

DETERMINANTS OF COMMERCIALIZATION OF STAPLE CROPS AMONG SMALL-HOLDER FARMERS IN SOUTH EAST NIGERIA

Comment [IS1]: Why didn't you pick just one crop? The market/marketing variables of the crops may not necessarily be the same

ABSTRACT

Small holder commercialization is part of an agricultural transformation process in which individual farms shift from highly subsistence oriented production towards more specialized production, targeting markets for input procurement and output supply. The study therefore analyzed the determinants of commercialization of staple crops such as cassava, maize, rice and yam, in the area. Data were collected from 408 randomly selected registered farmers using structured questionnaire. These were analyzed using descriptive statistics, household commercialization index and multiple regression analysis. The results show that farmers mean age, education, household size, farm size, farming experience and income were 47 years, 9 years, 8 members, 1.64ha, 17 years and ₦259,267.40 per annum, respectively. The commercialization index indicates that the extent of commercialization is highest in cassava (57%) and rice (49%). Favorable indices for commercialization are; high sales of products (2.89), improvement in crop farming and processing (2.85) and relevant policy formulations (2.60). Although, the crops have potentials of being transformed into different products, they are limited to mainly gari for cassava and milled rice for paddy rice. Major challenges identified include inadequate processing and storage facilities and poor access to credit facilities with mean value of 4.82 and 3.83 respectively..

Comment [IS2]: No mention is made of the variables that determine commercialization

Keywords: Commercialization, Small-holder farmers; Staple crops; Household commercialization index.

1. INTRODUCTION

Commercialization is the movement from subsistence production to a market based system of production by using improved technologies to enhance input use and produce transformation, thereby raising the

29 value and cash earning capacities of the enterprises. Hence rural production becomes increasing
30 integrated into the output market [1]. Commercialization is therefore aimed, not only at increasing
31 production and marketed surplus but also at producing high value commodities for domestic and export
32 markets. The transition from subsistence to commercial staple crop production is more pertinent than
33 complete shift to specialized high commodities [2]. The production of marketable surplus to staple food
34 over own consumption is the most common **from** of commercializing peasant agriculture [3]. Although the
35 introduction of yield enhancing technologies coupled with farmers' technical ability in staple crop
36 production generates market surplus and increased income, there is still the need for the production of
37 high value commodities so as to enhance specialization and more increase in income.

Comment [IS3]: form

38 To assist small scale producers raise their productive capacity, efforts to increase their production must
39 focus not only on increased productivity but also on increased commercial opportunities for farmers to
40 benefit from the increased production [4]. This requires the transformation of produce into competitive
41 forms so as to expand the markets. For instance cassava and rice have wide ranging potentials as
42 confectionaries and flakes respectively but their utilization is largely limited to the production of edible
43 foods probably because the post harvest facilities and value addition capabilities are not efficiently
44 harnessed to produce adequate quantity and quality of products on a sustainable basis. This results in a
45 less than optimum utilization of farm produce while sub regional market advantages are not fully
46 exploited.

47 Crops with high commercialization potential in South-East Nigeria include **cassava, yam, rice and maize**
48 [1]. To harness these potentials and promote diversification of the products for the markets, it becomes
49 imperative to analyze the determinants of commercialization of staple crops among small-holder farmers
50 in South East **Nigeria** by addressing the following objectives:

Comment [IS4]: Why did you decide to lump them together? The market/marketing variables of the crops may not necessarily be the same

- 51 i. **describe the socioeconomic factors of the farmers,**
- 52 ii. **analyze the determinants of commercialization of the crops,**
- 53 iii. **examine the commercialization potentials of the crops**
- 54 iv. **identity the products generated and and determine their extent of commercialization,**
- 55 v. **examine the challenges of commercialization in the area.**

Comment [IS5]: I suggest stopping here will suffice. Seems you've capture the entirety of the work.

Comment [IS6]: delete

Comment [IS7]: This is meant to be a journal article not a project/thesis. Just tell your readers the main object of writing please. Consider my comment above.

2. MATERIALS AND METHOD

The study was carried out in South East Nigeria. Multi stage, purposive, proportionate and random sampling technique were used in the selection of 3 states (Abia, Ebonyi and Enugu); one agricultural zone in each state; three blocks from each zone and the registered farmers comprising 32 farmers in Abia state, 72 farmers in Ebonyi state and 304 farmers in Enugu state.

Comment [IS8]: Why did you decide to alternate these techniques, at least we should know.

Comment [IS9]: Why did you differ the sample sizes?

