Farmers' access to agro-industries as alternative market for agricultural produce in Ife-East Local Government Area of Osun State

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ABSTRACT

This paper examined farmers' access to agro-industries as alternative market for agricultural produce in Ife-East Local Government Area of Osun State. Primary data were collected with the aid of well-structured questionnaire from a total of randomly selected120 farmers from Ife-East Local Government Area (LGA) of Osun State. Data were analysed using descriptive statistics and probit regression analytical technique. Results reveal that the mean age of respondents from the study area was 55 years. Majority (95.0%) had farming as their primary occupation and all the respondents had access to agro-industries. The binary probit regression model reveals marital status (-0.93) and secondary education (0.55) affected farmers' access to agro-industries. The study concluded that farmers had access to and benefited from agro-industries but faced challenges such as poor road network, low levels of human capital as well as lack of good storage facilities. The study therefore recommended that communities, private organizations and government should partner to provide modern infrastructures such as accessible road network, improved storage facilities. Also, private organizations and government should motivate, encourage and equip agro-industries that are still in their infancy. The key policy implication is that there is need to improve on the efficiency of agro-industries' services in the study area as well as more synergy between the farm, farmers and industries.

Keywords: Agro-industries, Alternative market, Market Access, Agricultural produce

INTRODUCTION

The fight against hunger in order to improve food security particularly in the world's poorest countries is enough to give priority to the issue of losses in the agricultural sector (FAO, 2010). This is because these losses indicate a waste of productive agricultural resources that could have been channelled into more viable ends (Adepoju, 2014). According to FAO (2011), more than one-third of the food produced globally for human consumption is either lost or wasted and this amounts to about 1.3 billion tons per year. Furthermore, most of the food crops produced globally is never consumed as a result of damage which affects crops after harvest (Meena *et al*., 2009). This is because farmers do not always get market for their produce immediately after harvest.

Similarly, short-term success in raising production on the part of farmers without complementary support to marketing can result in oversupplying local markets, which then translates into volatile or reduced incomes for farmers (Ferris, 2009), hence, for farmers to raise their income, improve their standard of living and for households to attain food security, there is a need for an alternative market which would not only reduce the stress of getting the crops to the local market but will also curb the minimum crop losses due to delayed marketing. Therefore, agro-industries serve as an appropriate enterprise to help achieve this. An agro industry is one which specializes in the processing of agricultural produce. According to Tersoo (2013), agro-industrialization is a dynamic integrated production process and a synergy or symbioses between agriculture and industry. This new sector directly interfaces with both agriculture and industry and thereby provides a link between the two sectors making them more contributory to economic development.

Agro-industries, in most developing countries are important because of their contribution to value-addition of agricultural produce which according to Wilkinson and Rocha (2009) is as high as 66 per cent. These agro-industries generate demand for agricultural raw materials which in turn creates work opportunities at the farm level and contributes to increased demand for agricultural inputs (such as fertilizers, feeds and veterinary products amongst others) that tends to rise with new investments in agro-industries (Carlos *et al*., 2012; Wilkinson and Rocha, 2009). Against the backdrop of the fact that agro-industries are uniquely situated between natural sources of food supply (on the farmers' side) and the dynamics of demand for food and fibre (on the consumers' side), promotion of agro-enterprise development can have numerous benefits

for diversification and value-addition (Reardon, 2007).

The agro-enterprise approach in eliminating hunger and improving farmers' standard of living is a means of refocusing production-based efforts within a market-based framework. Though it does not replace traditional agricultural development, it does however require a new way of thinking about agriculture: one that recognizes the market as the driver in the system and requires that investments be aligned with market needs and evaluated against market performance (that is, sales volumes, product quality, profit, and timeliness) (Ferris, 2009).

