DETERMINANTES OF MARKETING EFFICIENCY AMONG CRAYFISH MARKETERS IN URUAN LOCAL GOVERNMENT AREA, AKWAIBOM STATE, NIGERIA

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ABSTRACT
The study analysed the determinants of crayfish marketing in Uruan Local Government Area of AkwaIbom State, Nigeria. One hundred and twenty structured questionnaires were administered on the respondents who were crayfish wholesalers and retailer marketers. The data for the study were captured using a structured questionnaire. Multiple regression analysis and cost and returns were estimated. The results of the study show that most of the respondents were females, 60% wholesalers and 71.4% retailers; their male counterparts constitute 40% wholesalers and 28.6% retailers. The range of farm size was 0.6-1.5 ha with the dominant farming experience range of 10-15years with most respondents' literates. Linear and Cobb Douglas functional form result shows the relationship between farmers' socio economic characteristics and their output. The results of the regression analyses also shows that the coefficients for household size and education had a direct relationship with marketing efficiency and significant at 1% level and marketing experience at 10% level. The coefficient of age had an indirect relationship with marketing efficiency and significant at 1% level. The results of the cost and returns shows that wholesalers purchase fish mainly from the producers or the agents at N180,000 per basket and sell at N317,650 while the retailers purchase from the wholesalers at 250,000 and sell at N295. Benefit cost ratio for wholesalers was N1.3 and N1.2 for retailers. This implies that for any N1 spent in crayfish marketing, the wholesalers get a value of N1.3 and retailers N1.2. The results therefore call for policies aimed at providing free and affordable education to enable farmers' access and process information on fish marketing. There is also need to encourage the young experienced fish marketers whom are experienced to increase their supply by having access to credit facilities and other inputs for efficient marketing.

Keywords: Crayfish, marketing, wholesalers and retailers

Introduction

Crayfish is classified under fisheries; they are either fresh or smoked dried products comprising a mixture of matured shrimps, post larvae stages of shrimps and other tiny crustaceans that are often harvested in the estuaries and coastal waters. Just like fishes, they are good sources of protein, amino acids and vitamins and elements (Sani et al, 2009). Crayfish marketing is a major income generating activity that offers substantial economic benefits to traders and has the potential to address food security problems. Marketing of crayfish is also associated with seasonal price variation, cheap during the wet season and expensive during the dry season (Romaire, 2005). Catching of crayfish from the wild are usually seasonal and unpredictable, while household consumption of seafood affects crayfish marketing all year round (Igwe, 2009). The magnitude

of costs associated with bulkiness of agricultural commodities, high risks and uncertainty, price fluctuations, perishability, transportation, inadequate market information and facilities influence the magnitude of the profit (Anuebunwa, 2007).

The fishery subsector in Nigeria holds the potential to address food security and reduces rural hunger to the barest minimum. In addition to providing employment to many Nigerians, it is also a source of protein. For instance, in Nigeria, fish and fishery products constitute more than 60% of the total protein intake of adults in rural areas (Adeokoya and Miller, 2004). Apart from providing employment for over five hundred thousand people, it contributes over 40% of the animal protein intake of the resource poor people (Sani et al, 2009). The total fish production per annum

in Nigeria is about 452,146 metric tonnes, while the demand is 2,168,000 metric tons; the deficit is augmented through imports (FAO, 2002). The preservation of fish helps to prolong shelf life, fish flavour and increase utilization in menu, reduce wastes of bulk catches and increase-protein availability. Efficient food marketing system have been documented to reduce post-harvest loses, ensure adequate returns to farmer's investment and stimulate expansion in food production thereby enhancing the level of food security in the country (Okoye et al 2010).

Irrespective of the good nutrition of sea foods, fish particularly, yet most people do not eat enough to contribute significantly to their diets (FAQ, 2003). The price of fish in Nigeria market has almost become impossible for the people with low purchasing power to afford. As a result, there is need to conduct research on this important aspect of the study. The study will shed more light on fish marketing efficiency and the constraints of fish marketing in the study area. Crayfish is found in aquatic habitats and naturally reproduce for food, money, ecological and laboratory purposes. Crayfish marketing in Uruan Local Government Area of AkwaIbom State has provided business and economic activities for the inhabitants of the coastal region where crayfish is found and for the marketers.

