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Profitability Of Actors In Rice Value Chain In Nigeria: A Comparative Analysis

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Abstract: ***The study compared the profitability of actors in rice value chain in Ebonyi State of Nigeria. Domestic rice supply has not matched demand and rice importation constituted a major drain on our country's foreign reserve with over one billion naira spent daily on imported rice. Previous studies tend to suggest that there is no equity in the rice value chain because rice farmers do not get commensurate benefits for their value additions. The objectives of this study were to compare value additions, net return, benefit cost ratio and return on investment (ROI) among rice farmers, processors and traders. The study adopted a cross-sectional survey research design. The target population of the study consists of registered rice farmers, rice processors and rice traders in Ikwo, Afikpo and Abakaliki in Ebonyi State of Nigeria. Findings based on descriptive analysis result show that rice farmers, rice processors and rice traders have value added of 49%, 2%, 36%; net return of ₦388,366.67, ₦1,115,642.00, ₦1,881,220.00; benefit-cost ratio of 2.02,1.89, 1.43 as well as return on investment (ROI) of 102%, 89%, 43% respectively. The finding from the hypotheses tested using analysis of variance (ANOVA statistical tool show that there were significant differences in the value added, net return, benefit-cost ratio and return on investment among rice farmers, processors and traders. The implication of the findings is that rice farming, processing and trading are very profitable and there is equity in the rice value chain. It was recommended that government should increase access to credits for actors while firms should explore more viable investment opportunities in the rice value chain.***

I. INTRODUCTION

In a market economy, profit motivates production and firm engages in production for a sale at a profit and with the objective of maximizing the profit. The firm maximizes profit by adjusting the quantity produced and sold so that marginal revenue equals marginal cost while consumer maximizes his satisfaction by adjusting the quantity consumed so that marginal utility equals marginal cost. Interestingly, in a market economy, resources are optimally utilized because maximum profitability is the target of production (Ogbo, 2012). The concept of agricultural value chain was introduced to improve productivity and profitability of the actors in the agricultural sector. The notion of value chain underscores the system approach to value added activities where the action of one component in a system affects every other component within the system either directly or indirectly. Although value chain idea is relatively new in the agricultural sector, it resides on sustainable initiatives focused on improving productivity, competitiveness, and growth of Small-Medium Enterprises (Ugwuonah, 2017). Value chain is an arrangement that describes the linkages of participants and their value creating activities that enhance the movement of goods and services from production, processing to the end user (Global Value Chain Initiative, 2007). Pertinently, the conduct of the participants along the chain determines the efficiency, pricing, and return accruing to each (GVCI, 2007).

The marketing processes contain marketing functions such as exchange, physical, and facilitating functions (Kohls & Uhl, 1990). The establishment of mutually satisfying exchange relationships is the true essence of marketing (Baker & Saren, 2010). Moreover, exchange adds value, increases satisfaction, and encourages task specialization as well as division of labor which greatly enhances productivity

(Baker & Saren, 2010). Interestingly, the availability and costs of basic food commodities play pivotal roles in economic development and determine food security, expenditures and incomes of households, particularly among the poor segment of the population in both rural and urban areas (Akpokodje, 2001). In Nigeria, the combinations of many factors seem to have caused structural increase in rice consumption resulting in excess demand over supply. The major reason for this increase in rice demand is because rice has changed from being an elitist to a staple food for many Nigerians (Akpokodje, 2001). For instance, Nigeria's estimated annual rice demand is put at 5.1 million metric tons while annual production on the average was 4.3 metric tons of paddy and total milled rice of 2.7 million metric tons based on a milling recovering rate of 63 percent. Therefore, there is a deficit of 2.4 million metric tons of milled rice which is bridged by importation (United States Department of Agriculture and Foreign Agricultural Services, 2017). For the efficiency and stability of rice production and marketing, Nigeria launched the presidential rice initiative in August, 2002 to improve rice production and processing by enhancing farmers access to subsidized farm inputs and suitable rice varieties (West African Rice Development Association, 2005) and Growth Enhancement Scheme in 2011, where the e-wallet aspect of the program involved an electronic database of over 15 million registered farmers nationwide receiving text messages on when and where to go and collect government subsidized agro inputs directly and information on agricultural loans among other things (Ugwuonah, 2017). However, these efforts targeted at increasing rice production among other crops have not yielded the desired result of matching supply with demand. In addition, it is apparent that the value additions and the profitability of the actors in the rice value chain play a role in its productivity and efficiency. The value chain model presupposes that by understanding these relationships, it is possible for private and public agencies to identify points of intervention to increase efficiency by increasing total generated revenue and also improve the competence of the actors by increasing their share of the total generated revenue (GVCI, 2007).

