Original Research Article

The Effect of Markets Channels and Prices on the Income and Livelihood of Cashew Farmers in Kombo South District of The Gambia

ABSTRACT

This study examined the effect of markets channels and prices on the income and livelihood of cashew farmers in Kombo South District of The Gambia. The study objectives of the study include the types of market channels and their impacts on the income and livelihood of cashew farmers. A sample of 384 cashew famers was selected from Kombo South District using Taro Yamane formula. The findings of the study revealed that the main actors in the cashew market channels are wholesalers and retailers who serve as middlemen and they impose prices on the farmers. The findings also indicated that the prices of number of farmers who sold their nuts for low prices are higher in 2020 than the previous year. The regression analysis also highlighted that market channels dictate prices and therefore affect the income and livelihoods of farmers.
The study therefore recommended that Cashew farmers should form cooperative societies as this will be the easiest channel through which their predicaments can be heard, and other benefits such as insecticides, fertilizers, soft loans and even grants can be accessed. The government should assist farmers in seasons where international prices are very low to prevent poverty and hunger and value addition in cashew nuts should be a priority especially with Food Technology Services (FTS) of the Department of Agriculture (DoA).

Keywords: Effect, Markets Channels, Prices, Income, Livelihood, Cashew Farmers

1.0 INTRODUCTION

The cashew tree (*Anacardium occidentale*) originated from Brazil and was introduced to Mozambique and then later India in the 16th century by the Portuguese, as a way of mitigating coastal erosion. Kehinde, Adebisi, Alegiledoye, Ajani and Shofuyi, (2015) opined that elephants contributed to the dispersal of cashew nuts as they eat the whole fruit with seeds which are deposited with their feces.

Cashew is a close relative of poison ivy and mango. Cashew trees can start bearing fruit in their third or fourth year and can provide mature yield in their seventh year if the right conditions are provided (Adeigbe, Olasupo, Adewale, & Muyiwa, 2015). Kehinde et al (2020) also noted that a cashew tree is capable of living for 50-60 years, most trees can produce nuts for about 15-20 years with an average yield of 7-11 kg per annum.

Cashew is majorly produced for millions of small-scale farmers globally. Similarly, the global annual production is estimated at 2.1 million tons of raw nuts (RCN) with an estimated value of US$ 1.5 -2 billion. The major cashew production regions include Africa, India, Vietnam and the Philippines. A single cashew nut consists of about 35-45% kernel and around 55-65% of shells. The shells contain 15-30% oil. A ton of nuts contains around 200 kg kernels and 180 kg of oil (cashew nut oil or cashew nut shell liquid "CNSL").

In 2016–2017 harvest seasons, the global cashew production was reported to be 30 to 40 % shorter (125,000 to 250,000 tons) than its average years. African cashew production retains its average yield; however, due to lack of processing facilities in the continent, cashew kernel supplies remained low (Fitzpatrick, 2019). India a big cashew producer had a favorable crop season in 2016/17. However, domestic consumption of cashew nuts increased and therefore stopped its export of cashew nuts.

The main exporting countries of in shelled cashew nuts from West Africa are Ghana, Nigeria and the Ivory Coast. Ghana alone had a net worth of about $900M from exporting raw cashew nuts in 2016. The major export destination of raw cashew nuts from West Africa is India and Vietnam, which are two most significant importers of raw cashews and biggest exporters of shelled cashew. Nigeria the number one producer and exporter of cashew nuts in Africa cover about 20% of world in-shell cashew production (African Research Bulletin, 2015).

The Gambian cashew sector ranks; 26th in production quantity in tons, 27th in area harvested and 8th in yield (hectogram per hectare) in 2017. The sector has shown tremendous potential in the last 20 years as an alternative crop to diversify production and exports from the current concentration on groundnuts. The sector's performance has grown steadily in the last few years rising from 2,928 tons in 2013 to 3,065 in 2017 (Food and Agriculture Organization of the United Nations – FAOSTAT, 2016) sustained by the global demand for cashews. The sector's future development depends on the ability of sector stakeholders to address and correct key challenges and seize emerging opportunities in The Gambia. Without concerted efforts to address critical issues and identify market development opportunities the sector's potential will remain untapped instead of leveraging its potential and capacity.