Methodology

The study was conducted in Uruan Local Government Area of AkwaIbom State. Uruan Local Government Area occupies a large landmass. The major occupation of the people is fishing, farming and trading. Uruan LGA is made up of (7) seven clans thus; Akwauruan, Etongkomkpe, Mutakauruan, Ekondouruan, Mosongkouruan, Ibondauruan, AkpeIbokuuruan. A multi stage random sampling technique was employed in the selection of the crayfish marketers in the study area. In the first stage, four markets (Issiet, IfiayongEusk, Idu and EkpeneUkim markets) were randomly selected out of the major seven in the study area. Stage 2 involved random selections of twenty-five wholesale and retail crayfish marketers each from Ishiet and Ifaiyong markets and ten of retail marketers from Idu and EkpeneUkim markets. In the final stage, a total of fifty wholesaler and seventy retailers were selected. This gave a total of one hundred and twenty (120) respondents. The factors that affect the sales of crayfish marketers in both locations were determined with multiple regression analysis. The multiple regression function is specified thus;

$$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7) + e.$$

Where;
Y = Quantity of crayfish sold (Kg)
X_1 = age of the marketers (years)
X_2 = household size (numbers)
X_3 = level of education (yrs)

X_4 = marketing experience (years)
X_5 = transportation cost (N)
X_6 = membership of associations (member =1, Non-member =0)
X_7 = credit (N)
ei = error term

For the cost and returns in the outputs of Cray fish marketing, the gross margin analytical procedure was employed thus;

GM	=	TR - TVC
TC	=	TVC + TFC
TI	=	TR – TC
Where,		
GM	=	Gross Margin
TC	=	Total cost
TFC	=	Total fixed cost
TVC	=	Total variable cost
TI	=	Profit.

Results and Discussion

Table 1 shows that majority of the wholesaler crayfish marketers (60%) were females and 40% were males, while for retailers, 71.4% and 28.6% were females and males respectively. The high percentage of females has the implication that crayfish marketing is gender specific. Women do marketing better compared to men because of the bargaining ability (Anuebunwa, 2007). The Table also shows that, the wholesalers (50%), and retailers (50%) were within the age range of 21-41yrs old, while 24%, 28.6%, 20% and 14.3%, 6.0% and 7.1% which represent both wholesalers and retailers fell between the age range of 42-62, 63-70 and 1-20 years old respectively. The implication of this is that young people engaged more in crayfish marketing business than the older people in the study area. Marketing is best accomplished by young people because of it furious nature. Nwaru, (2000) agrees with this finding who reported that Age is necessary in marketing of Agricultural produce. The results also revealed that the majority of the wholesalers (48%) and retailers (50%) were married, while 22% and 17.1%, 16% and 13%. 15% and 13.3% of wholesalers and retailers were single, widows and divorced respectively. This gives a vivid confirmation that the married in the study area much involved in crayfish marketing. The result further showed that majority of wholesalers (6.0%), (36.0%), (34%) and (10%) and retailers (12.9%), (35.7%), (20%) and (7.1.%) were literate while only 14% of wholesalers and 24.3% retailers were illiterate in the study area. Education helps for prudent resource management and easy access to information in order to maximize profit Nwaru (2001). lheke, (2010) are consistent to this finding. The result shows that the majority of the wholesaler (52%) and retailers (50%) constitute the household size ranged from 6-11 persons, while 34% and 32.9%, 4% and 7.1% and 10% and 7% fells

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between the ranged of 12-17, 18-23 and 1-5 persons of both wholesalers and retailers respectively. Sani et al (1999) reported that large household size could mean high fish consumption at home with little or nothing for sale. Onyioha et al (2009) is consistent with this finding. The results in the table revealed that majority of the wholesalers (40%) and retailers (42.9%) had marketing experience ranged between 6-11 years respectively, while 30% and 28.6% 24% and 18.5% and 6.% and 10% of wholesalers and retailers fells between the class of 12-17, 18 and above and less than 5 persons respectively. Long years of involvement in marketing (marketing experience) exposes the marketers to marketing ideals that will help him/her to overcome marketing intricacies in order to achieve high profit (Okoye et al 2008).

The result in Table 2 indicates that wholesalers purchase crayfish mainly from the producers or the agents at N180,000/basket and sell at N317,650/basket while the retailers purchase from the wholesalers at N250,000 and sell at N295,258. The total variable cost for wholesale is N185,100 and retailers N252,400. The marketing cost for wholesalers is N187,200 and N253,800 for retailers. Net return accruing to wholesalers was N230,450 and retailers N86,358. Benefit cost ratio for wholesalers was N1:3 and N1:2 for retailers. This implies that for any N1 spent in crayfish marketing, the wholesalers get a value of N1.3 and retailers N1.2

Effect of Socio-Economic Characteristics on Marketing Efficiency

The result in Table 3 shows that the double log was the lead equation as it best satisfied the econometric statistics criteria such as highest number of significant variables and highest coefficient of determination (R^2). The result showed that double log had R^2 of 0.567, implying that 56.7% of the variation in the dependent variable (marketing efficiency) is accounted for by the independent variables included in the regression model while the remaining 13.3% is accounted for by the error term or variables not included in the model.