Primary data were collected through the use of structured questionnaire. Data collected were socioeconomic variables, types, quantity and prices of products generated and input prices. Data were analyzed using descriptive statistics for socioeconomic factors; Household commercialization Index was used to analyzed extent of commercialization and according to [5] it is given thus;

Comment [IS10]: Types of what?????

$$HCI = \frac{\text{Gross value of crops sales per household per year} \times 100}{\text{Gross value of all crop production per household per year}}$$

The closer the value to 100 the higher the commercialization of the crops. The determinants of commercialization was analyzed using multiple regression analysis which is implicitly specified thus:

Comment [IS11]: What value?

$$HCI = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}, X_{11}, e)$$

Comment [IS12]: Stop at X9

Where

HCI = Household Commercialization Index

X_1 = Age (years)

X_2 = Farming Experience (years)

X_3 = Gender (1 = Male; 0 = Female)

X_4 = Education (number of years spent in formal school)

X_5 = Household Size (number of persons)

X_6 = Farm Size (ha)

X_7 = Credit (₦)

X_8 = Processing Cost (₦)

X_9 = Market Distance (km)

e = Error Term

Potential of commercialization was analyzed using, descriptive statistics and mean value from likert scale with values ≥ 2.5 acceptable while ≤ 2.49 is not acceptable.

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87 3. RESULT AND DISCUSSION

88 3.1. Socioeconomic factors of the farmers

89 Table 1 indicates that the mean age of farmers is 47 years. This shows that most of the farmers are in the
 90 productive and active period with requisite skills acquired after 17years of farming experience. The mean
 91 farm size of 1.64ha limits the productive capacity of the farmer to subsistence level. The educational
 92 attainment of 9 years implies that the literacy level predisposes the farmer to better skills for
 93 commercialization. The mean household size of 8 members produces the farmer with additional labour at
 94 peak periods.

Comment [IS13]: farmers

95
96 **Table 1. Summary of socioeconomic factors**
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Socioeconomic Factors	Mean	Standard Deviation	Range
Age	47	10.48	29-59
Farming experience	17	7.43	5-20
Farm size	1.64	0.67	0.5-2.5
Level of education	9	4.89	1-17
Household size	8	4.54	5-26

98 *Source: Field Data (2016)*

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107 3.2. Determinants of commercialization

108 Table 2 shows that the lead equation is double log function based on the highest number of significant
 109 variable (6) and high R^2 of 0.664. The value of the R^2 implies that 66% of the variation in HCI is explained
 110 by the regression model.

111 Gender is significant with a negative sign which indicates more involvement of female farmers as
 112 commercialization increases. This agrees with the study of [6] which indicates that more female farmers
 113 were involved in the market orientation of root and tuber crops in Imo State, Nigeria. Education is

Comment [IS14]: Do you explain gender independently or relatively? Either way, be sure of this your implication.

significant at 1% with a positive sign. This shows that high literacy level enhances the farmer's adaptive skills. Market distance is highly significant with a positive sign showing that increased level of commercialization improve the quality of the product such that they can be transported over longer distances without spoilage. However, [7] in his study, indicated a negative relationship probably due to high transaction cost. Household size is significant with a positive sign so as to augment labour especially during peak periods of farming. In another study, [8] indicated a negative relationship, probably due to increase in household consumption. Processing cost is highly significant with a negative sign probably because of the low level of commercialization of the crops in the area.

Comment [IS15]: What makes it highly significant?

Comment [IS16]: Same as above

Comment [IS17]: I find the explanation of the implication of the result to too scanty. Will be good if you could add more flesh to it.

Table 2. Determinants of commercialization

Socioeconomic Factors	Linear Function	Semi log function	Exponential function	Double Log Function
Age (X_1)	-.039	4.653	.000	.125
Farm experience (X_2)	.098	1.712	.003	.033
Gender (X_3)	-5.258**	-7.434	-.157**	-.163*
Education (X_4)	.185	5.159	.005	.104
Household size (X_5)	.041	10.218*	.000	.249*
Farm size (X_6)	-1.047	3.537	-.050	.067
Credit (X_7)	-1.311E-5	-1.803	-2.731E-7	.004
Processing cost (X_8)	-6.570E-5	-5.377**	1.475E-6	-.106
Market distance (X_9)	.085	.994	.003	.023**
Constant	67.470**	110.88**	4.250**	4.527**
R ²	0.121	0.287	0.113	0.664
F-Ratio	4.167**	2.787**	3.836**	2.488**

*Significant at 5%

**Significant at 1%

Source: Field Data (2016)

Comment [IS18]: This figures in the Table, are they coefficients or T-values? I suggest you present both to help us scrutinize your assertions about their significance. For e.g what you are presenting as highly sig, don't seem to be so to me. Akso cross check these your 5% and 1% levels please.

