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DETERMINANTS OF CAPITALIZATION AMONG RICE PROCESSING ENTERPRISE IN EBONYI STATE, NIGERIA

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Abstract

The study investigated the determinants of capitalization among rice processing enterprise in Ebonyi State, Nigeria. It specifically analysed the level of capitalization in the rice processing enterprise and estimated the determinants of capitalization among the processors. Data were collected using well-structured questionnaire, administered to one hundred and twenty respondents that constitute the sample size for the study. Data analysis involved descriptive statistics such as frequency concept and ordinary least square model. It was observed that that processors are medium-sized since none of them were able to invest more than ₦1,000,000. The double-log form was chosen as the lead equation. The F-ratio was statistically significant at 1% probability level indicating high goodness of fit of the regression line. The R^2 of 0.788 shows that about 78.8% changes in the investment of the rice processors were accounted for by changes in the explanatory variables included in the model while the remaining 21.2% was accounted for by error. The result shows that age, education, experience and off-firm income were positively related to the amount of capital invested by rice processors and negatively related to nature of ownership and capital input. The study therefore recommended that government and non-governmental organization should provide necessary incentives for rice processors such as loans and other credit facilities so as to improve the efficient and productivity of the processors.

Key words**:** *determinants, capitalization, rice, enterprise, processing*

INTRODUCTION

One of the cardinal objectives of the government of Nigeria is attainment of self-sufficiency in food production. The government view agricultural production as the main hope for the country's survival, growth and development. Over 70% of people in Nigeria live in the rural areas relying on agriculture for their income. This inform the desperation with which various government in Nigeria has enunciated agricultural development programs and projects focused at the sub-sector of the economy to improve their livelihood, yet the per capita of food production has remained low in Nigeria, [1]. This situation has been compounded by grave scarcity and high cost of agricultural production inputs.

There seems to be a consensus that the productivity is discouragingly low due partially to lack of adequate (working) farming capital to optimize production and effectively drive agricultural growth. For example, a study on sources of total factor production growth in 83 industrial and developing countries for the period of 1960-1990 showed that finance formation was three to four times more vital than raw materials in explaining output growth of those enterprises [5]. This study reflects the precarious situation of most rice processors in Nigeria in particular and developing countries in general. The demand for capital in agriculture to address both infrastructural and other facilities cannot be overemphasized. Accordingly, absence of capital base compromise the financial ability of agribusiness enterprises and expose them to risk of solvency [6]. Some of these risk involved inability to make investment in modern technological inputs and other equipments that improves productivity of processors in most rural part of Nigeria. Example, the large 15 integrated rice processing plants in Nigeria birthed through agricultural transformation agenda in 2015, many rice processor in Ebonyi State, are small scale processors with little

technological capabilities arising from low capital base. This has implication on their ability to compete effectively with the large commercialized and capitalized businesses. The study was driven by the following objectives, to:
(i)estimate the determinants of capitalization among the processors;
(ii)analyze the level of capitalization in the rice processing enterprise.

MATERIALS AND METHODS

The study was conducted in Ebonyi State of Nigeria. Ebonyi State has three agricultural zones namely: Ebonyi Central, Ebonyi North and Ebonyi South. Each of these zones is made up of four Local Government Area except Ebonyi South that has five LGAs. It has a population of 2.9 million [4]. The sampling technique that was adopted is multi-stage sampling techniques. In the first stage two LGAs were selected randomly from each of the three agricultural zones, making it a total of six LGAs. In the second stage, twenty rice processors were selected from each of the already selected LGAs making it a total of one hundred and twenty rice processors for detailed study. The primary source of data was used in this stage, where personal interview and questionnaire serves as instruments.
To analyze the data obtained, various analytical techniques were used, descriptive statistics such as frequency concept was used to analyze objective (ii) while objective (i) was analyzed using ordinary least square method.
The OLS method was employed to analyse the determinants of the volume of capital invested and it's implicitly modelled as:

$$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10})$$

and explicitly modelled as:

$$Y=\beta_0+\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_4+\beta_5X_5+\beta_6X_6+\beta_7X_7+\beta_8X_8+\beta_9X_9+\beta_{10}X_{10}+e \quad \ldots\ldots\ldots\ldots\ldots\ldots(1)$$

where:

Y = Capitalization (total capital injected into the business) (₦)
X_1 = Age of processors (years)
X_2 = Years of education
X_3 = Loan size (₦)
X_4 = Plant capacity (kg)
X_5 = Processing experience (years)
X_6 = Off-firm income (₦)
X_7 = Interest rate (%)
X_8 = Source of investment capital (1=equity; 0=debt)
X_9 = Firm ownership (1 = self, 0 = otherwise)
X_{10} = Capital inputs (₦)

RESULTS AND DISCUSSIONS

Level of Capitalization (Investment) of Rice Processors

The level of capitalization was measured by the actual amount of money invested in rice processing business. The result is presented in Table 1.

Table 1. Level of capitalization of rice processors in Ebonyi state

Investment level (₦)	Risk-neutral Frequency (F)	Percentage (%)
<100,000	15	12
101,000 – 250,000	60	64
251,000 – 500,000	30	16
501,000 – 750,000	10	4
751,000 – 1,000,000	5	4
Total	**120**	**100**
Mean	**220,610**	

Source: Field survey, 2018.

The investment result shows generally that the rice processors are medium-sized as none of them invested above ₦1,000,000. The mean value of ₦220, 610 implies that the processors may be using local processing methods which could have been responsible for their poor and inefficient allocation of resources.

Determinants of Capitalization of Rice Processors

The result of the OLS regression analysis on the determinants of capitalization of rice processors is as presented in Table 2.

Table 2. Determinants of capitalization rice processors in Ebonyi state

Variables	Linear (+)	Exponential	Semi-log	Double-log
(Constant)	28773.699 (2.854)***	.954 (3.223)***	10.279 (40.578)***	9.762 (13.367)***
Processors' age (Years)	.954 (2.105)**	6535.030 (.801)	.016 (4.000)***	.159 (2.789)***
Years of education	.750 (2.907)***	.450 (1.792)*	.001 (.197)	.022 (.312)
Loan size (₦)	547.054 (.902)	.553 (.752)	.015 (.976)	.074 (1.682)*
Plant size (Ha)	-275.335 (-.565)	-2158.165 (-.492)	-.006 (-3.000)***	-.041 (-.370)
Processing experience (Yrs)	.757 (2.322)**	2523.573 (.975)	.005 (1.471)	.061 (.935)
Off-firm income	.631 (2.035)**	.734 (1.526)*	-.228 (-2.505)**	-.131 (-1.926)*
Interest rate (%)	.633 (1.555)*	231.435 (.081)	.021 (.299)	.009 (.129)
Source of investment capital (1=equity, 0=debt)	-2,103.231 (-.590)	-2,283.098 (-.637)	-.049 (-1.634)*	-.053 (-.592)
Ownership (1=self, 0=otherwise)	-.554 (-1.753)*	-993.635 (-.075)	-.040 (-.454)	-.018 (-.206)
Capital input (Naira)	-.765 (-2.620)**	-0.108 (1.321)	-.231 (2.112)**	-.390 (4.211)***
F-Ratio	5.092***	1.845*	3.665***	2.897***
Adj. R^2	.231	-.047	.376	-.031
R^2	.788	.257	.446	.268

Source: Field survey, 2018.
***, ** & * = significant at 1, 5 and 10% level respectively.

The determinants of the rice processors' capitalization (ie capital investment into the business) was analyzed using the Ordinary Least Square (OLS) model. Four functional forms of the model (linear, exponential, semi-log and double-log) were tried for the two farmer categories. The lead equation was chosen based on a number of criteria such as value of R^2, F-ratio, signs and coefficients of the variables as they conform to *a priori* expectations. The linear and also the double-log forms were chosen for the risk-seeking and risk-averse farmers severally. The F-ratio was statistically significant at 1% indicating a high goodness of work of the regression line for the two farmer classes equations. The R^2 of 0.788 implies that 78.8% changes in the investment of the rice processors were accounted for by changes in the explanatory variables included in the model while 21.2% was accounted for by error. The result shows that age, education, experience and off-firm income were positively related to the amount of capital invested by rice processors and negatively related to ownership and capital input.