Moreover, the continued increased awareness of consumer together with food contamination scares has led to tighter food safety laws. In response, agro-food companies developed strategies involving the different players at different levels of the value chain to achieve undistorted information exchanges and track and trace efficiency (Matopoulos, Vlachopoulou and Manthou, 2005). It incorporates ideas on chain-wide thinking, competitive production, collective marketing, product diversification, as well as adding value to construct a path out of poverty for farmers (Ferris, 2009). The potential of Ife-East Local Government in producing crops such as cocoa, cassava, plantain, yam, maize, vegetables, fruits is enormous with each farming household cultivating an average of 14.3ha being the highest in the zone (Babayemi *et. al*, 2014). The farmers have marketable surplus which can serve as raw materials for agro-industries. Because of this potentials, agro-industries such as United States based Hershey Company, German International Co-operation (GIZ), IDH (The Sustainable Trade Initiative) Oxfam Novib, Continaf, Ferrero, Petra Foods Limited and Farmers' Development Union (FADU) have partnered with the farmers (Essiet, 2013).It is against this background that this study addressed the following research questions:

1. What are the socio-economic characteristics of the farming households?
2. What is respondents' extent of access to available agro-industries?
3. What are the benefits derivable for patronizing agro- industries?
4. What are the challenges for accessing agro-industries for sales of agricultural produces?
5. What are the factors that influence farmers' access to agro-industries in Ife East LGA?

METHODOLOGY

The population of the study was the farming households in Ife East LGA of Osun State. Agriculture is the major source of income of the people. Information was elicited through the use of a well-structured questionnaire. A multistage sampling procedure was used to select respondents for the study. In the first stage, 6 villages were randomly selected from the LGA. In the second stage, 20 farming households from each of the villages were randomly selected and using the list of farming households from the Osun State Agricultural Development Programme (OSSADEP), a systematic random sampling technique was used to select the 120 respondents for the study. The result of the study was summarized using descriptive statistics such as frequency counts, percentages, mean, and standard deviation, while the factors influencing farmers' access to agro-industries were determined with binary probit regression.

Results and discussion

The result from Table 1 shows that majority (65.9%) of the farmers were within the age group of 50 – 69 years while very few (5.9%) of the farmers were within the age group of 70 – 89 years with the mean age of 54.98years. This indicates that most of the respondents are adults but still active. This result was however far from being similar to that of Ekwe *et al* (2011) who found the mean age of farmers to be 45 years. The findings also show that 60.8% of the respondents were males while the remaining (39.2%) were females. This indicates that males were most active and involved in the hard work or job risks that farming offers.

Results of this study further show that majority (79.2%) of the respondents were married while only 5.8% were separated. This shows that majority of the respondents were married with their respective spouses assisting in the farming operation at times thereby reducing cost of hiring labour. The result agrees with Salau (2013) who also reported that there were more married farmers for his study. Also, majority (63.3%) of the respondents had a household size of between 1 – 5 members, while 36.7% had a household size of between 6 – 10 members. The mean household size was 5 members. The result contradicts Ukoha *et al* (2010) who reported the mean household size of his respondents to be approximately 11.

Also, majority (95.0%) of the respondents had farming as their primary occupation, while only 5.0% were involved in trading as primary occupation. However, 21.7% of the respondents engaged in farming as their secondary occupation,

while others engage in other enterprises such as trading, civil service or artisan. It was also revealed that 36.7% made an annual income between ₦50,000 – ₦100,000, and 47.5% made an annual income between ₦101,000 – ₦200,000. However their mean annual income was ₦135,658.33. Table 1 shows that majority (60.8%) of farmers were members of one or more social organizations, while 39.2% of farmers did not belong to any social organization. The implication of this is that majority of respondents in the study area will have access to better infrastructures and incentives which social organizations offer. Findings also show that 75.0% of the respondents were permanent residents of the area, while 25.0% were dual residents.

Furthermore, Table 1 reveals that few (39.2%) of farmers had contact with extension agents, while 60.8% of farmers in the area had no contact with extension agents. The implication of this result is that farmers with no contact with extension agents were at great risks because it is believed that through extension visits, farmers become better informed about farm management planning and new technologies. However, it is envisaged that this shortcoming might had been eased through their contact with agents from agro-industries since all the farmers interviewed claimed to have contact with agro-industries.

