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Esiobu, N. S., Nwosu, C. S. and Onubuogu, G. C.

Imo State University, Owerri, Nigeria.

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Economics of Pineapple Marketing in Owerri Municipal Council Area, Imo State, Nigeria

Esiobu, N. S., Nwosu, C. S. and Onubuogu, G. C.

Imo State University, Owerri, Nigeria.

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Abstract

This study was conducted to analyze the economics of pineapple marketing in Owerri Municipal Council Area, Imo State, Nigeria. The study identified socio-economic characteristics of pineapple marketers, ascertained marketing channels, determined effects of socio-economic characteristics on profit margins, determined the marketing margin, ascertained the marketing efficiency, examined the costs, return and profitability of pineapple marketing and identified the constraints associated with pineapple marketing. Three markets from the study area were selected for this study. Sample size comprised 60 household pineapple marketers. Structured questionnaire were used in the collection of data. Data collected were analyzed using descriptive statistical tools, gross income analysis and multiple linear regression analysis. Findings revealed that pineapple marketing embraced more of able young persons as the mean age was found to be 34.12 years. Results also revealed that pineapple marketing is dominated by females (96.67%). Most (80.00%) of the pineapple marketers were married with an average household size of five persons. Three product flow channels exist for the pineapple marketing with the major channel being that from the producers through wholesalers to retailers and ultimately to the final consumers. The marketers earned a positive net return of ₦770.00 and the return per capital was ₦0.55. Results from the estimated multiple linear regression analysis revealed that age (2.934), marital status (5.149), education (5.184), marketing experience (3.272), monthly income (2.676) and membership of cooperative (3.096) were found to be the significant factors influencing profit margin and the relationships were statistically significant at 1% level of probability. The F-Ratio (57.298) revealed the overall significant of the model which led to the rejection of the null hypothesis hence concludes that the socio-economic characteristics of pineapple marketers have a significant influence on their profit margins. Findings also revealed that pineapple marketing is efficient and lucrative in the area. However, inadequate capital, price fluctuation and inadequate storage facilities are the major constraints militating against its efficient marketing system. It was therefore recommended that effective agricultural policies and programmes should focus on marketers easy access to credits. Infrastructural facilities such as good feeder roads should also be provided for the marketers to reduce spoilage and distressed sales. Marketers should be encouraged to form agricultural marketing cooperatives to eliminate the exploitative activities of some middlemen. Ultimately, processing companies should be established in the area so as to bring processors closer to the marketers. This will reduce the rate of perishability, shorten the chain of distribution and enable marketers to receive better prices at reduced transportation cost.

Keywords: Pineapple, Economics, Marketing, Owerri, Imo State

For corresponding author:

E-mail: info@esxpublishers.com

Subject: 0514-0235

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Introduction

Pineapple (*Ananas comosus*) is the third most important tropical fruit in the world after banana (*Musa spp.*) and Citrus spp. (IITA, 2010; FAO, 2012 and CBN, 2012). Important producing countries are Brazil, India, China, Nigeria, Mexico and Colombia. They produce the fruit primarily for fresh fruit markets and processing industry. Nigeria ranked 6th on the list for world pineapple production with nearly 800,000 tonnes produced annually (IITA, 2010 and FAO, 2012). However, agricultural marketing is part of agricultural production without which agriculture remains stagnant (Abbot, 2000; Arene, 2003; Keerthi, 2008; Munonye, 2010; Amao *et al.*, 2011 and Eze and Orebiyi, 2011). According to Ubi *et al.* (2005) and Ubi *et al.* (2008) the crop is drought tolerant and well adapted to the tropical acid sand with pH ranging from 4.5 to 6.5 and the crop is propagated by new vegetative growth. Hasegawa *et al.* (2002) revealed that pineapple is a delicious fruit with fine flavour and high nutritive value, its contents makes it a good raw material in confectionary industries for making sweet, fruit drinks and household food additives. It has medicinal value and a fragment consumption of pineapple juice immunises one against fever parasite (Hasegawa *et al.*, 2002 and Amao *et al.*, 2011). Pineapple is used mainly as food in the form of snacks and fruit-juice, while in most parts of the world the fermented juice is used to make vinegar and alcoholic spirit. Pineapple leaves are used to make cloth and rope, while the whole plant is used as a source of energy (Sampson, 2001; Ubi *et al.*, 2005 and Ubi *et al.*, 2008).

