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EFFECT OF ACCESS TO FINANCE AND COST REDUCTION ON MARKETING EFFICIENCY OF RICE FARMERS IN SOUTH EASTERN STATES OF NIGERIA

NTO, CHIOMA PHILIP O.
Department of Marketing
Michael Okpara University of Agriculture, Umudike, Abia State, Nigeria
ntochioma@ymail.com

&

BONIFACE, MOSES OSUMBA
Department of Marketing
Michael Okpara University of Agriculture, Umudike, Abia State, Nigeria
bonifaceosumba@gmail.com

Abstract

The objective of this study was to examine the effect of access to finance and cost reduction can influence marketing efficiency of rice farmers in Ebonyi and Enugu States of Nigeria. This study adopted descriptive survey research design. Taro Yamane method was used to determine the sample size of 283. Primary data for the study were collected through administration of structured questionnaire to respondents in the study area. The test-re-test reliability method was employed by the researcher. The coefficient of reliability was ascertained using Cronbach Alpha with 0.81 levels. The hypothesis was tested with a simple regression model at 1% Decision Criterion. The result reveals that, access to fiancé and cost reduction have significant effect on market efficiency of rice farmers; And there is positive relationship between access to finance marketing of rice farmers. Thus, there is the need to invest in roads, rails and other transport networks. This could be done by improvement of rural roads to enhance efficiency in accessing markets, lower transportation costs and establishing more markets in rice farming areas. Based on the findings of the study, the study recommends that farmer cooperative societies should be strengthened by government in the study area and awareness campaigns should be conducted encourage farmers who are not members of any farmers' co-operative society join. This is because; being a member to a farmer organization reduces transportation costs through collective marketing. Members of a farmer organization easily acquire information on available markets, negotiate for better prices, access extension services easily and are more exposed to information than non-members.

Keywords: Finance, Cost Reduction, Marketing Efficiency, Rice Farmers, Cooperatives.

Introduction

In Nigeria, and other developing countries, rice farmers and marketers are facing challenges while trying to embark on commercial agriculture. Those challenges may be reflected in the prevailing socioeconomic conditions which made access to markets and productive resources difficult (Sharma & Wardhan, 2017). Most market oriented rice farmers are residing in the hinterlands of the country where access to efficient marketing services, marketing infrastructure and finance are difficult. In addition to deficit marketable surplus, rice farmers' decision to take part in the market are influenced by socio-economic and farm specific characteristics such as household size, farm size, yield/output, access to market, access to credit, age, total land size, educational level of farmers, group participation, market information and contractual agreement, household labour, inadequate transport and storage facilities.

High cost of inputs, high transportation costs, high market charges and unreliable market information some of the farmers cannot cope with this high-income agricultural market (Udoma, 2018). Thus, the marketing efficiency status of the farmers is relatively low. To meet expanding demand and set opportunities for income generation in rural economy, it is necessary to link smallholder and market oriented large scale farmers strongly with market. The necessary linkage between the farmers and market will increase the purchasing power for food and reallocate incomes to high valued non-food agribusiness sectors and off-farm enterprises (Davis, 2016).

Studies from Babatunde & Oyatoye (2020) and Asemota (2012) have shown that the return on investment by most market oriented rice farmers is quite poor. Agbaje (2015) also confirmed this statement by pointing out that, market oriented farmers complained of low and unattractive prices which do not cover their cost of production which may limit market participation level (Makhura, 2018). Nevertheless, marketing efficiency among rice farmers is an ultimate result of agricultural commercialization. It requires access to emerging high-income agricultural markets for buying input and selling output (Balint, 2018). Ndegwa (2016) argued that marketing efficiency is influenced by factors which are both external (such as input and output markets, institutions, cultural and social factors, labour opportunity costs) and internal (natural capital) to the farmers' socio-economic environment (Berhanu & Moti, 2010).

Most of these small-scale rice farmers face serious financial and cash flow difficulties. They are therefore very often forced to sell immediately after the harvest while prices are lower (Aju, Labode, Uwalaka & Iwuanyanwu, 2013). Moreover, storage infrastructures are more often inefficient and as a result, farmers are unable to defer sales until prices rise, generating additional losses. Collective action from cooperative societies is often proposed as a strategy to reduce the risks of market participation. To reverse this situation, rice farmers have to organize themselves and practice bundled sales. Conversely, rice farmers' ability to participate effectively in the market is most often hampered by personal, cultural and institutional constraints. According to Ajani and Igbokwe, (2012) farmers produce according to their income-objectives (anticipation income).