Table 1: Distribution of respondents by socio-economic characteristics

Socio-economic characteristics	Frequency	Percentage	Mean
Age (Years)			
30 – 49	34	28.3	54.98 years
50 – 69	79	65.9	
70 – 89	7	5.9	
Sex			
Male	73	60.8	
Female	47	39.2	
Marital status			
Single	1	0.8	
Divorced	8	6.7	
Widowed	9	7.5	
Separated	7	5.8	
Married	95	79.2	
Household size			
1 – 5	76	63.3	5.01 people
6 – 10	44	36.7	
Level of education			
No formal education	11	9.2	
Primary education	19	15.8	
Secondary education	77	64.2	
Tertiary education	13	10.8	
Primary occupation			
Farming	114	95.0	
Trading	6	5.0	
Secondary occupation			
Farming	26	21.7	
Trading	57	47.5	
Civil servant	7	5.8	
Artisan	30	25.0	
Level of income (₦)			
50,000 – 100,000	44	36.7	
101,000 – 200,000	57	47.5	₦135,658.33
201,000 – 300,000	19	15.8	
Membership of social organization			
Yes			
No	73	60.8	
	47	39.2	
Residency status			
Permanent resident	90	75.0	

Socio-economic characteristics	Frequency	Percentage	Mean
Dual resident	30	25.0	
Contact with extension agent			
Yes	47	39.2	
No	73	60.8	
Contact with agro-industries			
Yes	120	100.0	

Types of agro-industries accessible to respondents

The finding on Table 2 shows that 99.2% of respondents often had access to the manufacturers of food products who could convert the raw forms of the produced commodities into processed products. Result also shows that majority (83.3%) of the respondents claimed not to have access to Beverages and Tobacco industries. This could be so because there are no Beverages and Tobacco industries in Ife but the ones available are farther away from Ife and as such farmers tend to defer from journeying to such places in order to cut costs. Also, data presented show that 71.7% of respondents had access to textiles and clothing industries, while 28.3%% did not have access to industry. Majority (80.0%) had access to wood product and furniture industries of which 39.1% often had access. About 57% and 64% had access to paper, paper product and printing as well as rubber and rubber product industries, respectively. However, 22.5% and 28.3% often had access to the industries. Majority (75.0%) of 96.7% of those who had access to feed mill industries accessed the industry often. Also, 80.0% and only 39.1% had access to and often access wood product and furniture industries respectively. Also, 56.7% and 64.2% of the respondents interviewed claim to have access to paper, paper product and printing as well as rubber and rubber product industries, respectively. The result further reveals that 96.7% and 75.0% of the respondents interviewed had access to and often access feed mill industries, respectively. This is so because there are many local feed mill industries in Ife that could utilize agricultural commodities as ingredients in the making of feeds. The result agrees with that of FAO (1997) and Henson and Cranfield (2009) that the agro-industrial sector accessible to users include manufacturers of food, beverages and tobacco, textiles and clothing, wood products and furniture, paper, paper products and printing, and rubber and rubber products, however in no particular order.

The implication of this result is that farmers might want to increase their production of the materials for whom or which they could easily access their industries and they will limit the production of the produce for which they have difficulty in accessing its industries.

Table 2: Distribution of respondents by various types of agro-industries accessible to respondents and extent of access to agro-industries

		*Accessibility	Extent of access		
	Types of agro-industries		Often	Rarely	Not at all
1	Manufacturers of food products	119 (99.2)	98 (81.7)	21 (17.5)	1 (0.8)
2	Beverages and tobacco	20 (16.7)	9 (7.5)	11 (9.2)	100 (83.3)
3	Textiles and clothing	86 (71.7)	32 (26.7)	54 (45.0)	34 (28.3)
4	Wood products and furniture	96 (80.0)	47 (39.1)	46 (38.3)	27 (22.5)
5	Paper, Paper Products and Printing	68 (56.7)	27 (22.5)	41 (34.2)	52 (43.3)
6	Rubber and Rubber Products	77 (64.2)	34 (28.3)	43 (35.8)	43 (35.8)
7	Feed mill	116 (96.7)	90 (75.0)	26 (21.7)	4 (3.3)

Source: Field survey, 2016
* Multiple responses recorded

Benefits derivable for patronizing agro-industries

Table 3 shows that all the respondents interviewed claimed they derived benefit from patronizing agro-industries. The benefits derived from agro-industries for the sale of agricultural products however varies. Respondents claimed that the major benefit derived from agro-industries lies in the fact they (agro-enterprises) generate demand for agricultural raw materials (99.2%). Respondents also claimed that the benefit they derive from agro-industries was in the area of promotion of agro-enterprise development (91.7%), work opportunities at the farm level (90.8%), Value addition to products (90.0%) and access to good seeds and seedlings (90.0%). This result agrees with Henson and Cranfield (2009) who submitted that agro-industrialization presents valuable opportunities and benefits for developing countries.