Agricultural marketing dictates how often the producer will increase and or produce their yield (Oluwatayo *et al.*, 2003). A good marketing organization directs production along the most suitable needs of the consumers (Abbot, 2003 and Munonye, 2010). The market mechanisms have to be efficient to be able to play the role of propelling yield. An efficient market system therefore is the one that provides satisfactory and cheap services to consumers or one that maximize the ratio of input and output of marketing (Arene *et al.*, 2003; Munonye, 2010 and Olayide, 2011). Thus, marketing of pineapple is as essential as its production since an effective marketing system helps to harmonize demand and supply and stimulate production (Adesope, *et al.*, 2010). Apart from Nigeria's agriculture not producing enough to meet the food requirements of the increasing population, one of its greatest problems is that of inadequate vitamins in the diet of a large proportion of the population, especially in the rural areas which constitute over 70% of the country's population (Ojo, 2003 and Onaiwu, 2011). In realization of the importance of vitamins, the various governments in Nigeria have been pursuing programmes at the national, state and community levels to boost the production of fruits and vegetables (Ojo, 2003). For example, the Federal Government of Nigeria, desirous of boosting the level of vitamin in-take among its citizenry, immediate poverty alleviation, and rapid agricultural development, supported the production and distribution of 10,000,000 suckers of pineapple, which can be planted on 250 hectares of land (FAO, 2012 and CBN, 2012).

Beside the essential nutrients pineapple supply to the diet, the tremendous contribution pineapple make to our foreign exchange earning explains why concerted effort should be devoted to its cultivation, improvement, marketing, processing and storage (Ojo, 2003 and Hasegawa *et al.*, 2002 and Amao, *et al.*, 2011). It is therefore pertinent that this study analyzed the economics of pineapple marketing in Owerri Municipal Council Area of Imo State, Nigeria.

Furthermore, research development and investment effort have often been focused primarily on production (Njoku, 2000; Keerthi, 2008 and Amao, *et al.*, 2011). Agricultural production in Nigeria relies heavily on the input of human labour (Nwajiuba, 2012). Production increases without a well-developed marketing system lead to all possible gains from the production effort going into the drains of post-harvest losses (Amao, *et al.*, 2011 and Eze and Orebiyi, 2011). Often, marketers are compelled if not forced to sell their fruits at a very low price to avoid huge wastage or total loss and this reduces their marketing margins and marketing efficiency (Onaiwu, 2011 and Amao *et al.*, 2011).

Also, a lot of studies have looked at economics of pineapple production in Nigeria (Njoku, 2000; Sampson, 2001; Hasegawa *et al.*, 2002; Ojo, 2003; Ubi *et al.*, 2008; Keerthi, 2008 and Onaiwu, 2011). Others have focused on the socio-economic implications and marketing channels of pineapple (Njoku, 2000; Keerthi, 2008; Adesope, 2010; Amao *et al.*, 2011 and Eze and Orebiyi, 2011). There exists little or no study in Nigeria in general and Imo State in particular that has focused on the economics of pineapple marketing. This has left a void in research. Empirical evidence remains largely scanty, isolated and devoid of in depth analysis of the marketing margins, channels, efficiency costs and return and constraints of pineapple marketing. This has caused a wide gap in knowledge. Hence it has become pertinent to economically analyze pineapple marketing in Owerri Municipal area of Imo State, Nigeria. The specific objectives of the study include describing the socio-economic characteristics of marketers; ascertaining the marketing channels; determining the effects of socio-economic characteristics of on profits margins; determining the marketing margin; ascertaining the marketing efficiency; examining the costs, return and profitability of pineapple marketing and identifying the constraints associated with pineapple marketing in Owerri Municipal area of Imo State, Nigeria.