Statement of The Problem

In the Southeastern part of Nigeria, like Ebonyi State, Enugu State among others, large percentage of the inhabitants are farmers. Specifically, 68.1% of the farmers are producing rice, with a large portion of small-scale farms that do not exceed 5 ha (Ohen, Etuk, & Onoja, 2018.). Therefore, studying the effect of cost control on marketing efficiency of rice farmers in Ebonyi and Enugu States can provide useful implications for the State and others in country with similar circumstances and characteristics. In addition, the distance to the market also influences market cost of output that is sold. Hill & Benett (2015) opined that large scale rice farmers may sell their produce at distant markets given that they can afford high transport costs as compared to smallholder counterparts (Ndegwa, 2016).

Nevertheless, there are some existing studies related to this topic understudy. For instance, Thomas. Bossa, Torou, Jean-Louis, Dapola, Yacouba, Georges, Fourvouon, S.& Dama-Balima, M. M. (2018), Ohen *et al.*, (2014) revealed that, large quantity of agricultural produce like rice is often lost after production due to spoilage and inability to access the markets. This is mainly because, most of the farmers are who are faced with wide range of technical, socio- economic and institutional factors influencing marketing of their output. Whereas the marketing infrastructure is poorly developed, smallholder farmers lack supportive organizations like cooperative societies which may represent and serve them with marketable information. In spite of the role rice plays in human life and its effect on the economic development of Nigeria, researchers have tended to ignore scholarly investigations on the constraints and challenges militating against marketing of locally produced rice. It is only when such studies are conducted that solutions can be provided to both rice farmers and marketing cooperatives on the appropriate and ethical ways of marketing rice to their esteemed customers profitably. This study therefore, investigated effect of cost control on marketing efficiency of rice farmers' cooperatives in Ebonyi and Enugu States of Nigeria.

Objectives of The Study

The objective of the study was to examine the effect of access to finance and cost reduction on marketing efficiency of rice farmers in Ebonyi and Enugu States of Nigeria.

Research Hypotheses

The following hypothesis was formulated to guide the study:

$H0_1$: Access to finance and cost reduction have no significant effect on market efficiency of rice farmers in Ebonyi and Enugu States in Nigeria.

Review of Related Literature

Marketing efficiency and farmers transaction costs

Economic literature defines transaction costs as the combination of the observable and non-observable costs associated with the exchange of goods and services (Nicholas & Ekpo, 2021). They include costs of discovering what the prices are, negotiating and closing a contract. Past studies have separated transaction costs into fixed and proportional transaction costs. Fixed transaction costs (FTCs) are invariant to the volume of output traded and affect smallholder farmers' market participation decisions while proportional transaction costs (PTCs) are the per unit

costs of accessing markets that vary with the volumes traded and may affect the decision to participate in the market as well as the quantity traded (Jagwe, Machethe & Ouma, 2010). Distance to market is considered as a proxy for FTCs while PTCs include costs associated with transferring the output being traded, such as transport costs and time spent delivering the product to the market (Jagwe, Machethe & Ouma, 2010).

The essence of discussing transaction cost is its effect on marketing. Marketing efficiency is the concept designated for the achievement of marketing objectives at least cost (Alone *et al.,* 2008). This determines a farmer's decision to participate in market (Macthete & Ouma, 2010). This participation index is the function of the relationship between cost and the sales income of the enterprises, given cost of operations, price and volume of sales (Macthete & Ouma, 2010). The direction for marketing efficiency here is the capacity to achieve certain land of profitability, at a price, quantity and sales volume. Thus, is because, profitability is not just function of selling large volume of a product at a given price, but cost reduction can contribute to profit, when sales and price is still constant (Balint, 2018). From the above criteria, marketing efficiency can be determined using percentage change sales divided by percentage change in cost.

Symbolically: $ME = \frac{\%\Delta\ in\ Sales}{\%\ \Delta\ in\ Cost}$

Where:

ME = Marketing Efficiency
Δ = Change
% = Percentage
Sales = Price x Quantity sold
Cost = Cost of production and operations.

Thus, if cost is decreasing, while sales is constant or increasing, given price at constant, therefore there is marketing efficiency.

