STRENGTHS AND WEAKNESSES OF RICE VALUE CHAIN (RVC) IN OGUN STATE, NIGERIA

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Abstract
Globally, Rice Value Chain (RVC) has gained attention with series of technology and funding intervention to increase its production. However, Sub-Saharan African countries including Nigeria have not invested much on local rice production and its value chain. Hence, this study examined the strengths and weaknesses of RVC in the rural areas of Ogun State to unlock its potentials for proper attention and development. Simple random sampling technique was used to select one hundred and ninety respondents for this study. Data collected were analyzed with descriptive statistics and t-test. Results of this study revealed that, the mean age of the respondents was 41.6 years; 75.8% were males; 42.1% had secondary education; and cultivated average of 3.9ha of farmland. The strengths (contributions) of rice value chain include food security (66.3%) and income generation for rural households. However, inadequate extension training and support (92.6%), poor feeder roads (90.5%), irregular power supply (87.9%) were the bane (weaknesses) of rice value chain. Results of t-test revealed that, there is significant difference in the strength and weakness of the rice value chain (t = 15.21, p = 0.02). This study, hereby, recommends that, Agricultural Extension Service should support rice farmers with improved farming practices to help increase farmers' productivity and rice output.

Keywords: assessment, strengths, weaknesses, rice, value chain, Nigeria

Introduction

Food production is undergoing significant changes with emphasis on high value for food commodities which increase considerably in the last two decades. Urbanization, changes in employment patterns, income levels, and rapid population growth have significant contributions to widening the gap between supply and demand in Nigeria. The rate of population calls for increase in food production at levels that must meet the demands of the teeming population. Development practitioners have increasingly shifted their attention from farming systems to targeting agricultural value chains and rice is one of major crops that are given attention in order to improve smallholder production and participation in the local and global markets. Nigeria is a major importer of rice in Africa and spends over ₦356 billion on yearly importation of rice, out of which about ₦1 billion is used per day (Akinwunmi, 2013). The cost of these rice imports represents a significant amount of lost earnings for the country in terms of jobs and income (Bamba *et al.*, 2010). Oyediran (2016) further explained that rice importation is a waste of foreign exchange because Nigeria has what it takes to produce rice in commercial

quantity. The country can easily become self-sufficient in terms of rice production given the huge potential that exists in the country. Rice is grown in all ecological zones of Nigeria with different varieties (Sanni *et al.,* 2005). From available data, Nigeria currently produces about 3.2million tonnes yearly, but have capacity to produce 10 million tonnes per year if government at all levels will make deliberate effort to develop and support rice production (FMARD, 2012). Rice passes through a number of stages at which value is added before reaching the final consumers. Rice value chain in Nigeria is not yet developed to meet local and international market requirements as limited value addition (if any) is done to the rice, making its acceptability limited to rural markets. This is because small-scale producers are often unable to increase production by adopting productivity-enhancing technologies unless the value chains for their products are sufficiently developed (Kaplinsky and Morris, 2000). Beyond consumption of rice as food, Nigeria has not been able to efficiently utilize rice by-products for industrial development. Rice value-chain should be extended to the full recovery of all rice by-products as these products can be put into further use in producing other goods. This will give room for more profits to be accrued to the actors in the value-chain. Some of the by-products are, rice bran -a valuable commodity for livestock feed, domestic fuel and organic manure; oil from bran is used for cooking, soap making, and anti-corrosive and rust resistant oils; rice straw is used for straw board, thatching, making hats and mats and fodder for cattle. Production, processing, marketing, and consumption of rice are moving towards high-value food products. In response, food production portfolio is diversifying. These changes are creating opportunities as well as challenges in production and marketing dynamics (Birthal *et al.,* 2007). This study is premised on the need to bridge the rice importation gap and minimize huge amount of debt incurred on rice importation through increased local rice production and value addition. It is in view of this background that, this study assessed strength and weakness of Rice Value Chain (RVC) in Ogun State, Nigeria.

The specific objectives are to:

1. describe the personal characteristics of the respondents in the value chain in the study area
2. identify the strength of rice value chain in the study area
3. examine the weakness of rice value chain in the study area

Hypothesis of the Study

H_{01}: There is no significant difference between the strength and weakness of the rice value chain.