From the limitation of the study, constraints on time and resources of the researcher forced to select only sixty respondents from the study area for the study. Hence results are largely applicable to other areas of the State not selected. The questionnaire and personal interview methods of data collection require the respondents to recall from their memories about their pineapple marketing practices. Hence, the findings may be subject to memory lapses of the respondents. The marketing prices realized differ from respondent to respondent, but was calculated and used in obtaining the final result of the study. Hence, the findings may be subject to inconsistency in other areas where similar condition prevails. However, these limitations did not in any way, impair to reliability of the findings and could therefore be taken to represent the true situation in the study area.

Materials and Methods

This study was conducted in Owerri Municipal Council Area of Imo State, Nigeria. Owerri Municipal Council Area is an urban area with one autonomous community made up to five (5) indigenous kindred namely; Umuoroonjo, Amawom, Umuoneeche, Umuodu and Umuoyima in the order of seniority under the leadership of one paramount ruler. Owerri Municipal Council covers areas such as World Bank, Aladinma, Ikenegbu, Prefab, Tetlow, School Road, Wetheral and Douglas. Owerri Municipal Council is located in the humid tropical ecological zone of Nigeria between latitudes 5° 25'N and 50° 23'N and longitude 7° 2'E and 149° 33'E of the Greenwich meridian (Metrological Unit, Ministry of Land and Survey, 2006 and Microsoft Corporation, 2009).

It is bounded on the North by Amakohia, North-east by Uratta, East by Egbu, South-east by Naze, South by Nekede and North-west by Irrete. Owerri Municipal Council has two geological regions namely; a coastal plain and a plateau portion (Imo-ADP, 2004). The area has a mean annual rainfall of 2250mm-2500mm (Imo State Planning and Economic Commission, 2004 and Microsoft Corporation, 2009). The mean temperature range is 25°C to 27°C and its relative humidity is 80%. The vegetation is typical rainforest with a total land mass of 58km² (Microsoft Corporation, 2009) and a population of 127,213 persons (NPC, 2006 and NBS, 2007). Many businesses exist in the municipal council because of the vantage position it occupies as the seat of Imo State government and therefore the epicenter of all economic, social and religious activities in the state but most of citizens are engaged in trading and civic services.

Purposive sampling technique was used for the study. Three markets namely Ekeonunwa Market, New Market and Relief Market in the municipal council area were chosen subjectively because it is the major markets in the study area. Twenty five pineapple marketers were randomly selected from each of the three major markets given a sample size of seven five pineapple marketers for the study. The main tool for data collection was the structured questionnaire and it was supplemented with verbal interview in places where the respondents could neither read nor write. However, the study found only sixty responses valid and was used for data analysis. The questionnaire sought for information on socio-economic characteristics of the pineapple marketers, quantities of pineapple purchased, costs associated with pineapple marketing and the associated problems.

Data collected were analyzed with descriptive statistics, gross income analysis and multiple linear regression analysis.

Results and Discussion

Table 1 reveals that majority (61.67%) of the pineapple marketers fell within the age bracket of 31 to 40 years. It also showed that (31.67%) of pineapple marketers are less than 30 years, while 6.67% are 41 years and above. The mean age was 34.12 years. This is an indication that pineapple marketing is dominated by young individual who are active and within the productive age group. The result is similar with the finding of Aruna (2006) and Ibekwe *et al.*, (2010) who reported that this age group constitute the major productive work force and that young individual have potentials to withstand stress, risk and have strength to face tedious task associated with pineapple marketing than the too young or too old individual. Entries in Table 1 also show that majority (96.67%) of the pineapple marketers were females while 3.33% were males. This agrees with the confirmation that agribusiness especially in sub-Saharan Africa is turning out to be female activities (DAC, 2005 and FAO, 2007). Table 1 also reveals that majority (73.33%) had secondary education, 18.33% had primary education, 8.33% had tertiary education while 6.67% had no formal education. The mean educational level was 10.43 years. The result implies that approximately 93.33% of the marketers had trainings in formal educational institutions which no doubt increases their literacy levels. It is expected that the higher level of education will contribute significantly to decision making of a marketers. This implies that exposure to higher education increases marketing efficiency, improves access to market information as well as enhances marketers ability to understand and evaluates new marketing technique (Anyanwu, 2012). This is in line with the findings of Onyenweaku and Nwaru (2005) and Onyenucheya and Ukoha (2007) that high level of education is an added advantage in terms of acquiring loan especially in formal financial institution. The distribution of the marketer according to marital status is also reported in Table 1 and it reveals that majority (80.00%) were married, (13.33%) were single while 8.33% were widowed. This shows that fruit marketing is the business of married individual. This finding is supported by previous studies by Adesope *et al.*, (2009) that pineapple marketing is dominated by married individuals while the unmarried ones migrate to the city in search of white-collar jobs.