Factors affecting Farmers' Cost of Operations and Financial Capacity

There are number of factors affecting smallholder farmers' participation in markets developing countries including Nigeria. These constraints can be grouped into five broad categories, namely; access to financial services, access to Input and Output Markets, poor marketing infrastructure, inadequate land tenure and management system, policy-related and institutional. Under institutional and market constraints the following specific constraints exist, there is a serious lack of sufficient and timely market information on the prices of agricultural products especially on their supply and demand. As a result, there no reliable market information at the time it is needed for decision-making leading to uninformed decisions making by smallholders when it comes to marketing their crops. Nigeria is one of the five West African countries where Smallholder farmers have been facing numerous constraints. Some constrains are unique to each of the countries while most are of a similar nature (Obare, Mesay, Teklu, & Adam, (2016). These constraints are not new rather long-standing and perhaps even chronic and can be summarized herein.

Access to Financial Services: According to Nyende (2011), smallholder farmers in developing countries have limited access to financial loans and credits and so they depend on savings from their low incomes, which limits opportunities for increased production because they cannot afford to invest more in their farms. For example, a

survey of a sample of 344 rural households in Tanzania between May and August 2001 showed that half of total rural household income came from farming, 47.6 per cent from nonfarm employment (wages and self-employment) and less than 4 percent from remittances. This can be associated with the lack of collateral and/or credit history; most farmers are bypassed not only by commercial and national development banks, but also by formal micro-credit institutions. Therefore, it is clear that there is inadequate funding for agricultural operations in Africa and the case study countries in particular, which negatively affects the farming operations of smallholder farmers. Therefore, the provision of banking services to the poor including the smallholders needs to be highlighted as it can fuel the investments in agriculture production leading to higher yield and access to market (Randela 2018; Omiti, J. M., Otieno, D. J., Nyanamba, T. O. and McCullough, E. (2019).

Access to Farm Input: According to Salami., (2010) access to input and output markets are a key precondition for the transformation of the agricultural sector from subsistence to commercial production. Smallholder farmers must be able to benefit more from efficient markets and local-level value- addition, and be more exposed to competition. Smallholder farmers in West African countries have limited access to markets of both agricultural inputs and outputs, with markets not adequately equipped to serve the needs of the poor farmers. For instance, most West African countries, more than half the population live five hours or more from a market center (Salami, 2010). On the input use, Jonathan (2010) indicated that the average application rates of fertilizer for arable crops in East African countries are estimated to be below 30 kg/ha/year– far less than the world average of 100kg/ha/year.

Storage Facility: Farmers are required to store some of their crops like rice, beans and maize in order to benefit from the present market opportunities. In a liberalized market, prices of commodities are determined by the prevailing levels of supply and demand on the market. Thus, for agricultural commodities, prices tend to be very low just after harvesting, which calls for farmers to store their commodities for later sale (Jacobs, 2001; Omoti *et al.,* 2019). However, storage facilities for most smallholder farmers are not good and big enough to store commodities for later sale. There is therefore need for smallholder farmers to improve on their storage structures for them to benefit from this market opportunity (Masanganise, 2012).

High Processing Costs for Small Grains: The high processing costs are exacerbated by the need to clean the poor quality grain to industrial and commercial standard specifications. Grain quality is more variable in sorghum and millet than in maize. The range of varieties grown and traded are more variable than maize in terms of color, size, shape, hardness and keeping quality. Mixed grains caused mill extraction rates to decline. If a consistent type of grain is sought, marketing costs may increase (Rohrbach & Kiriwaggulu, 2021). In addition, sorghum has been reported to be more difficult to clean in comparison to maize. During sorghum threshing, sand, stones and dung are commonly picked up and deposited in the grain bags. These are similar in size and colour to the grain hence difficult to clean. The commercial processors are also often unreceptive to the idea of substituting maize with the unfamiliar small grains (i.e. sorghum and millet), which are predominantly produced by smallholder farmers, whose industrial quality they are not sure of. Processors prefer maize whose availability is not only dependable but also competitively priced.

Lack of Finance: Farmers have limited cash resources to purchase enough inputs for

cropping especially fertilizer and seed. Because of this, the demand for inputs by smallholder farmers is very low and uncertain especially after drought. This makes manufacturers to produce less as they also require security for their money and cannot predict ex ante whether the cropping season (therefore demand for inputs) will be good or not (Jayne *et al*., 2007).

High Credit Requirements and Credit Risk: Farm input distributors have high credit requirements to cover the high storage costs of bulky inputs like fertilizers which have seasonal demand. There is need to relate closely with credit agencies for both input distributors and farmers. However, there is high credit risk as well related to repayment in years of poor rainfall (Jayne *et al.,* 2007).