The three main cashew products that are traded on the international market include - raw nuts, cashew kernels and cashew nut shell liquid (CNSL), only the cashew apple is generally processed and consumed locally, it can be eaten fresh, juiced, preserved, or dried. Cashew apple

has more vitamin C than citrus fruit; it is rich in vitamins and minerals. According to Mozafar, (2018) the vitamin C (ascorbic acid) content in a cashew apple is almost 10 times that of pineapple and four times that of oranges. The fruit has medicinal properties. It is used to treat scurvy and diarrhea, and it has the potentials in preventing cholera. Fusco, Siracusa, Peritore, Gugliano, Genovese, D' Amico, and Di Paola (2020) also highlighted that the extracts from the fruit can be used to treat neurological pain and rheumatism.

Cashew farmers are key actors in the value chain; in general, they do not set the international price for cashew and are therefore mostly affected. Several factors influence the overall price of cashew nut from one year to the next. The factors range from the world supply and demand, exchange rates, weather, previous production levels, government policies, regulations, or port (Gilleo, Jassey & Sallah, 2011). These factors have affected cashew farmers over the years immensely.

In other to strengthen the cashew value chain and increase the incomes of rural populations in the targeted zone projects such as The Gambia River Basin Cashew Value Chain Enhancement Project (CEP) was commissioned and funded through a US Department of Agriculture (USDA) to strengthen farmer-to-farmer learning and builds on the existing knowledge of cashew production and marketing rather copying from outside models, which are difficult to adapt to cultural and environmental conditions. Farmers also participated in farmer field schools and addressed issues of business innovation, marketing, organization, and production and post-collection handling (Gilleo & Sallah, 2011).

Based on the production figures of cashew nuts in the Gambia from 2013-2017, farmers would have been better off than their current status and this would have also stimulated an increase in production. However due to the volatile markets and unstable price on cashew nuts yearly, the livelihoods of farmers in the Gambia seems not to have improved even whereas production has increased from 2,928 tons in 2013 to 3,065 in 2017, their income and social wellbeing remains stagnant.

Cashew farmers in the Gambia have no control over prices and as such, they are exploited at most instances. The prices of raw cashew nuts are dictated by middlemen and retailers on a daily basis. Since farmers do not have access to actual prices from the government (Ministry of Trade or Ministry Agriculture) and few or none are existing official cashew buying centres, they fall prey to the middlemen and retailers who are out to maximize profits. The parallel differences

between international and domestic markets (domestic prices can rise and fall on the same day) hinder the sectors opportunities and potentials and thus remain untapped. This can result to the loss in income and also cause postharvest losses as farmers sometimes keep their cashew nuts with the hope that prices will increase shortly which sometimes doesn't happen because the cashew harvest season is only for four months.

Takele (2010), highlighted that improving marketing facilities for crops in general and cashew sector, in particular, enable farmers in planning their production more in line with market demand, to schedule their harvests at the most profitable times, to decide which markets to send their produce to and negotiate on a more even footing with traders. Besides, a proper cashew marketing system if also enabled will increase production and market efficiency.

Therefore, this study has become inevitable because literature exists on cashew production and marketing in the Gambia but I have not come across any on the effects of market channels and prices on the income and livelihood of cashew farmers in the Gambia. Therefore, the study aims to examine the types of cashew market channels in the Gambia and to assess the effects of market channels and prices on the income and livelihood of cashew farmers in the study area.

2.0 MATERIALS AND METHODOLOGY

The study was carried out among the cashew farmers of Kombo South District of the Gambia. It is one of the nine districts of the Gambia's West Coast Region, which is located south of the River Gambia. It is located in the southwest of the Region, between Kombo Central and Kombo North.