Description of Ogun State

This study was carried out in Ogun State, Nigeria. Ogun State is one of the six states in the south west Nigeria. The state was created in February 3rd, 1976. It is bounded in the west by Republic of Benin, bounded in the south by Lagos State and Atlantic Ocean, in the North by both Oyo and Osun States and in the East by Ondo State. The State lies between the latitudes $7^0$18'N and longitude $5^0$55'E. It is situated within the tropics covering 16,409.29km^2 with a population of about 4,054,272 (National Population Commission (NPC), 2006). The State has bimodal rainfall pattern which reaches its peak in July and September and it comprises of mostly agrarian communities which engage the farming activities of both males and females, in cash crops and food crops in order to meet the livelihood needs of the farmer, in addition to their foreign exchange.

Most of the crops grown in Ogun State include cassava, rice, maize, melon, cotton, cocoyam, cocoa, yam, cowpea etc. Agriculture in Ogun State is more on crops, while the livestock raised is supplementary.

Sampling Procedure and Sample Size

Simple random sampling technique was used to select respondents. This study was carried out in Ogun State. There are twenty Local Government Areas (LGAs) in Ogun State but Obafemi-Owode Local Government Area (LGA) was purposively selected based on *a priori* information that rice is grown in the area. Ten villages were selected from Obafemi-Owode LGA while nineteen (19) rice farmers were randomly selected to give 190 rice farmers as the sample size for the study.

Data Collection Method

The instrument used for the data collection was subjected to face validity through experts in the field of agricultural extension and rural development. Items that were not clear (ambiguous) were expunged. Test re-test was carried out with twenty rice farmers who were not part of this study to ascertain the internal reliability of the instrument. A correlation coefficient of 0.78 obtained from the two tests which indicates that the instrument is reliable.

Measurement of Variables and Data Analysis

Age, household size, farming experience, and farm size were measured at ratio level while sex, educational status, membership of association, and marital status were measured at nominal level. Simple descriptive statistics such as percentage, mean and frequency were used to analyze the data while t-test analysis was used to test the null hypothesis for the study.

Results and Discussion

Personal Characteristics of Respondents

Results in Table 1 showed that 47.4% of the respondents were below 41 – 50 years of age, 26.3% were 31 – 40 years, but 15.8% were older, 50 years and above. The mean age of the respondents was 41.6 years. This implies that, the rice farmers are gradually becoming aged and this will affect activeness and productivity of the rice farmers in the study area. These findings, against the position of Omoare *et al*. (2017) and the difference, could be attributed to the mass migration of youths to the urban centres for green pasture and other petty works. Also, 75.8% of the respondents were male while the remaining (24.2%) were female. It shows that, men are predominant in rice farming in Ogun State. Rice farming is very tedious and so many women cannot withstand the rigor. Primary (31.6%) and secondary education (42.1%) attainment among the respondents had high proportion. Few (10.5%) had tertiary education. It is an indication that the respondents are literates. But, 15.8% did not have formal education. Marital status of the respondents indicated that 65.3% were married, 15.8% separated and 10.5% single. Those in widow category were very few (8.4%). Respondents with 6 - 10 people in their household were 57.9%, while those that had more than 10 people in their households constituted 30.5%. Average household size was 8 people. The results revealed relatively large household size among the rice farmers. Furthermore, the mean year of experience in rice farming was 10.4 years with 46.3% of the respondents spent more than 10 years and 40% spent 6 - 10 years in rice farming. It shows that, the respondents had lot of experience in rice farming. Meanwhile, 57.9% of the respondents cultivated 3 – 5 ha of land for rice with average farm size of 3.9 ha. It is a pointer to the fact that the respondents operated at subsistence level. Close to

seventy percent (68.4%) of the respondents belonged to Rice Farmers Association in Ogun State.