STATEMENT OF THE PROBLEM

Neglect of agricultural activities by any nation infringes upon its food security and socio-economic independence which invariably undermines its national security (Africa Rice, 2011). Importantly, rice has the fastest growing consumption rate among all staple crops because of its high growth in demand in urban centers (Africa Rice, 2011). Regrettably, there is a demand of 5 million MT of rice yearly in Nigeria, but only about 3.2 million MT are produced locally (FMARD, 2012). Nigeria spends about ₦356 billion annually for about two million MT of milled rice imported in Nigeria (FMARD, 2011). Unfortunately, rice supply has not matched its demand notwithstanding the government efforts to sustain its production. Furthermore, rice importation constitutes one of the major sources that deplete the country's foreign reserve with over one billion naira spent daily on imported rice notwithstanding that Nigerian government is discouraging rice importation. Based on empirical evidence in Nigeria, investors have not explored the investment opportunities in rice production because they are unaware about the profitability of actors that engage in rice value chain in Nigeria.

Previous empirical studies by some scholars found that local rice production has not matched demand, rice farmers' productivity have not significantly improved, farmers do not have commensurate benefits from their activities and farm gate prices have not increased proportionately with costs of inputs over the past years (Nwaobiala & Adesope, 2012; Anuebunwa, 2007; Achike & Anaku, 2010; Aree & Yaovarate, 2001; and Ben-Chendo, Lawal & Osuji, 2017). These findings suggest that there is no equity in value added and value received among the actors in rice value chain. Although Ugwuonah (2017) found that investment opportunities exist among the three key agricultural value chains namely; rice, cassava and aquaculture. She also observed that rice value chain has investment opportunities which are production-related, processing-related, and marketing-related. This calls for more empirical evidence in order to ascertain their viabilities so as to enable investment decisions as well as interventions by both private and public agencies. Therefore, this study seeks to close the gaps identified by using quantitative value chain approach to compare the profitability among actors in the rice value chain using quantitative data on value added, net return, benefit-cost ratio and return on investment as indicators in Nigeria.

OBJECTIVES OF THE STUDY

The main objective of the study is to compare the profitability of actors in the rice value chain in Ebonyi State of Nigeria. The specific objectives are to:

- ✓ Compare the value added among rice farmers, processors and traders in rice value chain.
- ✓ Compare the net return among rice farmers, processors and traders in rice value chain.
- ✓ Compare the benefit-cost ratio among rice farmers, processors and traders in rice value chain.
- ✓ Compare the return on investment among rice farmers, processors and traders in rice value chain.

RESEARCH QUESTIONS

In line with the objectives of the study, the following research questions are raised;

- ✓ Do significant differences exist in the value added among rice farmers, processors and traders in rice value chain?
- ✓ Do significant differences exist in net return among rice farmers, processors and traders in rice value chain?
- ✓ Are there any significant differences in the benefit-cost ratio among rice farmers, processors and traders in rice value chain?
- ✓ Do significant differences exist in the return on investment among rice farmers, processors and traders in rice value chain?

RESEARCH HYPOTHESES

The following hypotheses were formulated in their null structure to guide this study;

Ho_1: There are no significant differences in the value added among rice farmers, processors and traders in rice value chain.

Ho_2: There are no significant differences in the net return among rice farmers, processors and traders in rice value chain.

Ho_3: There are no significant differences in the benefit cost ratio among rice farmers, processors and traders in rice value chain.

Ho_4: There are no significant differences in the return on investment among rice farmers, processors and traders in rice value chain.

SIGNIFICANCE OF THE STUDY

The findings of this study are expected to provide relevant information to rice value chain stakeholders, private and public agencies. By identifying the net return, benefit-cost ratio, return per naira invested as well as the value added. Also, rice producers, processors and traders will be exposed to the extent value additions and scale of operations are beneficial to them. It is expected that private and public agencies will be certain based on the findings of this study on areas to invest that will increase productivity as well as bountiful return in the rice value chain. It is expected that this study will serve as a source of reference materials for future researchers.

SCOPE OF THE STUDY

The study primarily focuses on comparative analysis of profitability of actors with profit motive in the vertical rice value chain in Ebonyi State of Nigeria. The actors of rice value chain were rice farmers, processors and traders (wholesalers and retailers). Key profitability indicators were compared: net return, benefit cost ratio and return on investment. The value added of the actors was also compared to justify their profits, and ascertain if there is equity.