Result in Table 1 also indicates that majority (50.00%) had below 10 years of marketing experience, (48.33%) had 11-19 years of marketing experience while 1.67% constitute those with 20 years of marketing experience and above. The average marketing experience was calculated as 13.21 years. Experience in marketing is a key factor in marketing efficiency, margin and the longer the years of marketing experience, the more exposed the marketer becomes and the more efficient and effective the marketer is expected to be in allocation of resources (Nwaogu, 2006; Adeola *et al.*, 2008 and Eze and Orebiyi, 2011). Table 1 also shows that majority (58.33%) of pineapple marketers had household size of 1 to 5 persons while 41.67% had household size of 6 to 10 persons. The mean household size was 5.5 persons. The finding is consistent with Efiog (2005) and Adegbite (2008) that reported that relatively large household size enhances the availability of labour. This implies that the pineapple marketers had access to family labour and this therefore explain why the use of hired labour in small-scale marketing enterprise is very low as observed by (Idiong, 2005). A household comprises all persons who generally live under the same roof and eat from the same pot (FOS, 1985). Lipsey (1986) also defined a household as all people who live under one roof and who make or are subject to others making for them joint financial decision. For the purpose of this study, a household comprises the head, the wife/wives, children and other dependents that live in the same house.

Marketers place of purchase are also reported in Table 1. It shows that majority (96.67%) of pineapple marketers buys the pineapple they marketed within Imo State while 3.33% buys theirs outside Imo State. The finding is consistent with

Anyanwu (2003) and Oladejo (2009) that reported marketers who buy the product they market outside the State buys in larger quantities hence are the wholesalers in the business. Table 1 also indicated membership of cooperative it reveals that (46.67%) of pineapple marketers belongs to different group of pineapple marketers association in the market area while 56.67% do not belong to any pineapple marketers association. Ajibefun and Aderinola (2007); Ashagidigbe *et al.*, (2011) and Anyanwu (2012) have argued that membership of cooperative affords marketers the opportunity of sharing information on modern marketing strategies and to help members financially. Table also show that majority (43.33%) of pineapple marketers make an average income between below ₦20,000, (26.67%) make ₦21,000 to ₦40,000, 21.67% of the marketers make an average of ₦41,000 to ₦60,000, 6.67% make an average income of ₦61,000- ₦80,000 while 1.67% make an average income of ₦81,000 and above. The average income was ₦32, 821.00. Higher income increases the purchasing power hence marketers with the higher monthly income are more likely to purchase more goods which would increase profit margin and marketing efficiency (Adeola *et al.*, 2008; Eze and Orebiyi, 2011 and Onwumere *et al.*, 2011).

Ultimately, Table 1 reveals that majority (58.33%) of pineapple marketers sold at least 4 baskets of pineapple per week, 23.33% sold 3 baskets per week, 10.00% sold 2 baskets while 8.33% sold 1 basket per week. The average quantity sold per week was 3.7 baskets. The finding is consistent with Eze and Orebiyi (2011) who reported that the demand for pineapple is high in the study area. The marketing channel for the commodity reveals the nature of the market organization (Keerthi, 2008; Amao *et al.*, 2011 and Eze and Orebiyi, 2011). In order to determine the influence of pineapple marketers' socio-economic characteristics on profit margin, a multiple regression analysis was carried out in four functional forms (linear, semi-log, double-log and exponential forms). Based on the statistical significance of the coefficient goodness of fit and the economic theory that supports marketing concept, the double-log function was chosen as the lead equation. The double-log regression function was chosen as the lead equation based on the value of $R^2(0.942)$, F-Ratio value(57.298), conformity of the signs with *a priori* expectations of the model and has the highest number of significant variables, that is six variables. The coefficient of multiple determinations (R^2) was found to be 0.942 (94.2%). This is an indication that 94.2% of the variation in the profit margin of the pineapple marketers was explained by the explanatory variable. **Age (X_1):** Age was found to be positively related to profit of the pineapple marketers. This implies that older marketers make more profit than their younger counterparts. The reason for this may be that pineapple marketing demands much strength and energy which could be easily supplied by the older pineapple marketers. The relationship is significant at 1% level of probability.