The coefficient of age was positively related to investment capital of the respondents implying that advancement in age encourages higher investment by rice processors. According to [8], the age of the entrepreneur was found to be positively related to their level of investment meaning that older processors tend to accumulate more capital and could invest more in both farms and off-farm activities. [7] shared a similar thought and asserted that the age of an investor was expected to have an effect on the investment behaviour because as the age of an individual increases, thus do his quest to go into investment increase intrinsically investment can later function as a monetary defend on retirement. [9] also stated that age has direct influence on investment as increase in age of investor increases the amount invested in farming. While these results may not conform

to *a prior* expectation, it is obvious that experience gathered over the years could play a critical role in determining investment. Youthfulness does not discourage investment except in the event of inexperience and low interest in agriculture; thus, investment is not altogether expected to be significantly lower compared to older adults.

Education was positive to rice processor's investment. This entails that with more education, processors have incentive to increase their investment. This finding agrees with economic theory that education is a strong asset that influences behaviour to risk. [7] asserted that an informed individual has higher potential to choose the area to invest as he is aware of the nitty-gritty of investment. Formal education provides entrepreneurs with a better capacity to learn about new production processes and product designs, offer specific technical knowledge conducive to firm growth, and increase owners' flexibility. In justification to this finding, it's been reported that well educated folks perceive higher risks and uncertainties that are found in business and are scientifically equipped to grasp the complexities of those eventualities. Hence, it might be inferred that educated investors might see varied problems and issues would like completely different angles as compared to uneducated investors. This finding refutes that of [2] who inferred that the level of education of household head had an inverse relationship to the investment in agriculture.

The coefficient of processing experience was positively related to the investment of rice processors implying that with more experience, investment will increase in line with *a priori* expectation that the more experience the farmer gathers, the more he will be able to manage his firm and accumulate more resources for investment [8]. According to [9]**,** small holder entrepreneurs who are highly experienced are usually not very active economically to invest on non-farm enterprise opportunities.

The coefficient of off-firm income was positively related to the investment of rice processors. This signifies that off-firm income increased investment. According to [8], income is one of the major determinants of investment such that an additional earning of ₦1.00 from farm and off-farm incomes tends to increase investment by ₦0.34 and ₦0.31 respectively. [6] thus implied that increase in investor's annual income will increase his/her quest to invest. [9] also reported that an increase in farm income of the entrepreneurs will increase the amount invested in farming. Investors with higher levels of income have a higher tolerance for risk. Hence, they are most likely to invest more funds in farming. Interest rate had an expected negative relationship with the investment of risk-seeking farmers implying that as interest rate increased, investment decreased. This agrees with economic theory and as well as the findings of [8] where it was confirmed that high interest rate tends to decrease investment. Ownership nature of the agricultural business had a negative sign for rice investors. According to [7], the decision on who owns an enterprise is a vital variable in determining investment decision thereby supporting [10] who reported that only a very small proportion of investors (2%) can invest in ventures owned by entrepreneurs with which they are not personally acquainted.

Capital input was negatively related to the level of investment by the rice processors implying that as the value of capital inputs increased, investment reduced. This is expected since capital inputs constitute costs which are leakages from entrepreneurs' stock of resources. Thus, for every 1% increase in capital inputs, amount invested in rice processing reduces by 0.765% thus implying that capital inputs variable is a strong predictor of investment. This agrees with the findings of Echebiri and Nwaogu (2017).

CONCLUSIONS

Based on the findings, the following conclusions were made:

A mean investment value of ₦220, 610 indicates a low level of capital investment which makes processors to be involved with local processing methods and this is responsible for their poor and inefficient allocation of resources. The result shows that

age, education, processing experience and off-firm income were positively related to the amount of capital invested by rice processors and negatively related to nature of ownership and capital input. Therefore, based on the findings, the researchers recommend that:

(i)Deliberate policies should be put in place by stakeholders in rural development to encourage small-scale rice processors in non-agricultural wage and self-employment categories to invest off-farm income into rice production and processing. This is because when more funds are invested, it would lead to expansion in farm size and output so that they could operate in larger markets and go into full agribusiness processing;

(ii)Similarly, the Federal Government, in conjunction with other government and non-governmental agencies should organize training for rice processors on the management of additional income from off-farm work activities. This would enable them to commercialize their business and take advantage of enabling agribusiness environment in the country.

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