The Age of marketers in years (X_1) was highly significant at 1% probability level and negatively influenced the marketing efficiency of the respondents. The negative relationship may be because aged marketers are often risk averse with less energy to handle series of marketing activities and conservative to adoption of innovations to improve their marketing efficiency. Household size had a direct relationship with the dependent variable and significant at 5% probability level. This implies that increase in household size will cause an increase in the level of efficiency of the respondents. Large household size is potential source of family labour in order to curtail cost of marketing. Education was positively signed and significant at 1% probability level. Education creates

favourable mental attitude for the acceptance of new practice especially of information intensive and management intensive practices (Onyenweaku, Okoye and Okorie, 2010). The effect of level of education has been variously found to be positive (Onuoha 2002 and Iheke, 2010). The coefficient of marketing experience was positive and significant at 10% probability level. The numbers of years spent in any business is an indication of the practical knowledge acquired on how he/she can overcome certain inherent problems associated with the business, (Iheke, 2010). Iheke, (2006), Okoye and Onyenweaku, (2008) an Onyenweaku, et al (2010) reported similar findings in their study.

Constraints Militating against Crayfish Marketing in the Study Area

The results in table 3 show the constraints encountered by the crayfish marketers in the study area. Poor access to credit were indicated by 98% of wholesalers and 69.7% of retailers interviewed. This agrees with this finding of Osmond (2005) who indicated that inadequate capital limits the effectiveness, efficiency and expansion of any business hence affecting their profitability. This assertion contradicts Nwaru, (2004) and Iheke, (2010) who opined that most farmers divert this credit to non-agricultural uses. About 78% of wholesalers and 69% of retailers interviewed noted high cost of transportation. The high cost of transportation could be due to frequent increment in the fuel pump price and also un-tarred roads which characterize rural roads in Nigeria. This finding agreed with Akubuilo (1982), who noted that bad road conditions and unstable rise in petroleum products are responsible for the high cost of transportation with subsequent low profit accruing. Moreso, Animpuye (2007) reported that high cost of transportation limits the bulk of fish being evacuated to urban markets for sales.

Table 4 also reveals that 81.7% wholesalers and 93% of retailer encountered the problem of seasonal supply of fish in the study area. This is in line with Ndinachi, (2009) who opined that seasonality in the supply of fish affects the volume of trade for both wholesaler and retailers, in effect low profit made. About 84% of wholesalers and 79.5% of retailers indicated price fluctuation. Fish availability for sales depends on rainfall patterns, labour and harvesting equipment. These make the commodity price unstable. Lots of wastes are incurred due to glut, particularly among fresh fish marketers (Greenfacts, 2004). Majority of wholesalers (90%) and retailers (86.7%) faced the problem of high cost of warehouse. Eyo, (2001) agreed with this findings, who reported that warehouse encourage bulk purchases of fish to enhance economic of scale. About 78.6% of wholesalers and 98.3% of retailers were constrained with poor storage facilities.

This finding is consistent with Lale, and Adu Nyako (1991), who pointed that poor storage facility, leads to perishability of fish subsequently huge losses. Many of wholesalers (45%) and retailers (47%) encountered the problem of poor marketing. Poor sales could lead to decrease in income. (Abbot, 1999).

Conclusion

The research of this study shows that marketing of crayfish is influenced by variables such as; age, household size, education and marketing experience. The results therefore call policies aimed at ensuring that improved facilities are distributed to the marketers. Formation of cooperatives (crayfish clusters) is advocated to increase production. Policies that would reduce transport and storage cost should be pursued. Such policies should be tailored towards the provision of good access roads, rehabilitating damaged roads, providing storage facilities such as cold rooms and warehouses at affordable storage rates. Access to affordable agricultural marketing loans should be enhanced through the provision of minimal and interest free loans. Also, our unemployed youths and young school leavers should be encouraged through awareness campaigns to venture into fish marketing as a profitable venture in the study area. Private sectors and non-governmental organization should ensure special training for the marketers to enhance high productivity in crayfish marketing. High labour cost which is a major constraint should be addressed by the Federal government by creating the enabling environment through agricultural mechanization.