3.3. Potentials for Commercialization

This is captured by showing the forms in which the output is marketed in Table 3 and the potentials for commercialization as perceived by the farmers in Table 4.

131 Table 3 shows that the only 35% of the farmers produce, process and sell. This means that few farmers
 132 engage in value addition activities that would enhance the marketability of their output thereby limiting
 133 their potential for commercialization.

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 135 **Table 3 Forms of Marketing**
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Items	Percentage
Produce and sell only	57
Produce, process and sell	35
Process and sell only	7

Source: Field Data (2016)

Comment [IS19]: Accepting this category of people will negate the topic of the article ".....among farmers". What do you think?

138 Table 4 shows the perception of farmers on factors available in the area that may or may not create an
 139 enabling environment for commercialization. The result indicate that although relevant polices are
 140 formulated with evidences of improvement in crop farming, processing and product sales, such
 141 improvement seem not to be sustained due to increase in production cost (2.51) followed by poor funding,
 142 lack of requisite skills and expensive mechanized facilities which are often unavailable and inadequate.
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Comment [IS21]: Did you follow a particular order?

144
 145 **Table 4. Potentials for Commercialization**
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Factors	Mean	Decision rule
Relevant policy formulation	2.60	Accept
Improvement of crop farming and processing	2.85	Accept
Availability of fund	1.88	Reject
Increased sales of products	2.89	Accept
Increased production costs	2.51	Accept
Inadequate credit facilities	3.83	Accept
Adequate processing skills	1.59	Reject
Expensive mechanized facilities	4.82	Accept

Source: Field Data (2016)

Comment [IS22]: Arrange in descending order

148 3.4. Extent of Commercialization

149 Table 5 shows the level of market orientation of cassava, yam, rice and maize in the study area. The
 150 market orientation was highest in cassava (57%) and lowest in yam (31%). The work carried out by [8] on
 151 socioeconomic determinants of commercialization among small-holder farmers in Abia State indicated
 152

155 that cassava also has the highest ratio. This implies that value addition via processing is highest in
 156 cassava.

157 **Table 4a. Extent of Commercialization**
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Crops	Gross value of all crop produced	Gross value of crop sold	HCI
Cassava	259,267.4	148603.77	57
Maize	259,267.4	98507.16	38
Rice	259,267.4	126561.23	49
Yam	259,267.4	81449.36	31

160 *Source: Field Data (2016).*

162 3.5. Crop output by level of processing carried out.

163 The crop output by level of processing was analysed. The result [show](#) 53% of cassava is processed into
 164 gari, 48% of paddy rice is milled while 47% of maize is shelled. Yam was mainly sold unprocessed.

Comment [IS23]: Shows that

166 **Table 5. Crop Output by level of processing**
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Crop	Quantity produced	Major products	%quantity processed
Cassava	274 bags of 50kg	Gari	53
Paddy rice	94 bags of 100kg	Milled rice	48
Maize	40 bags of 100kg	Shelled maize	47

168 *Source: Field Data (2016)*

170 3.6. Challenges to Commercialization

171 The challenges were rated on a four point Likert scale with a mean score of ≥ 2.50 acceptable while mean
 172 score ≤ 2.49 was regarded as unacceptable. The major challenges are inadequate processing and
 173 storage facilities and poor access to credit facilities.
 174

175 **Table 6. Challenges to Commercialization**
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Challenges	Mean	Decision rule
Poor road network	2.83	Accept
Poor access to credit facilities	3.83	Accept
Inadequate processing and storage facilities	4.82	Accept

Establishment of farm association	2.79	Accept
Inadequate processing skills	2.72	Accept

Comment [IS24]: Arrange in descending order

Mean score ≥ 2.50 is acceptable

Source: Field Data (2016)

CONCLUSION AND RECOMMENDATION

An enabling environment is a pre-requisite for the realization of the potentials of commercialization.

However, poor credit facilities and inadequate processing and storage facilities result in the following; few farmers produce process and sell their output in the rural market. This limits the number of products generated and extent of commercialization. There is need to enhance market orientation of these crops for domestic consumption and export. It is therefore recommended that government should refurbish old facilities, assist farmers produce new ones, set up strategies to facilitate farmers' access to credit while farmers should participate actively in farm associations.

Comment [IS25]: Government! So if govt can't do it what next?

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Comment [IS26]: Most of your references are old.