Marital status had a positive coefficient with the profit of the pineapple marketers. This implies that married people make more profit than their single counterpart. The reason for this could be that married marketers easily supply the capital and labour needed to improve the marketing efficiency and profit margin for the pineapple marketing in the study area. The relationship is significant at 1% level of probability. Education had a positive coefficient with the profit margin of the marketers hence it is statistically significant at one percent level of probability; the result was consistent with the findings of Coelli and Battese, (2005) and Ashagidigbe *et al.*, (2011) that reported that marketers with formal education have greater ability to adopt new technology, ideas, information and marketing strategies to maximize profit. The household size had a positive relationship with profit. This could be that increase in household size makes for increase in labour hence ensures expansion of marketing outlet which ensures proper coverage of market and reduces cost of labour (Yusuf and Malomo, 2007). Experience had a positive relationship with profit. This implies that an experienced marketers knows the problems involved and are in a better position to use new strategies to overcome them which would positively increase profit margin and marketing efficiency. The relationship is significant at 1% level of probability. Monthly income had a positive relationship with profit margin and it is significant at 1% level of probability. This implies that increase in income increases the purchasing power of the pineapple marketers hence marketers with the highest monthly income are more likely to purchase more of the pineapple which would increase profit margin. Place of purchase had a positive coefficient with profit. This implies that marketers who purchase the pineapple they market from within the Imo State made less profit than those who purchase theirs outside Imo State hence it could be that marketers who purchase the pineapple they market outside Imo State are the wholesalers from whom marketers that purchase within the Imo State buys from. Membership of cooperative had a positive coefficient with profit and it is significant at 1% percent level of probability. This implies that marketers who belong to an association gather more information, credit and knowledge on how to enhance profit margin and they could also exchanges labour (Ashagidigbe *et al.*, 2011). Gender had a negative relationship with profit. This implies that more female are involve in pineapple marketing hence the result was inconsistent with the finding of Ajibufun, *et al.*, (2002) who reported that marketing is a physical enterprise with a positive influence if male actively dominate it.

The F-ratio (57.298), which determines the overall significance of the regression model, is highly significant at 1% level hence we conclude that the pineapple marketers' socio economic characteristics had a significant influence on profit. The results in Table 3 revealed that the marketing cost for a basket of pineapple is estimated to be ₦1,150.00 while a net margin of ₦1,700.00 was obtained for the same basket of pineapple. The findings showed that net margin is a good one hence as the quantity of pineapple to be sold increases, the net margin increases as well. The results in Table 3 revealed the majority 59.05% of the total variable cost of pineapple marketing is the costs of pineapple. The contribution of the fixed cost was low compared to the variable costs incurred. The fixed cost contributed only 12.92% of the cost of pineapple marketing. The return on capital invested was found to be ₦0.55. It can be inferred that for every naira invested, there is fifty-five kobo returns for that marketing in the study area. Table 3 indicates a total revenue (TR) of ₦5,850.00, gross income (GI) of ₦1,430 and a net income (NI) of ₦770.00. From the marketing efficiency result obtained, the market is efficient hence the finding is consistent with Eze and Orebiyi (2011) that examine the profitability of pineapple marketing in the study area.