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Table 1: Socio economic Distribution of the respondents

Variable	Wholesalers Frequency	Percentage	Retailers Frequency	Percentage
Gender				
Male	20	40	20	28.6
Female	30	60	70	71.4
Total	50	100	90	100
Age				
1 – 20	13	6	5	7.1
21 – 41	25	50	35	50.0
42---62	12	24	20	14.3
63----70	00	20	10	18.6
Total	50	100	60	100.0
Marital Status				
Single	11	22	12	17.1
Married	24	38	45	50.0
Divorced	07	14	10	14.3
Widows	08	16	13	18.6
Total	50	100	70	100.0
Educational level				
No Formal Education	07	14	17	24.3
Primary(complete)	18	36	25	35.7
Primary(Incomplete)	03	06	09	12.9
Secondary	17	34	14	20.0
Tertiary	05	10	05	7.1
Total	50	100	70	100.0
Household Seize				
1----5	05	10	07	10
6----11	26	52	35	50
12----17	17	34	23	32.9
18--23	02	04	05	7.1
Total	50	100	70	100.0
Marketing Experience				
Less than 5	03	06	07	10.0
6---11	20	40	30	42.9
12 – 17	15	30	20	28.6
18 – 23	12	24	13	18.5
Total	50	100	70	100.0

Source: field survey, 2016

Table 2: Gross Margin Analysis of crayfish marketing in Uruan Local Government Area of AkwaIbom State (Average monthly marketing cost and return)

Items	Wholesalers	Retailers
Purchase Price/Basket	180,000	250,000
Variable cost		500
Loading cost	1200	
Offloading cost/Tax	700	400
Transportation cost	1500	700
Feeding cost	600	300
Telephone cost	500	200
Basket cost	600	300
Total variable cost	**185,100**	**252,100**
Fixed cost		
Market stallage fee	600	500
Maintenance fee	450	350
Total fixed cost (TFC)	**1050**	**850**
Total marketing cost	187,200	253,800
Selling price/unit	317,650	295,258
Gross marketing margin		
TR-TVC	232,550	88,158
Net return (TR-TC)	**230,450**	**86,358**
Benefit cost ratio		
BCR = TR		
TC	1:3	1:2

Source: Field Survey, 2016

Table 3: Regression Estimates of Effect of Socio-Economic Characteristics on Marketing Efficiency

Variables	Linear	+Double log	Semi-log	Exponential
X_1 Age of marketers (Yrs)	-0.0326	-2.879	-2.067	-2.14083
	(-31650)***	(-23.594)***	(-3.766)***	(-27.13279)
X_2 Household size(N)	0.0075	0.019	0.393	0.002
	(2.0201)*	(6.009)***	(2.38)	(2.490)**
X_3 Level of education (yrs)	0.008	0.0127	0.237	1.320
	(3.904)***	(5.9112)***	(4.900)***	(4.892)***
X_4 Marketing exp. (yrs)	0.0656	0.2641	0.0145	0.957
	(1.9887)	(1.8468)*	(1.9266)*	(1.699)*
X_5 Transportation (Number))	-0.0139	-0.0249	-0.2597	-0.441
	(-0.4618)	(-0.4438)	(-0.1300)	(-0.908)
X_6 Membership of Organization(Number)	-0.054	-0.765	-0.0864	-0.0520
	(-1.567)	(-1.552)	(-1.9448)*	(-2.2916)*
X_7 Credit (N)	-0.0520	-0.113	-0.1955	-0.2518
	(1.2916)	(-1.315)	(-1.56064)	(-0.7341)
R^2	0.337	0.567	0.352	0.347
F-ratio	0.457	0.442	0.241	0.441

Source: Data analysis, 2016. Note: figures in parenthesis are the t-values,*,**,*** are significant at 10%, 5% and 1% level respectively

Table 4: Distribution of respondent according to Constraints militating against Crayfish Marketers in the Study Area

	Wholesalers		Retailers	
Variables	Frequency	Percentage	Frequency	Percentage
Poor access to credit	70	98	60	69.7
High cost of Transportation	63	78	42	69
Seasonality of supply	68	81.7	85	93
Price fluctuation	75	84	53	79.5
High cost of ware house	78	90	52	86.7
Poor storage facilities	67	78.6	63	98.3
Poor marketing	39	45	31	47

* Multiple Responses. Source: Field Survey, 2016