High Transaction Costs of Selling Small Quantities of Inputs: Transaction costs are an important component of marketing that determines the extent of market participation for smallholder farmers. A transaction occurs whenever a good or service is transferred across a technologically separable interface (Williamson, 2021). Transaction costs are the embodiment of barriers to access to market participation by resource-poor smallholder farmers. Ehui, Benin, & Paulos, (2019). recognized that there are impediments to market exchange. Overcoming impediments to market exchange involves the firm bearing transaction costs. Examples of these impediments are monopoly, or uncertainty, or difficulties associated with price determination. Insurance against opportunistic action by a monopoly customer can be achieved by entering into a contingent claims contract with the monopolist before commencing the exchange relationship. The transaction costs of selling small quantities of inputs like fertilizer and seed to large numbers of buyers dispersed over wide areas with poor infrastructure are high. Smallholder farmers buy seed and fertilizer in small quantities as and when the rainfall is good and depending on stage of growth of the crops. There are also high costs of setting up distribution networks. Government policies are often times distortionary when with or without NGOs distribute inputs for free. This benefits farmers because it provides fertilizer to those who normally would not buy, but disrupts the fertilizer commercial markets and increases the dependency on aid.

High Transaction Costs (Search Costs): Smallholder rice farmers operate under high transaction costs due to lack of information, which creates higher risks. The poor are especially hit by such constraints, as they usually are poor in information, including the ability to collect and analyze markets and other types of economic information (Jayne *et al.,* 2007; Jacobs, 2008).

Cost of Transport Facilities: There are few transporters available in rural areas to be used by smallholder farmers. The government should make efforts to lure some transporters to operate in the rural areas especially during the peak marketing period. This way, smallholder farmers would be able to benefit from urban market facilities (Masanganise, 2012; Jacobs, 2008). These factors jointly raise the subjective costs of farmers' participation in markets and undermine incentives for farmers to supply standardized quality products, for adoption of new technologies and raises buyer transaction costs. These have been cited as major hindrances in trying to commercialize smallholder agriculture. However, one way of dealing with these supply constraints is through contractual arrangements among private-public agribusiness partnerships and smallholder farmers through use of collective action.

Price of Rice: Farmers that received a high market price for rice produced more and

increased market surplus. According to Komarek (2014), it was found that output price positively influenced both the probability and intensity of market participation among banana producers in Uganda. Omiti *et al*. (2011) found that output price had a positive impact on the intensity of market participation among maize and producers in peri-urban. Thus, we postulated that rice prices were a factor that positively influenced both the decision to participate in the market and the volume of rice sold to the market among smallholder farmers.

Distance to Market: The distance to the market is always measured in kilometers. Mussema & Dawit (2015) found that market participation among smallholder pepper producers in Silte and Aalaba of Ethiopia was negatively associated with distance to the market. In Ethiopia, it was reported that smallholder households who were away from market centers had lower market participation. Hence, distance to the market as hypothesis may have negatively influence the decision to participate and the quantity of rice sold to the market among smallholder rice farmers. This is because increase in distance to market leads to low level of market penetration.

Total Production of Rice: The total production of rice is mostly measured in kilograms of rice produced. Smallholder farmers try to increase rice production and receive more income by selling the surplus amounts of rice. Siziba, Nyikahadzoi, Diagne, Fatunbi & Adekunle (2011). concluded that households with semi-commercial farms would first produce for household consumption and sell the surplus. According to Martey, (2010), an increase in the production of cassava was observed to increase farmer market participation in Ghana. Therefore, the total production of rice was hypothesized to positively influence both the volume of rice sold and the decision to participate in the market among smallholder farmers.

Theoretical Review

Trade Theory (Ricardo, 1937)

The theoretical underpinnings of why farm households participate in agricultural markets can be found in the trade theory as postulated by Ricardo (1937) as studied by Barret (2008). According to the theory farmers are essentially driven to enter into trade or markets so that they can enjoy a diverse consumption bundle. They can exploit welfare gains from trading by concentration in the production of goods they have comparative advantage and exchange for those they have no comparative advantage mostly manufactures. The trade theory though it explains the primary motive for farmers to participate in markets. One sound theoretical model explaining the household's market participation behaviour is provided by Barret (2008).