II. LITERATURE REVIEW

RELEVANT CONCEPTS

RICE VALUE CHAIN

Value chain implies two core elements; chain and value. The chain component refers to the supply chain which indicates the linking of different phases of production or value added activities. The value element is concerned with the process of value addition (Kaplinsky & Morris, 2001). Value chain is an arrangement that describes the linkages of participants and their value creating activities that enhance the movement of goods and services from production, processing to the end user (GVCI, 2007). World Bank (2010) defines value chain as a full range of value-adding activities required to bring a product or service through different phases of production including procurement of raw materials and other inputs to the consumer. Daniel, Agrida and Andrea (2006) maintained that value chain is an analysis that shows an understanding of a sequence of activities which are needed to bring a product from its production to the final consumer.

Significantly, rice value chain is a typical agricultural commodity value chain. An agricultural value chain consists of actors and activities from input procurement and distribution till output utilization (Federal Ministry of Agriculture and Rural Development, 2014). Rice value chain consists of input suppliers, farmers, processors and traders that produce, transform, store, transfer or market the product, adding to its value at each step in the process and receiving their revenues in return. The value chain starts with the provision of farm inputs which include seed, fertilizer and other agro chemicals used to cultivate the farm which are facilitated by suppliers, research and development, agricultural financial services by governments. In addition, the farmer component entails the actual rice production activities which culminate in the usage of farm inputs by farmers; the processing component entails the milling of paddy rice while the trade component has to do with the marketing of rice to end users.

VALUE ADDED

Value added is a representation of a firm's value addition based on its pricing strategy and cost structure and the interdependencies of other actors in the creation of value for a single firm (Donovan, 2011). A value chain breaks down the sequence of business functions into the strategically relevant activities through which utility is added to product and services in a business or industry. At each stage of the chain, the value of the product goes up because the product becomes more available to the consumer and costs also accumulate (KIT, Agric ProFocus & IIRR, 2012). The share of the retail price obtained by the various market participants more likely reflect the amount of value that they add as a given product passes through the marketing system (Rosson, 1997). The role of marketing as driver of processes, in production and distribution is well recognized in agricultural value chain development.

RICE PRODUCTION

Rice is a unique crop that requires a wide range of temperature between 20^0C and 38^0C during growth and a long period of sunshine. The common types of rice in Nigeria are the rain fed upland, rain fed lowland (Swamp) and irrigated lowland (Singh et al; 1997). The local production falls short of the demand (Basorum & Fasakin, 2012) and the shortfall is augmented through imports. Nigeria consumes 5.4 million metric tons of rice annually, of this value, annual domestic output of rice still hovers around 3.0 million metric tons leaving the huge gap of about 2.0 million metric tons to importation (USAID, 2013). Recent rice production figure puts the national rice production at 4.3 million tons of paddy; cultivated on an area of 2.5 million hectares with a yield of 1.72 metric tons per hectare and total milled rice of 2.7 million tones, giving a milling recovery rate of 63 percent while total national demand for milled rice is estimated at 5.1 million metric tons per annum, leaving a deficit of 2.4 metric tons of milled rice (USDA, 2017). In Nigeria, Ebonyi State

has upland, lowland and swamp rice farms while irrigated farm does not exist. The state ranks 5th highest producer of paddy rice at present (over 405,000MT) and highest rice processor in Nigeria with over 2,080,000MT (2.08 million tons) per annum installed capacity (NEST-FUNAI conference, 2016).

RICE PROCESSING AND STORAGE

Rice processing is limited to the three stages, namely: parboiling, drying and milling (Ikpi,1997). Parboiling is carried out mostly in old 200 liters oil drums cut in half, using water and fire wood. The paddy is steamed for about 30 minutes then removed and spread out on woven mats in the sun to dry and then taken to rice mill for milling. An inherent characteristic of agricultural production is that it is seasonal while the demand is generally all year round, hence storage allows a smooth and as far as possible, uninterrupted flow of product into the market (Crawford,1997). Though rice can be stored in both paddy and milled forms, paddy is more common among small-scale farmers. If the paddy is adequately dried immediately after threshing and is kept in a dry, rodent-free place, it can safely be stored for up to one year without substantial loss in germination and for longer periods for consumption purposes. After the paddy has been milled or even after parboiling, it is subject to insect and weevil attacks (Emeribe,1991)

RICE MARKETING AND MARKETING FUNCTIONS

Rice is mainly marketed in paddy and milled forms but most rice producers sell a greater portion of their rice in paddy than in processed form (Okorje, 2003). Paddy rice is sold in jute bags which weigh between 70kg and 120kg and the size varies by locality while the price varies by season, rice variety and locality. Milled rice is usually sold in bushels containing on the average 23kg of milled rice and the price per bushel also varies with season and variety while locality plays little role since the rice mill is located at a given place. Furthermore, rice is sold to the wholesalers, retailers and consumers (Nwokolo,1990).