This is an indication that the respondents benefitted economically from agro-processing industries, and it is believed to have improved the welfare and wellbeing, an evidence of human development through the patronage of agro-industries. The result can be summarized to be in consonance with Henson and Cranfield (2009) who not only submitted that aggro-industries are traditionally based on the utilization of voluminous inputs but that it also helps to reduce the loss of agricultural product as a result of its perishable nature and that of da Silva and Baker (2009) who opined that agro-industries ensure a high demand for labour to stimulate business.

Table 3: Distribution of respondents by benefits derivable from patronizing agro-industries

S/N	Statement	Frequency	Percentages
1	Agro-processing enterprises generate demand for agricultural raw materials	119	99.2
2	High levels of labour (employment) sourcing from communities	39	32.5
3	Work opportunities at the farm level	109	90.8
4	Increased demand for agricultural inputs produce	108	90.0
5	High demand for ancillary agro-processing inputs, such as packaging items and product ingredients	91	75.8
6	Helps to get crucial inputs and services which some have no access	82	68.3
7	Reduction in the number of intermediaries at several stages (Production to Marketing)	92	76.7
8	The availability of agro-industries avail farming households the opportunities to sell their products with less stress which invariably increased willingness to increase their level of production	101	84.2
9	Direct sales of produce from farm to the market	103	85.8
10	Reduction in the loss of agricultural produce due to lack of good storage facilities, poor road networks, pest and diseases infestation, climate change effects	73	60.8
11	Better links with financial institutions	96	80.0
12	Value addition to products	108	90.0
13	Promotion of agro-enterprise development	110	91.7
14	Increase in per capita incomes	102	85.0
15	Higher urbanization	79	65.8
16	Ease of transportation of goods and services	44	36.7
17	Access to good seeds and seedlings	108	90.0

Challenges of access to agro-industries

Table 4 shows the challenges faced in accessing agro-industries. The mean ranking results reveal the major challenge faced by respondents in accessing agro-industries. The result shows that pest and disease infestation ($\bar{x}$=2.51) as well as climate change effects on their produce ($\bar{x}$=2.51) were part of the major challenges faced by them in accessing agro-industries. Also, poor road network ($\bar{x}$=2.49) and the fact that high-value domestic markets are still in their infancy ($\bar{x}$=2.49) were also seen as challenges encountered in accessing agro-industries. Other challenges were low levels of human capital ($\bar{x}$=2.28), as well as lack of good and efficient storage facilities ($\bar{x}$=2.39). This result implies that respondents have various challenges/constraints in accessing agro-industries for the sale of their agricultural produce, an indication that these farmers are more or less limited which consequently affect the level of their access to agro-industries for the sale of agricultural produce and could have limited their efficiency and effectiveness in production. The result can be summarized to be in agreement with Henson and Cranfield (2009) who indicated that some of the challenges associated with agro-industries is the coordination of activities vertically and horizontally (integration), improved infrastructure and access to finance.