Barret (2008) used a stylized non-separable household model to understand the theoretical foundations of the market participation behaviour. The model assumes that a household faces a decision to maximize utility defined over a consumption of agricultural commodities and other tradable. The household earns income from production and sale of any or all of the agricultural crops. It is also assumed that each crop is produced using technology that represents the flow of services provided by privately held assets such as land, labour, livestock, machinery, etc. and public goods and services such as roads and extension services. Farm households face market price for each crop and household specific transaction cost per unit that depends on public goods and services such as radio broadcast of prices

that affect search costs, road accessibility to market and; household specific characteristics such as educational attainment, gender and age, which affect search cost, negotiation skills, among others (Barret, 2008).

Utility Maximization Theory (Marshall, 1927)

The Utility Maximization Theory was initiated by Jeremy Bentham and John Stuart Mill (1881). Early economists such as Alfred Marshall incorporated utility maximization into economic theory in the year (1927). The Theory states that, decision on the proportion of output to sell and the proportion to retain depends on the expected level of satisfaction derived from selling the output. This decision can be influenced by the socio-economic characteristics of the producer. In the case of rice, it is also influenced by the rapid changes in the eating habit, where the majority of Nigerians are turning to rice as a major staple. Those who use rice as a staple crop and have large household size may opt to sell less in the market and retain more for home consumption. Those who borrowed credit for the purpose of farming may be forced to participate more in order to pay back. Those who participate in the market have to utilize marketing outlets that maximize their profits or expected utility such as convenience and relations (Barret 2008).

Market Analysis Theory

The theory of market analysis was propounded by Norris & Batie, 1987) in Pryanishnikov and Katarina, (2003). The theory establishes the attractiveness of a market now and in the future (Aaker, 2010). Determining opportunities and threats as they concern strength and weaknesses are the major objectives of evaluating future attractiveness of organizations as the investment options and choices are guided by the findings of such evaluations. Investment strategies are often adjusted to align with the market analysis findings and inventory levels, increase/decrease of workforce, facility expansion, procurement of capital equipment and reward system are vulnerable areas that may be affected by such adjustment. The author further explains market analysis in four dimensional approaches – environmental analysis, competitive analysis, target audience analysis and SWOT analysis. Current trends as they affect profitability are the main focus of market analysis and can equally be seen as part of industry analysis through the application of global environmental analysis.

Review of Empirical Studies

Thomas, Aymar, Torou, Fusillier, Dapola, Yacouba, Serpantié, Fourvouon & Dama-Balima (2018) conducted a study on Socio-Economic Factors Influencing Small-Scale Farmers' Market Participation: Case of Rice Producers in Dano. The study examined key factors influencing market participation decisions among smallholder lowland rice growers. Data were collected through purposive sampling technique. A total of 127 rice growers, from 16 lowlands (developed and traditional lowlands), was selected. Descriptive statistics and the probit regression model were used to analyze the data. The statistical analysis revealed significant differences in yields between developed and traditional lowlands rice plots ("lowland development effect"). The regression results showed that farmers' behaviours were not gender neutral; male producers were more likely to take part in the market as compared to their female counterparts, implying a "gender effect". With respect to the effect of

membership in farmers' organization, the results indicate that farmers' involvement in an organization, was in general negatively associated to their market participation decisions. However, farmers from lowlands with functional rice producers' organizations were more likely to sell their products in the market. Interestingly, this study also highlighted that lowland rice producers' ability to generate a marketable surplus (at least 20 kg/person/year) positively influence their market participation decision. As hypothesized, the results revealed that farmers who have access to potential buyers of the output (secured market outlets) were less likely to produce rice for self-consumption.

Ohen, Etuk, & Onoja (2013) conducted a study to analyze the Improving village chicken production: A manual for field workers and trainers. Canberra, Australia. A random sampling procedure was employed in selecting the respondents. The data collected were analyzed using descriptive statistics and the probit regression model. The results showed the demographic and socioeconomic characteristics of the small holder rice farmers varied greatly. The probit regression result showed that the level of crop produced, total land size, use of improved seeds, group participation, market information and contractual agreement has positive and significant impact on the ability of household to participate in output market. Lack of timely market information, transport and restricted access to extension agents are some of the problems associated with smallholder farmers in the study area.