The population of the study includes all household in the villages engaged in cashew production and marketing. According to the Gambia Bureau of Statistics GBoS (2013), there are 106,780 residents in Kombo South. A sample size of 384 respondents was selected from the population using the Yamane (1967) sample size determination formula after which generalizations were made.

2.1 Sample/Sampling Procedure

Purposive sampling techniques were used to select 20 villages from 54, these villages were selected based on their production of cashew. Simple random sampling techniques were used in the selection of respondents for the study.

2.2 Sample Size Determination

The Yamane (1967) sample size determination formula for the finite population was used in determining the sample size for this study. The formula is given as:

$$n = \frac{N}{1 + N(e)^2}$$

where:

n = Sample Size (?)

N = Study Population (670)

e = Error of Precision 95% 9318

1 = Constant

Thus;

Thus;

$$\frac{9{,}318}{1 + 9{,}318(0.05)^2}$$

$$n = \frac{9{,}318}{1 + 9{,}318\ (0.0025)}$$

$$n = \frac{9{,}318}{1 + 23.295}$$

$$n = \frac{9{,}318}{24.295}$$

n =<u>383.5</u>

To make the sample a round figure for easy distribution along with the clusters, the study selected 384 respondents.

In order to determine the number of respondents for each village, the proportional sampling technique will be used. The number of respondents per village was determined as:

p/qxr

Where:

p = the calculated sample size (384)

q = the population (9,318)

r = total number of vegetable farmers to be surveyed in each village

Table 1 shows the number of respondents across the district in the study area.

Table 1: Number of respondents from each village

Region	Name of LGA	District	Name of selected villages	Population of farmers in each village	Calculation of the number of respondents	No. of respondents
West Coast Region	Brikama	Kombo South	Bunkuling Manjako	95	p= (384/9,318 x 95)	4
			Deya Bisenti	18	p= (384/9,318 x 18)	1
			Deya Grrugory	33	p= (384/9,318 x 33)	1
			Deya Manchi	35	p= (384/9,318 x 35)	1
			Deya Nyima	155	p= (384/9,318 x 155)	6
			Faala Banding	41	p= (384/9,318 x 41)	2
			Faala Baniob	50	p= (384/9,318 x 50)	2
			Faala Bayacha	38	p= (384/9,318 x 38)	1
			Fara Kunku	786	p= (384/9,318 x 786)	32
			Gunjur Kunkujang	1193	p= (384/9,318 x 1193)	49
			Kachumeh	564	p= (384/9,318 x 564)	23
			Kenending Saibel	467	p= (384/9,318 x 467)	19
			Kunkujang Mariama	670	p= (384/9,318 x 670)	28
			Nyofelleh	1,616	p= (384/9,318 x 1616)	66
			Pacholling Malang	260	p= (384/9,318 x 260)	10
			Sambuya Konoto	2,589	p= (384/9,318 x 2,589)	106
			Sambuya Amisong	120	p= (384/9,318 x 120)	5
			Sandally	297	p= (384/9,318 x 297)	12
			Sansanding	73	p= (384/9,318 x 73)	3
			Tintinto	218	p= (384/9,138 x 218)	8
1	**1**	**1**	**20**	**9,318**		**384**

Source: Field Survey, 2021

2.3 Methods of Data Collection

Semi-Structured questionnaires (SSQ) were employed to gather data for the study.

Semi-Structured Questionnaires

A Semi-structured questionnaire was used as one of the methods of data collection for the study. The semi-structured questionnaires were designed in such a way that respondents were asked closed and open-ended questions concerning the study. The semi-structured questionnaires were divided into sections in line with the research objectives.