A marketing function is a major specialized activity performed to accomplish the marketing process (Kohls and Uhl, 1990).They classified the functions involved in agricultural and food marketing processes under three sets of functions or a marketing system. These include exchange functions: made up of buying and selling; physical functions; comprising storage, transportation, and processing; facilitating functions: which include standardization, financing, risk bearing and market intelligence. Each of these functions add value to the product and they require inputs, so they incur costs (Kohls and Uhl, 1990).

MARKETING MARGINS AND COSTS

Marketing margin represents the difference in price of a given commodity at different stage of time as it moves from the primary producer to the ultimate consumer (Crawford, 1997). Both the producers and consumers are concerned about the size of marketing margins and changes in marketing margins. Marketing costs are the actual expenses incurred in the performance of marketing functions as commodity moves from producer to the ultimate consumers (Crawford, 1997). He listed marketing costs as the cost of transportation and handling, packaging, storage, processing and capital costs. The true relationship between marketing margins and marketing costs is that marketing costs plus the normal profit (or loss) earned by the market intermediaries as the commodity passes through the marketing system equals the marketing margin (Crawford, 1997).

GROSS MARGIN ANALYSIS

Gross margin represents the difference between total revenue (TR) and total variable cost (TVC). Gross margin analysis involves the estimation of costs and return in marketing and gross margin (GM) is the money that is available to cover the fixed cost expenses and still leave a profit (Downey & Troche,1991). Mathematically expressed as, GM=TR-TVC and Net profit = GM-TFC and benefit cost ratio =total benefit/total cost which is a measure of the profitability of a venture.

RELATED THEORY

This study on profitability of actors in rice value chain is anchored on social exchange theory which was propounded by (Homans,1958). Social exchange theory denotes the nature of the ties between value given and value received. Social exchange theory posits that all ties that exist between humans are developed through the utilization of cost benefit analysis. The theory states that all human relationships are formed by the use of comparison of alternatives and the use of cost-benefit analysis. According to this theory, a person will choose to cut ties when he or she perceives that the cost of the ties is far bigger and outweighs the benefits that accrue from such relationship. The theory further explains that people who are given much by the other party in the relationship are under pressure to reciprocate by giving much too, and that human beings strive to give much to others so as to in turn get much from them. He observes that through a series of mutual exchanges that develop a pattern of reciprocal duties to the parties in social exchange, relationship is developed. Social exchange theory indicates that because of the expectations that being in relationships is rewarding, many human beings are willing to maintain these relationships by providing benefits to the other parties in the relationships as they expect to get more gains in the future. Social exchange theory has four elements-rewards; costs; profit; and equity and distributive justice. Rewards and costs imply that social behavior often involves social exchanges where people are motivated to attain some valued reward for which they must forfeit something of value (cost). Profit: we seek profits in our exchanges such that rewards are greater than the costs. Equity and distributive justice: we are disturbed when there is no equity in an exchange or where others are rewarded more for the same costs we incurred. This is the basis of social exchange theory on which our study is anchored which also explained the relationships between the farmer and processor, the processor and trader, the trader and consumer in the rice value chain.

REVIEW OF EMPIRICAL STUDIES

Ben-Chendo, Lawal and Osuji (2017) carried out a study on costs and return of paddy rice production in Kaduna State. Data for the study were collected from 60 randomly selected paddy rice farmers using questionnaire and analyzed using descriptive statistics, the gross margin and net income model. The study found that paddy rice production variable cost per hectare was ₦172,400, the total cost of production was ₦199,400, a total revenue of ₦352,000, a gross profit of ₦179,600 and a net return of ₦152,600. The study concludes that rice production in the area is not a profitable enterprise and recommends extension service delivery, input standardization and credit facilities among others for rice farmer to enhance rice production.