Table 1: Distribution according to personal characteristics of the respondents (n = 190)

Personal Characteristics	Frequency	Percentage	Mean
Age			
21 – 30	20	10.5	
31 – 40	50	26.3	
41 – 50	90	47.4	42.34
Above 50	30	15.8	
Sex			
Male	144	75.8	
Female	46	24.2	
Educational status			
No formal	30	15.8	
Primary	60	31.6	
Secondary	80	42.1	
Tertiary	20	10.5	
Marital status			
Single	20	10.5	
Married	124	65.3	
Divorced/separated	30	15.8	
Widow	16	8.4	
Household size			
1 -5	22	11.6	
6 – 10	110	57.9	9
Above 10	58	30.5	
Farming experience			
Less than 5	26	13.7	
6 – 10	76	40.0	9.12
Above 10	88	46.3	
Farm size			
Less than 2	44	23.2	
3 – 5	110	57.9	3.87
Above 5	36	18.9	
Membership association			
Yes	130	68.4	
No	60	31.6	

Source: Field Survey, 2018

Strength of Rice Value Chain (RVC)

The results in Table 2 showed that 66.3% of the respondents agreed that, rice is a source of household food security and 73.1% indicated that, it is a means of income generation. So also, 50% of the respondents agreed that, it provides raw materials for industries and 60% agreed that it creates jobs for rural people. It can be inferred from these findings that Rice Value Chain serves

as sources of food, income, raw materials and jobs in the rural areas of Nigeria.

Table 2: Distribution based on strength of Rice Value Chain (n = 190)

sn.	Strength	Agreed	Undecided	Disagreed
1.	Source of household food security	126(66.3)	42(22.1)	22(11.6)
2.	Income generation	139(73.1)	41(21.6)	10(5.3)
3.	Raw materials for industries	95(50.0)	66(34.7)	29(15.3)
4.	Create jobs for rural people (suppliers, aggregators, transporters, and marketers)	114(60.0)	46(24.2)	30(15.8)

Figures in parenthesis are percentages
Source: Field survey, 2018

Weakness of Rice Value Chain

The results in Table 3 revealed that, inadequate extension training and support (92.6%), poor feeder roads (90.5%), irregular power supply (87.9%), and high cost of processing equipment (85.3%) were very serious constraints. Similarly, most of the respondents identified pest problems (83.2%), poor soil fertility (81.6%) inadequate finance (71%) as serious constraints to rice value chain in the study area. Moreover, majority of the respondents indicated poor market system (70.5%) and climate change (67.9%) as very serious constraints.

Table 3: Distribution based on weakness to rice value chain (n = 190)

S/N	Weakness	Very serious	Serious	Not serious
1.	Inadequate financial support	135 (71.0)	34(17.9)	21(11.1)
2.	Pest problems (birds and rodents)	158 (83.2)	27(14.2)	05(2.6)
3.	Climate change	129(67.9)	44(23.2)	17(8.9)
4.	Poor soil fertility	155(81.6)	23(12.1)	12(6.3)
5.	High cost of processing equipment	162(85.3)	18(9.5)	10(5.3)
6.	Irregular power supply	167(87.9)	14(7.4)	09(4.7)
7.	Poor feeder roads	172(90.5)	10(5.3)	08(4.2)
8.	Inadequate extension training and support	176(92.6)	07(3.7)	07(3.7)
9.	Poor market system	134 (70.5)	35(18.4)	21 (11.1)

Figures in parenthesis are percentages
Source: Field Survey, 2018

Hypothesis testing

Significant difference between the strength and weakness of the rice value chain

Results of t-test in Table 4 showed that, there is significant difference in the strength and weakness of the rice value chain ($t = 15.21$, $p = 0.02$). It indicates that, the strength of RVC is of beneficial to the rural farmers than the weakness.

Table 4: Difference between production strength and weakness of rice value chain

Rice Value Chain	df	Mean	Std. Dev.	SEM	Mean diff.	t	p-value
Strength	189	54.490	2.856	0.129	13.443	15.21	0.02
Weakness		41.047	4.154	0.188			

Source: Field Survey, 2018. SEM – Standard Error Mean
S - Significant at $p < 0.05$ level of significance; df – degree of freedom

Conclusion and Recommendations

This study found that, Rice Value Chain (RVC) contributed to household food security, farmers' income and jobs creation. However, inadequate extension training and support, poor feeder roads, irregular power supply were weaknesses that affected benefits of rice value chain in the study area. This study hereby recommends that, agricultural extension service should support rice farmers with improved farming practices to help boost farmers' productivity and rice output. Government should upgrade rural roads and provide electricity supply to the rural areas.

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