While the first section comprised questions on the personal attributes of respondents, the Second section comprised questions on the level nature of the cashew value chain in the Gambia, the third section housed questions on the impacts of markets and prices on the livelihood of cashew farmers in the Gambia, the fourth section was on the challenges faced by cashew farmers in the Gambia due to poor market structures and poor pricing policies while the last section asked respondents to suggest ways of improving the market structures and formulating better price policies

The researcher and his assistants personally administered the questionnaires on the face to face basis to respondents. For those who could either read or write the questions were interpreted to them and their responses recorded. A total of 400 questionnaires were administered to 400 respondents in the study area. The survey method has helped in generating first-hand data and enabled the researcher to capture the bio-social data of the respondents.

2.4 Techniques of data analysis

Data collected for the study were analyzed qualitatively and quantitatively. Data on socio-demographic characteristics of respondents, the impacts of markets and prices, the challenges faced by cashew farmers in the Gambia due to poor market structures and poor pricing policies were analyzed using statistics such as frequencies, simple percentages, mean, standard deviation figures, Pearson correlation t-test, regression analysis and chi-square based statistics. All these were done with the aid of the Statistical Package for Social Sciences (SPSS 26.0).

2.5 Limitation of the study

A study of this nature cannot be done without challenges. In the course of the study, the researcher experienced that the literacy level of most of the respondents was very low as such it was difficult administering questionnaires to them. The researcher had to hire and train research

assistants that help in interpreting the content of questionnaires to them in the local languages; this was time-consuming and added cost on the part of the researcher.

Some respondents were not willing to give information on their attributes even though the researcher assured them of confidentiality. They were skeptical of giving out information on issues like their estimated annual income and farm size.

3.0 RESULTS AND DISCUSSIONS

3.1 Demographic Characteristics of Respondents

The study collected data on the demographic characteristics of respondents including sex, age, marital status, education, farming experience, farm size and respondents' estimated annual income.

According to data obtained, 71.4% (274) of the respondents were male while 28.6% (110) were female. On the age distribution of respondents, study findings revealed that 46.9% (180) respondents fell within the age range of 20-35 years, 41.1% (158) were of the age bracket of 36-65 years while 12.0% (46) respondents were in the age category of 66 years and above.

Educational status of respondents indicated that 11.7% (45) respondents had no formal education, 6% (23) had primary qualifications while 5.5% (21) had the secondary qualification and 76.8% (295) had tertiary qualifications. Concerning the marital status of respondents study findings showed that 52.1% (200) respondents were married, 41.9% (161) were single and 6% 232) were widowed.

On the source of household income of respondents, study findings revealed that 46.1% (177) were had their income from farming, 6% (23) from non-farmers activities while 47.9% (184) of respondents had their income from both farming and non-farming activities.

The farming experience of respondents showed that 12% (46) respondents had the farming experience of fewer than 5 years, 40.9% (157) had farming experience between 5-10 years, 35.2% (135) had the experience of 11-15 years, and 12% (46) had the experience of 11-16 years while 18% (36) respondents had the farming experience of between 20 years above. On respondents' farm size, study findings indicated that 22.9% (88) respondents had a farm size of less than 1 hectare, 77.1% (296) had between 1-5 hectares. According to data from the respondents 41.4% (159) had a harvest between 5-10 bags, while 46.6% (179) had between 11-15 bags and 12% (46) had more than 15 bags. The Findings are presented in table 2 below:

Table 2: Demographic Attributes of Respondents

Variables	Frequency (N=384)	Percentage (%=100)
Gender		
Male	274	71.4
Female	110	28.6
Age		
20-25	180	46.9
36-65	158	41.1
66 and above	46	12.0
Level of Education		
None literate	45	11.7
Primary	23	6.0
Secondary	21	5.5
Tertiary	295	76.8
Marital Status		
Single	161	41.9
Married	200	52.1
Widowed	23	6.0
Source of household income		
Farming	177	46.1
Non-farming activities	23	6.0
Both farming and non-farming activities	184	47.9
Farming Experience		
<5 years	46	12.0
5-10 years	157	40.9
11-15 years	135	35.2
16-20 years	46	12.0
Farm size		
<1 hectare	88	22.9
1-5 hectares	296	77.1
Average yield in Kg		
5-10 bags	159	41.4
11-15 bags	179	46.6
more than 15 bags	46	12.0

