-3.64
COT	0.285***	3.00
MOS	0.226E-04**	1.74
MIS	0.129**	2.01
FPS	0.045	0.50

F = 12.03***
Source: Computer Printout of Regression Analysis
***= Significant at p<0. 001; **= Significant at p<0.005;
Adj R^2 = 0.76

Table 2 shows the estimates from the regression analysis. It reveals that 4 out of

the 5 household market-related variables included in the model had their coefficients

significant at between 1% (p<0.01) and 5% (p<0.05), representing about 80 percent of

the variables; Also, the F value was statistically significant at p<0.01, thus indicating that

the model had a good fit to the data. Furthermore, the value of the adjusted R^2 was 0.76,

which means that the mare-related variables jointly explain variation in the farm incomes

of the rural farming households in the study area.

More explicitly the result can be interpreted as follows.

(i)   Distance of the farm to the market (DFM) has its coefficient significant with a

        negative sign; suggesting that the farther away a market is from a farm the

        lower the farm income accruable to farming household is. This may be due to

the fact that most farm produce are perishable and there are poor/no storage facilities which could elongate the shelf live of the produce coupled with poor transport system; he farmer is forced to sell at any price rather than loose the whole produce. In another vein the distance of the market also determines the transport cost which further adds to the transaction cost thereby reducing the farmers' share/income.

(ii) Cost of transportation of farm produce to the neare st market (COT). This is another variable that its coefficient was significant at 1 percent. The coefficient carries a n egative sign that is contrary to apriori expectation. This implied that the higher the cost of transporting farm produce to the nearest market is the higher the income a ccruable to the far ming households is. This further stresses the fact that access to a market incr eases the income of those households that could afford the cost of transportation.

(iii) Medium of sales of farm produce (MOS). This had its coefficient significant at 1 percent level and carr ies a positive sign; suggest ing that those households who sell at the market had higher farm incomes than those that sell at the farm gate. This might not be unconnected with the fact that those traders/commission agents who buy at the farm gate have very h igh exploitative tendenc ies to buy at very low prices and this reduces the income of the farming households.

(iv) Access to market information (MIS). This had its coefficient significant at 1 percent level and carr ies a positive sign; suggest ing that those households who were up to date on market information were ma king higher incomes than

those who did not. The obvious reason was that those up to date households were not susceptible to the tricks and exploitations of the traders they transact with and this of course subsequently increase their incomes.

4.0   Conclusion

It could be inferred from the study that the market -related factor; particularly those that tend to increase the transaction cost of the farming households have serious impacts on the incomes that are accruable to the farming households in the study area.

To this end policies aimed at reducing the transactions costs particularly in the area of transport is highly desirable. Furthermore there is a need to establish an efficient market information network that would keep the farmers informed most especially on prices as this would make them less susceptible during transactions. Aside these there should be an expansion the rural markets as this has the potential of generating off-farm incomes to many other members of the households and this goes to increase their incomes vis-à-vis improving their welfare and ensure ultimate reduction in their poverty.

References

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