Nwali & Anyalor (2019) carried out a study on Marketing Analysis of Locally Produced Rice in Abakaliki Local Government Area of Ebonyi State Nigeria. The study investigated the challenges of marketing Abakaliki rice with interest in establishing the profitability and socio-economic characteristics of the marketer of the product. Mixed-method research approach consisting of the application of questionnaires and interview was used. It was conducted in three major markets located at OnuEbonyi, Abakpa and Kpirikpiri in Ebonyi state, Nigeria. The population of the study was 120 marketers randomly selected using simple random sampling technique and proportional to the size of the market. Data was analysed using descriptive statistics. The results show that women dominate the trade as 62% of Abakaliki rice marketers are women. Challenges of institutional, transportation facilities capital and credit facility constrained the growth of the business. Cost benefit analysis also shows that marketing of Abakaliki rice is profitable as N192, 740 only was the net profit at the end of the trading period. The study concludes by recommending formation of cooperative societies to enhance accessibility of start-up capital while governments at various levels should develop marketing policies that increase the marketing network of Abakaliki rice.

Achandi & Mujawama (2016) conducted a study to examine market participation by smallholder rice farmers in Tanzania: a double hurdle analysis smallholder farmers' account for over 90percent of domestic rice production in Tanzania. Their participation in markets provides opportunities for growth through income and employment. However, their ability to participate is hampered by personal, household and institutional constraints. We adopt the double hurdle model to explore determinants of market participation by rice farmers using data collected from selected rice growing regions in Tanzania. The decision to participate in the market is affected by the cropped area, yield, distance to the market and type of variety grown. Besides these factors, the quantity marketed is affected by the

existence of a market within the village. There is need for labour-saving technologies for area expansion and yield improvement.

Nobeji, Nie & Fang (2014) conducted a study to analyze the determinants of market participation for smallholder rice farmers in the five major rice producing regions in Tanzania. The study used Tanzania National Panel Survey (NPS) data compiled data by FAO. A sample of 842 households from high rice producing regions was extracted from the dataset. Quantitative as well as quantitative analyses were performed; quantitative analysis involved estimation of Weighted Least Squares (WLS) and the Tobit regression models were used to analyze factors affecting volume of sales and determinants of market participation respectively. The household socio-demographic characteristics of smallholder rice farmers were analyzed and discussed in relation to their influence on production and market participation. The WLS results indicated that 10 variable out of 11 variables included in the model were significantly influence the quantity of sold. While age has a positive relationship with quantity sold but was insignificant implying that age of the household head does not directly affect the volume of sales. Results of the Tobit regression model indicated that household consumption, land cultivated, livestock owned and dummy for rural areas indicated a positive significant relationship while nonfarm income, dummy region for Mbeya region and Tabora region indicates that, a negative and significant relationship with market participation. Further, low rice production, underdeveloped transport infrastructure and lack of reliable markets closer to higher rice producing regions and inadequate access and use of improved seeds and input were found to be the main of the problems associated with smallholder farmers in the study area.

Barrett (2008) conducted a study to reviews the evidence on smallholder market participation, with a focus on staple food grains (i.e., cereals) in eastern and southern Africa, in an effort to help better identify what interventions are most likely to break smallholders out of the semi-subsistence poverty trap that appears to ensnare much of rural Africa. The conceptual and empirical evidence suggests that interventions aimed at facilitating smallholder organization, at reducing the costs of inter-market commerce, and, perhaps especially, at improving poorer households' access to improved technologies and productive assets are central to stimulating smallholder market participation and escape from semi-subsistence poverty traps. Macroeconomic and trade policy tools appear less useful in inducing market participation by poor smallholders in the region.

Mkali (2016) examined market integration by rice farmers in Kilosa District. Specifically, the study evaluated the extent to which small-scale rice farmers are integrated into different markets, determined factors influencing the choice of rice marketing outlet among small scale rice farmers and identified major problems facing small-scale rice farmers to access lucrative markets in Kilosa District. A purposive and random sampling procedure was employed in selecting the respondents. The data collected data, were analyzed using descriptive statistics, chi-square test and the multinomial logistic regression model. Results show that socio-economic, institutional and market characteristics of the small-scale rice farmers varied greatly across markets. The multinomial logistic regression results show that age, level of education, distance to markets, and quantities of rice produced, price information and contract marketing were key factors that influence choice of marketing outlet for small-scale rice farmers in Kilosa District. The problems facing

small-scale rice farmers were low price and lack of reliable markets. In view of research findings, several policy proposals are suggested. These include disseminating knowledge to rice farmers, forming formal small-scale rice farmer's organizations and improving price information system.