Source: Field Survey 2020

3.2 Types of cashew markets channels in the Gambia

The study also collected data on the major channels that cashew farmers in Kombo South District in the Gambia utilized in selling their raw nuts; this is done to ascertain the influence of the channels on the price in the study area. Study findings indicated that majority 53.6% (206) of the respondents sell their cashew nuts to the middlemen at home, about 25% (96) sell to the

retailers, while 16.2% (62) sell their cashew nuts to agents and 5.2% (20) sold their nuts to fellow farmers. This implies that majority of cashew farmers in the study area sell their cashew nuts individually through middlemen as they are more reliable and provide better prices. This finding is in line with Dorr (2008), who stated that the trading process in Brazil involves the producer selling their nuts individually. Dendena and Corsi (2014) similarly highlighted that a few retailers and importers have consolidated the cashew market in Brazil and as such have negative implications for the wages and working conditions of workers in developing countries.

The findings of, Agada et al., (2020) however differed from this opinion, in their study they found out that most cashew farmers sell their nuts to retailers at nearby markets, while others sell theirs to wholesalers and just a few of them sell their nuts at their farm gates and bulk assemblers.

Table 3: Types of cashew markets channels in the Gambia

Variable	Frequency (N=384)	Percentage (%=100)
Middlemen	206	53.6
Retailers	96	25.0
Fellow farmers	20	5.2
Agents	62	16.2

3.3 Domestic prices of cashew nuts in Kombo South (2019 and 2020)

The price distribution among respondents from the study shows that respondents who sold 50kg for D1, 000-2000 were 64.6% (248) in 2019 compared to 68.8%% (264) respondents in 2020. The data also indicated that there is a 4.2% increase in the number of farmers who sold their cashew nuts at a low price in 2020. This finding shows that more farmers are selling their raw nut to traders at a lower price each year. This implies that the market channels are not structured and this could influence the pricing of cashew nuts in the study area as the wholesalers, retailers and agents buy at cheaper prices from the cashew farmers, thereby making more profits than the producers. The low prices could also be as a result of the covid-19 pandemic which disrupted the supply chain and international markets for cashew nuts.

Similarly, respondents 17.4% (67) who sold their nuts within the range of D2001 - D3000 in 2019 compared to 25.5% (98) respondents in 2020. This also showed an increase of 9.1% change

in the number of famers who sold their raw cashew nuts in 2020 at 2001-3000 Dalasis. However, there were respondents 18% (69) who sold their raw cashew nuts above D3, 000 in 2019 compared to 5.7% (22) respondents in 2020. This finding indicated a decrease of 12.3% in the number of respondents who sold their raw cashew nuts at a high price. The reasons for the decrease in prices might be attributed to the Covid-19 pandemic as most importing countries were on lockdown during the cashew marketing season.

Table 4: Domestic prices of cashew nuts in Kombo South (2019 and 2020)

Variable	**Frequency (N=384)**	**Percentage (%=100)**	**Variable**	**Frequency (N=384)**	**Percentage (%=100)**	
Price per bag (50kg) 2019 in Dalasis (GMD)			*Price per bag (50kg) 2020 in Dalasis (GMD)*			**% Change**
1000-2000	248	64.6	1000-2000	264	68.8	**4.2**
2001-3000	67	17.4	2001-3000	98	25.5	**9.1**
above 3000	69	18.0	above 3000	22	5.7	**12.3**

Source: Field survey 2020

3.4 The effects of market channels and prices on cashew farmers in the study area.

The output above provides the *R* and R^2 values. The *R* value represents the simple correlation and it is given as 0.856, which indicates a high correlation between the variables. The R^2 value indicates how much of the total variation in the dependent variables; motivation, job loss, low return, poverty and increase income can be explained by the independent variables market channels and prices. In this case 73.3% which is very high.