The Costs and Return Analysis of Pineapple Marketing are presented in Table 4 while the constraints faced by pineapple marketers in the study areas were ranked according to their severity in Table 5. The inadequate capital was the most serious constraint of pineapple marketers with 96.67% of the pineapple marketers identifying it. Inadequate storage

facilities ranked second (91.66%). The perishable nature of the pineapple fruit was the serious constraint of pineapple marketers. Pineapple gets spoilt easily when not properly stored and this accounts for the severe losses suffered by pineapple marketers in the study area. Also 86.87% of the pineapple marketers complained of price fluctuations which ranked third on the list of constraints. This constraint left many marketers unaware of frequent changes in prices of pineapple. Seasonality of production was the fourth on the list with 78.33% of pineapple marketers identifying the constraints. Furthermore, 71.67% of pineapple marketers complained of inadequate price information as they are usually uninformed about new changes in price of pineapple by their wholesaler, suppliers or farmers.

Ultimately, poor feeder road (68.33%) and inadequate of shed or shop (63.33%) ranked sixth and seventh respectively. Fighting these constraints will be vital in enhancing pineapple marketing in Imo State and maybe in Nigeria.

Conclusion and Recommendations

The study has analyzed the economics of pineapple marketing in Owerri Municipal Council Area, Imo State, Nigeria. Based on the findings age (2.934), marital status (5.149), education (5.184), experience (3.272), monthly income (2.676) and membership to association (3.096) were found to be the significant factors influencing profit margin and the relationships were statistically significant at 1% level. The F-Ratio (59.298) revealed the overall significant of the model which led to the rejection of the null hypothesis hence concludes that the socio-economic characteristics of pineapple marketers have a significant influence on their profit margins. Increase in them, will improve increases efficiency. The net return could positively increase if the marketers are encouraged to form agricultural marketing cooperatives in order to eliminate the exploitative activities of the middlemen so as to increase purchase as the fruit is in high demand in the study area. It was recommended that good feeder roads should be constructed and the old ones rehabilitated either by the government or communities linking rural areas for easy transportation of pineapple produce since the product are bulky and perishable and this will reduce the transportation cost as complained by the marketers, processing companies/facilities should be established in the area. This could be done by government or private companies for easy processing of raw materials into juice as well as bringing processors closer to the marketers. This will reduce the rate of perishability, shorten the chain of distribution and enable marketers to receive better prices at reduced transportation cost, new shops/sheds should be constructed and the old ones rehabilitated in the market areas and at reduced price for the marketers. This could be done by government or private companies as this would reduce the high scorched of sun and heavy down pull that affects marketers while they sell their product, the government or private companies should allocate more resources and research funding to social researchers to enhance research on pineapple marketing within and beyond the study area, the entire marketing system should be restructured. Marketers should be encouraged to form agricultural marketing cooperatives in order to eliminate the exploitative activities of the middlemen and ultimately, the marketing agencies should be enforced by government to take care of the marketing problems that are associated with the speculative activities of the middlemen.

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Tables

Table 1: Socio-economic characteristics of Marketers

Variables	Frequency	Percentage (%)
Age (years)		
Less than 30	19	31.67
31-40	37	61.67
41 and above	4	6.67
Total	60	100.0
Gender		
Male	2	3.33
Female	58	96.67
Total	60	100.0
Educational Level (Years)		
No formal	4	6.67
Primary	11	18.33
Secondary	40	66.67
Tertiary	5	8.33
Total	60	100.0
Marital Status		
Married	48	80.00
Single	8	13.33
Widowed	5	8.33
Total	60	100.0
Experience (Years)		
Less than 10	30	50.00
11-19	29	48.33
20 and above	1	1.67
Total	60	100.0
Household Size (Number of Person)		
1-5	35	58.33
6-10	25	41.67
Total	60	100.0
Place of Purchase		
Imo	58	96.67
Outside	2	3.33
Total	60	100.0
Membership of Cooperative		
Member	28	46.67
Non member	32	53.33
Total	60	100.0
Average Income (Naira)		
Less than 20,000	26	43.33
21,000-40,000	16	26.67
41,000-60,000	13	21.67
61,000-80,000	4	6.67
81,000 and above	1	1.67
Total	60	100
Quantity Sold/Week (Baskets)		
1	5	8.33
2	6	10.00
3	17	28.33
4	35	58.33
Total	60	100.0