Methodology

The study was conducted in two States out of the five states in the South east of Nigeria. They are Ebonyi and Enugu State. This study adopted descriptive survey research design. This design is chosen because; it permits the researcher in investigating, description and recording of information in their natural setting. A total of 283 respondents representing Farmers who are drawn from the 16 Rice Farmers Cooperatives in the 4 selected LGAs of the 2 States (Ebonyi and Enugu). In Ebonyi, 2 LGAs where the Cooperative members were selected are 83 members from Abakiliki and 79 from Ikwo. In Enugu, 63 members from UzoUwani and 58 members from Isi-Uzo LGAs. These are places where Rice Farmers who actually are members of Rice Farmers Cooperatives were identified. Questionnaires were administered to 14-20 member farmers from each of the Cooperatives in each of the four Local Governments selected for this study. Taro Yamane Formula (1967) was used to determine the sample size of 283. Primary data for the study were collected through administration of structured questionnaire to respondents in the study area. The test-re-test reliability method was employed by the researcher to ensure that the instrument could be relied upon if used by another person. The first (30) copies of the questionnaire were issued to my colleagues who are lecturers in marketing. The coefficient of reliability was ascertained using Cronbach Alpha with 0.81 levels. The formular for the Crombach Alpha model was stated thus:

$$\alpha = \frac{N * \bar{C}}{P + (N-1) * \bar{C}}$$

Where:

N = Number of items

$\bar{C}$ = Average of co-variance between pairs

P = Average variance

The results of the pre-test and post-test were presented in Tables 1 and 2 respectively.

Table 1: Pre-tests of Cronbach Alpha Reliability test:

Cronbach's Alpha	**N of Items**
0.74	10

At 95% confidence level

Source: Respondent 2026

Table 2: Post test of Cronbach Alpha Reliability Test:

Cronbach's Alpha	**N of Items**
0.76	10

At 95% confidence level

Source: Research 2026

For the fact that pretest result (0.74) and past test (0.76) are above 0.70, therefore, we accept the instruct as being reliable for data collection.

The first (30) copies of the question were issued to my colleagues and my

supervisors for authentication, moreso, coefficient of reliability was ascertained using crombach Alpha with 0.81 level. Thus:

$$\alpha = \frac{N * \bar{C}}{P + (N - 1) * \bar{\bar{C}}}$$

Table 3: Case processing summery

	N	%
Valid	30	100
Case excluded	0	0
Total	30	100

a. Listwise deletion based on all variables in the procedure.

Table 4: Reliability

Cronbach's Alpha	**N of Items**
0.81	36

At 95% confidence level

Source: Research 2026

The hypothesis was tested with a simple regression model at 1% Decision Criterion and was tested also justified with Pearson correlation coefficient model. The correlation coefficient model ascertains the relationship and association between independent variables and dependent variables; while simple regression model examined the cause and effect between independent variable and dependent variable. The marketing efficiency index (MEI) as analyzed by Strasberg and Goverah (2003). The formula is given as:

For the hypothesis simple regression model is specified;

$ME = f(AF_1)$ ……1

$ME = \beta_0 + \beta_1 AF_1 + ei$……2

ME = Market efficiency of rice farmers (Ratio of sales by total quantity exposed to market)

CR_1 = Cost reduction (amount in ₦)

β_0 = Intercept

β_1 = Parameters estimate

ei = error term

Results and Discussions

Effect of Access to finance and cost on Marketing Efficiency of Rice Farmers are examined in Table 5.

Table 5: Effect of cost reduction on marketing efficiency of rice farmers

	Item Statement	SA	A	DA	SD	N	Total
1.	Direct distribution leads to efficient marketing	124 46.6%	71 26.7%	35 13.2%	28 10.5%	8 3.0%	266 100
2.	Credit facilities from cooperatives contribute to increase in productivity and quantity sold	161 60.5%	88 33.1%	14 5.3%	3 1.1%	- -	266 100
3.	Loan from Microfinance Banks enables access to	63 23.7%	78 29.3%	89 33.5%	36 13.5%	- -	266 100

	farm modern input which leads to increase in output.						
4.	Grants/Agricultural loans and grants from Government lead to improved labour and productivity	70 26.3%	85 32.0%	64 24.1%	32 12.0%	15 5.6%	266 100
5.	Cooperative membership makes it easier for farmers to obtain credit facilities from banks without collateral	127 47.8%	82 30.8%	40 15.0%	17 6.4%	- -	266 100
6.	Proficiency in marketing is as a result of access to finance	155 58.3%	77 29.0%	19 7.1%	12 4.5%	3 1.1%	266 100