Table 5: Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.856[a]	.733	.729	.573

a. Predictors: (Constant), effectsonMotivated, effectsonJobLosses, effectsonLowReturn, effectsonPoverty, effectonIncreasedInIncome

The ANOVA table indicates that the regression model predicts the dependent variables significantly well. The results indicate that $p < .000$ which is less than 0.05, and therefore indicates that overall, the regression model statistically significantly predicts the outcome variables.

Table 6: ANOVA Table

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	339.902	5	67.980	207.085	.000[b]
	Residual	124.087	378	.328		
	Total	463.990	383			

a. Dependent Variable: MktChannel

b. Predictors: (Constant), effectsOnMotivated, effectsOnJobLosses, effectsOnLowReturn, effectsOnPoverty, effectsOnIncreasedInIncome

The coefficient table also provides the results of the predicted market channels and price of raw cashew nuts effects on motivation, job loss, low return, and poverty and increase income. The strength of the relationship is given a p-value; .000< .05, this indicates that change in market channels or an increase in prices of raw cashew nut have a significant positive relationship with motivation to increase production, job loss, low return, poverty and increase income.

However, the output above also indicates that job losses as a result of low prices and the types of market channels available is not statistically significant with a p-value of .776 > .05, therefore the findings indicate that market channels and price of raw cashew nuts in the study area does

not affect jobs. This can be attributed to the fact that most cashew plantations utilize family labour.

Table 7: Coefficient Table

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.442	.153		-9.417	.000
	Effects on poverty	.766	.081	.288	9.479	.000
	Effects on low Return	-.209	.066	-.095	-3.157	.002
	Effects on job losses	-.146	.064	-.063	-2.294	.776
	Effects on Increased Income	1.038	.096	.354	10.813	.000
	Effects on motivated to produce more	1.407	.094	.483	14.940	.000

a. Dependent Variable: MktChannel and Prices

Study findings indicated that respondents are affected by market channels and prices negatively; they affect farmers' income and livelihoods. The finding varies with that of Salau et al., (2018) who highlighted that majority of farmers gained income from the sale of cashew nuts, the poverty status in Kwara state among cashew farmers was at 25%.

However, the finding is in line with Sajeev and Saroj (2015) who reported that low productivity of cashew farms in the region along with heavy price fluctuations in raw cashew nut market resulting in low economic benefits. Similarly, Downey (1987), highlighted that cashew distribution in Nigeria is in the hands of a large number of exploitative, middlemen who pay producers far below what the consumer pay for the product, this impacts on the producers' incentive to raise output through adopting improved techniques and practices. Cashew nuts are sold to middlemen whose interest is mainly for profit-making at the detriment of farmers, this situation influences sustainable production because farmers tend to abandon their farms if they do not make cashew sales (Agbongiarhuoyi et al., 2020).

4.0 CONCLUSION

The study assessed the impact of market channels on the income of cashew farmers in Kombo South. It concludes that cashew is a common crop grown among all farmers in the study area which serve the major purposes of food and income generation. Cashew production in the study area was also found to be high.

The study also concluded that the market channels impacted on the income level of farmers in the study area. First, it leads to low-income generation by farmers causing a low purchasing power and an increase in poverty, low returns, decrease in income and purchasing power and not motivated to produce more were reported in the study area

5.0 RECOMMENDATIONS

Based on the above findings and the conclusion reached, the following recommendations were made:

1. Provision of improved cashew varieties to farmers: In the course of the study, it was revealed that most cassava farmers still depend on the use of local varieties of cashew which produce different quality of nuts some of which are very small. The Government with the National Research Institute (NARI) should intensify efforts in the distribution of these improved varieties so that it will reach all cashew farmers.
2. Cashew farmers should form cooperative societies as this will be the easiest channel through which their predicaments can be heard, and other benefits such as insecticides, fertilizers, soft loans and even grants can be accessed.
3. The government should assist farmers in seasons where international prices are very low to prevent poverty and hunger.
4. Value addition in cashew nuts should be a priority especially with Food Technology Services (FTS) of the Department of Agriculture (DoA).

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