Nwaobiala and Adesope (2016) carried out a study on economic analysis of small holders rice production systems in Ebonyi State. The sample size was 240 rice farmers; 120 upland and 120 swamp rice farmers and purposive sampling technique was used. Data were collected using structured questionnaire and analyzed using gross margin analysis. The results indicated that net profit from upland rice cultivation was ₦92,800.00 with a benefit cost ratio of ₦1.55 while net profit from swamp rice cultivation was ₦132,090.00 and a benefit cost ratio of ₦1.75. The findings showed that age, farming experience, farm size, variable inputs, farm income, and education were positively significant at given levels of probability. Access to credit for rice farmers, subsidy on farm inputs, dissemination of improved rice technologies by extension agents and formation of farmer groups were recommended for improved rice production.

United State Agency for International Development (2009) carried a study on Nigeria's rice value chain. The study aimed to examine the role of rice in Nigeria's food security and to present a practical vision for the development of the domestic rice value chain. The study found that under the right circumstances rice can be competitively produced by small holders of about 5 hectares. The study recommended that an increase in the number of industrial mills and development of the supply of high quality rice will have a positive spin-off effect on the market and operational efficiency in the rice supply channels. The study also recommended that Nigeria should develop a commercially-driven production, milling, processing and marketing capacity that can deliver at least one million extra MT of rice that is cost and quality competitive relative to imports.

III. METHODS AND DATA

The study adopted a descriptive survey research design. The geographical area for this research is Ebonyi State of Nigeria covering Abakaliki, Ikwo and Afikpo. The target population of the study consists of the registered rice farmers, independent rice processors and independent rice traders in the areas under review. The primary source of data was adopted using interview method. A judgmental sampling method was used to select three local government areas namely: Abakaliki, Ikwo and Afikpo based on their dominance in rice farming in the State. The lists of registered rice farmers, processors and traders were obtained from the Agricultural Development Programme (ADP) office, Millers Association and Market Traders Association respectively in the L.G.As under survey. Quota sampling method was used to draw the respondents from each of the strata of rice farmers, processors and traders. The reliability of the instrument was checked by pre-testing the interview questions. In addition, the content and construct validity were checked by research experts. Also, the measurement scales were adopted from enterprise budgetary model and all the variables were ratio scaled. In addition, the interview method was used to generate the needed information concerning the enterprise budgets for the various groups of actors in rice value chain in Ebonyi State of Nigeria. In addition, the four formulated hypotheses were tested and decision made based on 5% level of significance. The decision rule for the acceptance or rejection of the hypothesis is as follows: accept the null hypothesis if the p-value is greater than 0.05; otherwise, reject the null hypothesis and accept the alternative hypothesis.

	Value added		
Actors	Price paid by customers in naira (#)	Cost of products in naira (#)	Value added (#) & percent
Farmers	160,000	35,000	125,000 (49%)
Processors	165,000	160,000	5000 (2%)
Traders	256,000	165,000	91,000 (36%)
	Net return		
Actors	Gross margin in naira (#)	Total fixed cost in naira (#)	Net return in naira (#)
Farmers	388366.67	76000	388,366.67
Processors	1,641,316.67	525,674.16	1,115,642.51
Traders	2,120,400	239,180	1,881,220
	Benefit-cost ratio		
Actors	Total revenue in naira (#)	Total cost in naira (#)	Benefit-cost ratio
Farmers	619,200	306,666.67	2.02
Processors	2,366,656	1,251,012.49	1.89
Traders	6,144,000	4,262,780	1.43
	Return on investment		
Actors	Return in naira (#)	Total cost in naira (#)	Return on investment
Farmers	312,366.67	306,666.67	1.02 (102%)
Processors	1,115,642.51	1,251,012.49	0.89 (89%)
Traders	1,862,220	4,281,780	0.43 (43%)

Source: Field survey, 2020.

Table 1: Descriptive Comparative Analysis among the Actors in Rice Value Chain Using the Mean

IV. RESULTS

		Sum of Squares	**df**	**Mean Squares**	**F**	**Sig.**
Value added	Between Groups	3534.000	2	1767.000	36.200	.000
	Within Groups	.000	6	.000		
	Total	3534.000	8			
Net return	Between Groups	360640251 6355.556	2	18032012 58177.77	31.025	.001

				8		
	Within Groups	348723740466.667	6	58120623411.111		
	Total	3955126256822.222	8			
Benefit-cost ratio	Between Groups	.574	2	.287	52.010	.000
	Within Groups	.033	6	.006		
	Total	.608	8			
Return on investment	Between Groups	.663	2	.331	22.426	.002
	Within Groups	.089	6	.015		
	Total	.751	8			

Source: SPSS Computation Output, 2020.