Source: Field Survey, 2026

Effect of cost reduction on marketing efficiency of rice farmers was examined in Table 5. From the result, 60.5% of the rice farmers strongly agreed that direct distribution to buyers contribute to increase in productivity and quantity sold. This was followed by 58.3% and 47.8% of the respondents who strongly agreed that proficiency in marketing is as a result of access to finance and cooperative membership makes it easier for farmers to obtain credit facilities from banks without collateral respectively. More so, 46.6% of the farmer agreed that personal savings leads to access to farm input, productivity and marketing efficiency. However, 33.5% and 24.1% of the respondents disagreed that loan from microfinance Banks enables access to farm modern input and grants/agricultural loans and grants from Government leads to improved labour and productivity respectively. From the result, most of the rice farmers access credit from cooperative societies either from commercial banks or grants for agricultural development banks.

$H0_1$: Access to finance and cost reduction have no significant effect on market efficiency of rice farmers.

Analysis of Simple Regression Result for the study Hypothesis is shown in Table 6.

Table 6: Simple regression analysis result on effect of access to finance on and cost market efficiency of rice farmers

Variable	Parameters	Coefficient	Std error	Tcal – value
Constant	β_0	0.958	0.092	10.408^{***}
Access to finance (AF)	β_1	0.781	0.026	29.995^{***}
R-Square (R^2)		0.773		
Adjusted R – Square (R^{-2})		0.772		
F – Statistics		899.718		
F – Probability		0.000		

***, **, and * denotes significance of coefficient at 1%, 5%, and 10% level respectively

Source: Field Survey, 2026 (SPSS Version 20)

The coefficient of access to finance (AF) was statistically significant and positively related to market efficiency of rice farmers at 1 percent level. This implies that, increase in amount of money received by rice farmers for farming purposes, holding other variables constant, will lead to increase in market efficiency by 0.781 unit. From the result, we reject null hypothesis and accept alternative which states that, access to finance has significant effect on market efficiency of rice farmers. The result agrees with the findings of Food and Agricultural Organization, FAO (2010), who reported that farmers need credit facility to increase investment in their farms and promote commercialization of output.

The R^2 coefficient of multiple determination was 0.773, which implies that, 77.3% variations in the dependent variable was explained by changes in the independent variable, while 22.3% was unexplained by the stochastic terms in the model. Thus, the independent variable (access to finance) can only explain 77.3 percent of changes in market efficiency of rice farmers, leaving 22.3% was unexplained. The R^{-2} adjusted was 77.2% indicating a goodness of fit of the regression model adopted in this study which is statistically significant at 5% probability level. More so, the F-statistical value of 899.718 and F-probability value of 0.000 was observed from the analysis which is less than 0.05 (95% of freedom), indicating that estimated regression model adopted in this study is statistically significant at 5% level. With this, the researchers rejected the null hypothesis and accept alternative hypothesis hence, access to finance has significant effect on market efficiency of rice farmers.

Summary of Findings and Conclusion

The result reveals that, access to fiancé and cost reduction have significant effect on market efficiency of rice farmers; And there is positive relationship between access to finance marketing of rice farmers. Thus, there is the need to invest in roads, rails and other transport networks. This could be done by improvement of rural roads to enhance efficiency in accessing markets, lower transportation costs and establishing more markets in rice farming areas.

Recommendations

Based on the findings of the study, the following recommendations were made:

i. Rice farmer cooperative societies should be strengthened by government in the study area and awareness campaigns should be conducted encourage farmers who are not members of any farmers' co-operative society join. This is because; being a member to a farmer organization reduces transportation costs through collective marketing. Members of a farmer organization easily acquire information on available markets, negotiate for better prices, access extension services easily and are more exposed to information than non-members.

ii. Rice farmers need to take full marketing advantage by cultivating improved rice varieties which usually converts into increased market share and income. This will only be possible with an effective network of extension agents who deliver their services to these farmers more frequently.

iii. A special financial inputs intervention by Government should be made available to rice farmers at subsidized rate to enhance production efficiency and welfare status of the farmers.

iv. Rice farmers in the study area should venture into output-price-policies in order to improve level of marketing ability and extent of market participation. For instance, futures contracts could be implemented to hedge against low prices just after harvests and this would improve rice marketing performance.

v. Farmers friendly credit institutions should be made accessible to farmers to ensure greater depth of outreach in provision of credit. More so, rice farmers should engage in more off-farm income activities for greater extent of market participation.

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