Table 4: Distribution of respondents by challenges in accessing agro-industries

S/N	Statement	Very severe	Severe	Minor constraints	Not at all	Mean	Rank

1	High-value domestic markets are in their infancy	66 (55.0)	47(39.2)	7 (5.8)	0 (0.0)	2.49 0.608*	8.5
2	Traditional supply chains for agro-food products generally predominate	28 (23.3)	70 (58.3)	21 (17.5)	1 (0.8)	2.04 0.666*	3
3	The formal agro-processing sector is small, and may even be stagnating	34 (28.3)	55 (45.8)	30 (25.0)	1 (0.8)	2.02 0.756*	2
4	There is little or no integration along the supply chain	23 (19.2)	55 (45.8)	39 (32.5)	3 (2.5)	1.82 0.767*	1
5	Entry costs to private agro-processing tend to be high	39 (32.5)	59 (49.2)	20 (16.7)	2 (1.7)	2.13 0.740*	4
6	Low levels of human capital	47 (39.2)	61 (50.8)	11 (9.2)	1 (0.8)	2.28 0.663*	6
7	Greater innovative capacity	34 (28.3)	70 (58.3)	16 (13.3)	0 (0.0)	2.15 0.630*	5
8	Lack of good storage facilities	52 (43.3)	63 (52.5)	5 (4.2)	0 (0.0)	2.39 0.569*	7
9	Poor road network	61 (50.8)	57 (47.5)	2 (1.7)	0 (0.0)	2.49 0.534*	8.5
10	Pest and diseases infestation	64 (53.3)	53 (44.2)	3 (2.5)	0 (0.0)	2.51 0.550*	10.5
11	Climate change effects	69 (57.5)	43 (35.8)	8 (6.7)	0 (0.0)	2.51 0.622*	10.5

Source: Field Survey, 2016. The figures in bracket are the percentages while the ones in asterisks are the standard deviation

Level of Challenges in patronizing agro-industries

The result from table 4b shows that though 31.7% of the respondents did not face any challenge in accessing the industries, majority (60.8%) of them opined that the challenges faced by them were minor, while only few (7.5%) submitted that they faced severe challenges in accessing the agro-allied industries. However, 67.3% of the respondents faced some challenges in accessing agro-industries.

Table 4b: Level of Challenges in patronizing agro-industries

Challenges faced in accessing industries	Frequency	Percentage
Not a challenge	38	31.7
Minor challenge	73	60.8
Severe challenge	9	7.5

Factors influencing farmers' access to agro-industries

Results of the maximum likelihood estimation of the binary probit model are presented in Table 5. The log likelihood of -74.957801 was significant at the 1 per cent level of significance. Out of the nine variables, only two variables were significant enough to influence respondents' access to agro-industries, these are marital status and secondary occupation.

The coefficient of marital status (-0.9280844) was negatively significant, implying that the likelihood of the married having access to agro-industries is lower among farmers. This is because the married have a lot of responsibility to take care of and might not have the necessary time to travel long distance before they could access agro-industries unlike the single who have enough time to themselves and might not have much dependants who depend on them for their daily needs. This result agrees with Wilkinson and Rocha (2009) who submitted that single-person households have

an increasing access to make use of agro-industries products.

Similarly, the coefficient of secondary occupation (-0.5498063) was negatively significant. This implies that the likelihood of those involved in farming as their secondary occupation might not have time to access agro-industries; this is because the time that would have been spent to search for agro-industries is been spent on the farm unlike others who have the time to do other jobs that might give them the opportunity to search and access agro-industries.

Table 5: Factors influencing farmers' access to agro-industries

Variable	Coefficient	Standard error	P > |z|
Sex	0.3460951	0.2758637	0.210
Marital status	-0.9280844	0.3217943	0.004***
Secondary occupation	-0.5498063	0.3275856	0.093*
Primary occupation	0.4845123	0.5460292	0.375
Residency status	0.0139717	0.3053066	0.963
Age	-0.0032248	0.0155422	0.836
Level of income	-3.70E-07	2.24E-06	0.869
Membership of social organization	-0.0565648	0.2906656	0.846
Access to extension agent	-0.1548906	0.2501534	0.536
Log likelihood	-74.957801		

***@ 1% , *@ 10%

CONCLUSION AND RECOMMENDATION

The study was conducted to determine the factors influencing farmers' access to agro-industries as alternative market for agricultural produce in Ife-East Local Government Area of Osun State. It identified marital status and secondary occupation as the only factors that significantly influenced farmers' access to agro-industries. The study therefore recommended that communities, private organizations and government should partner to provide modern infrastructures such as accessible road network, improved storage facilities. also private organizations and government should motivate, encourage and equip agro-industries that are still in their infancy.

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