Table 2: ANOVA Result on Profitability among the Actors in Rice Value Chain

TEST OF HYPOTHESIS ONE

Ho_1: There are no significant differences in the value added among rice farmers, processors and traders in rice value chain.

Ha_1: There are significant differences in the value added among rice farmers, processors and traders in rice value chain.

Based on the result on table 2, the F-value is 36.200 while its corresponding p-value is 0.000 which is less than 0.05 the stipulated level of significance. We therefore reject the null hypothesis and accept the alternative hypothesis and conclude that there are significant differences in value added among rice farmers, processors and traders in the rice value chain.

TEST OF HYPOTHESIS TWO

Ho_2: There are no significant differences in the net return among rice farmers, processors and traders in rice value chain.

Ha_2: There are significant differences in the net return among rice farmers, processors and traders in rice value chain.

Based on the result on table 2, the F-value is 31.025 while its corresponding p-value is 0.001 which is less than 0.05 the stipulated level of significance. We therefore reject the null hypothesis and accept the alternative hypothesis and conclude that there are significant differences in net return among rice farmers, processors and traders in the rice value chain.

TEST OF HYPOTHESIS THREE

Ho_3: There are no significant differences in the benefit-cost ratio among rice farmers, processors and traders in rice value chain.

Ha_3: There are significant differences in the benefit-cost ratio among rice farmers, processors and traders in rice value chain.

Based on the result on table 2, the F-value is 52.010 and the p-value is 0.000 which is less than 0.05 the stipulated level of significance used in this study. We therefore reject the null hypothesis and accept the alternative hypothesis and conclude that there are significant differences in benefit-cost ratio among rice farmers, processors and traders in the rice value chain.

TEST OF HYPOTHESIS FOUR

Ho_4: There are no significant differences in the return on investment among rice farmers, processors and traders in rice value chain.

Ha_4: There are significant differences in the return on investment among rice farmers, processors and traders in rice value chain.

Based on the result on table 2, the F-value is 22.426 and its corresponding p-value is 0.002 which is less than 0.05 the stipulated level of significance used for this study. Therefore, the decision is to reject the null hypothesis and accept the alternative hypothesis and conclude that there are significant differences in return on investment among rice farmers, processors and traders in the rice value chain.

V. DISCUSSION

A cursory look at the findings of this study as shown on tables 1 and 2 indicates that rice farmers' value additions, benefit-cost ratio and return on investment of 49%, N2.02 and 102% respectively were the highest although they have the least net return (income) in the rice value chain which support the findings of (Aree & Yaovarate, 2001; Achike & Anaku, 2010; Ben-Chendo et al., 2017) that farmers made the most value additions although their socio-economic conditions have not improved. However, the present findings do not mean that there is no equity in the rice value chain contrary to the findings of the previous findings. The differences in net return (income) of the actors are explained by their scale of operations as some farmers are small scale farmers with a mean farm size of one hectare.

Our findings that net returns, benefit-cost ratio and return on investment for rice farmers, rice processors and rice traders demonstrate that investment in rice farming, processing and trading are viable investments. Our findings support (Ugwuonah, 2017) findings as regards to the existence of lucrative production-related, processing-related as well as marketing-related investment opportunities in the rice value chain. Furthermore, our study findings on existence of significant differences in value added, net return, benefit-cost ratio as well as return on investment among the rice farmers, rice processors and rice traders are consistent with the findings of previous scholars in the literature (Achike & Anaku, 2010; Ben-Chendo et al., 2017) although the values of these key profitability indicators have improved substantially in some countries. Their findings also show viable investment opportunities as well as areas of possible interactions by private and public agencies for improved profitability and wealth creation.

VI. CONCLUSION AND RECOMMENDATIONS

Rice farming, processing and trading are viable investment opportunities in Nigeria with particular reference to Ebonyi State. The findings of this study have significant implications for private and public agencies for their

intervention to improve productivity of the actors namely; rice farmers, rice processors and rice traders in the rice value chain. The following recommendations were made based on the findings of this study;

- ✓ Government should increase access to credits for the actors in rice value chain and enforce the ban on rice importation to minimize the stiff competition from foreign brands.
- ✓ Private individuals and firms should explore the investment opportunities in rice farming, processing and trading to improve supply and quality of our local rice so that it can compete with foreign brands.

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