Average age = 34.12 years; Mean Educational level= 10.43 years; Average Marketing Experience = 13.21 years; Mean household size= 5.5 persons; Average Income = ₦32, 821.00; Average quantity sold per week = 3.7 baskets Source: Field Survey Data, 2013

Table 2: Regression Analysis of the Influence of Socio-economic Characteristics on Profit Margin of Pineapple Marketers

Explanatory Variable	Double-Log	Semi-Log	Linear	Exponential
Constant	7.608 (16.272)***	-864.608 -(15.824)***	54153.188 (5.220)***	-1009.230 (-0.108)
Age (X ₁)	0.684 (2.934)***	1216.82 (1.092)*	52776.212 (1.524)**	1874.012 (0.639)
Marital Status (X ₂)	1.536 (5.149)***	1657.22 (0.097)	1522.262 (2.965)***	3501.652 (1.363)**
Education (X ₃)	0.108 (5.184)***	345.624 (3.304)***	9381.90 (6.734)***	345.002 (6.528)***
Household Size(X ₄)	-0.015 (-0.625)	-8379.28 (-0.757)	-682.953 (-0.310)	-9343.829 (-0.057)
Experience (X ₅)	0.598 (3.272)***	1287.11 (1.006)*	-2581.900 (-0.048)	5837.44 (2.278)**
Monthly Income (X ₆)	1.655 (2.676)***	2348.53 (2.829)***	1638.223 (2.968)***	8461.12 (0.693)
Place of Purchase (X ₇)	0.245 (0.104)	8669.729 (5.602)***	2162.16 (0.211)	-3286.34 (-0.584)
Membership of Cooperative (X ₈)	1.787 (3.096)***	5928.11 (2.539)***	225.028 (5.062)***	6.001E-6 (9.149)***
Gender (X ₉)	-0.402 (-0.321)	9848.32 (1.982)*	2738.287 (0.010)	(5210.846) (1.239)
R ²	0.942	0.867	0.699	0.645
F-Ratio	57.298***	37.771***	7.578***	53.380***

Source: Computer Printout of SPSS (2013); values in Parenthesis are t-values *Statistically Significant at 10%; **Statistically Significant at 5%; *** Statistically Significant at 1%

Table 3: Marketing Margin for Pineapple in Owerri Municipal Council Area, Imo State

Items	Average Cost/Basket (₦)	Percentage (%)
Marketing Cost		
Transportation	500.00	43.47
Labour	350.00	30.43
Storage	300.00	26.08
Total Variable Cost	1150.00	
Marketing Margin		
Purchase price	3000.00	
Sales price	5850.00	
Gross margin	2850.00	
Net margin	1700.00	

Source: Field Survey Data, 2013

Table 4: Costs and Return Analysis of Pineapple Marketing

Items	Average Cost/ Basket (N)	Percentage (%)
Total Revenue	5850.00	
Variable Costs		
Transportation	500.00	9.84
Storage	300.00	5.90
Labour	350.00	6.88
Acquisition Cost	3000.00	59.05
Loading Cost	150.00	2.95
Off-Loading	120.00	2.36
Total Variable Cost	4420.00	
Fixed Cost		
Depreciation on Basket	150.00	
Depreciation on Knife	10.00	
Depreciation on Shop/Shed	500	
Total Fixed Cost	660.00	12.92
Total Cost (TFC+TVC)	5080.00	
Gross Income	1430.00	
Net Income	770.00	
Return on Capital Invested	0.55	
Marketing Efficiency	1.15	

Source: Field Survey Data, 2013

Table 5: Frequency Distribution of Constraints Associated With Pineapple Marketing

Constraints	Frequency**	Percentage (%) **	Rank Order**
Inadequate Capital	58	96.67	1 st
Inadequate Storage Facilities	55	91.66	2 nd
Price Fluctuation	52	86.67	3 rd
Seasonality of Production	47	78.33	4 th
Inadequate Price Information	43	71.67	5 th
Poor Feeder Roads	41	68.33	6 th
Inadequate of Shed/Shop	38	63.33	7 th

Source: Field Survey Data, 2013. **Multiple Responses obtained