

ASSESSMENT OF WOMEN PARTICIPATION IN PROCESSING AND MARKETING OF POULTRY PRODUCTS IN RIVERS STATE, NIGERIA

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Abstract

The study assessed women participation in processing and marketing of poultry products in Rivers State, Nigeria. Three specific objectives and three hypotheses were stated to guide the study. A simple random sampling technique was used to select 3 Local Government Areas (LGA), 18 communities and 108 women for the study. Descriptive statistics such as percentage and weighted mean scores were used to analyze the data. Analysis of Variance (ANOVA) was used to test the hypotheses. The findings indicated that women participation in processing of poultry products in the study area was low. Although, the result showed that women in Ikwerre LGA participated in processing of poultry products more than the other two LGAs and followed by Oyiabo LGA. The result showed that: Marketing of chicken , marketing of life birds , selling of parts of chicken and marketing of eggs were the aspects of marketing of poultry products that women in the three LGAs participated highly. Finally, the result showed that: insecurity challenges, price fluctuation of poultry products and inadequate credits among others, posed severe challenges to women participation in processing and marketing of poultry products in Rivers State. The study therefore recommended among others that: Women in Rivers State should not limit themselves to only marketing of poultry products, but should diversify to production, processing and supply of livestock feeds and equipment for more income; and Agricultural credits should be made accessible to women in livestock enterprises by the State Government.

Keywords: Assessment, Marketing, Poultry Products, Processing, , Women Participation.

Introduction

Domestic birds are explored principally for their meat and eggs because of their nutritional benefits. Demand for meat and eggs are influenced by culture, income, population, religious belief, production levels and locality. The consumption model is not the same between urban and rural areas with advance consumption in income, improved knowledge on health and dietary benefits of poultry meat. Amid the dressed chickens, 70% are sold as dressed or chilled or frozen whole carcass, while the residual 30% are sold as cut up parts and as additional processed products (Singh, 2012). Processing and marketing aid the consumption of chickens and eggs anywhere in the world. While processing adds values that give rise to poultry products such as: chilled chicken, white poultry meat, dark poultry meat, scrambled egg, poached egg, scotched egg, egg custard, etc.; marketing takes these poultry products and life birds to the door steps of the consumers.

Key challenges in our country for lack of processing is less penchant for frozen chicken by the consumers have been recognized as: inadequate cold chain infrastructure facilities, lack of well organized marketing system, low

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domestic demand for value-added products, non-availability of ample technology, fluctuating export trade, high import duty and severe sanitary and phytosanitary standard by importing countries (Desikan & Megarajan, 2014). Processing and distribution of poultry products ranges from live bird markets or a very ancient on-site slaughter and sale to a highly complicated, wholly automated and International Standard Organization (ISO) certified facilities and ready-to-eat ease products in many parts of the world. Lack of or insufficient refrigeration is probably the single largest barrier to the marketing of many unpreserved foods, including meat and poultry products. In many developing countries, even the minor improvements in the cold storage capabilities have considerably increased the trade, storage, supply, and utilization of poultry products (Babji, 2001). The espousal of modern freezing, packaging, and transportation technologies has provided large poultry companies the elasticity to export their high quality, mostly value-added best cuts to all corners of the world, especially at times of domestic surpluses and low market demands (Bilgili, 2001).

Processing and marketing follow after production activities have been completed either in stages or in full. Research has shown that women involvement in the production aspects of most domestic animals is low in Rivers State due to the technical nature in breeding and handling farm animals (Amugo & Odinwa, 2022). Processing and marketing are not without their peculiar challenges. Anjaneyalu et al., (2012) recorded that processing of birds takes three or more steps ranging from pre-processing, prime processing, and secondary processing to additional processing. From the same source, Pre-processing is numerous steps taken to arrange the live birds for processing, which involve removal of feed from broilers approximately 8-12 hours before butcher; of equipment from the poultry house earlier before the arrival of the catching crew that load the birds into multilevel coops for onward transportation to the processing plant for other procedural actions and for extra processing. Prime processing includes butchery, evisceration and chilling. In the modern and mechanized poultry processing plants, the coops are off-loaded from the truck and a machine tilts and dumps the entire coop onto a conveyor that transports the birds to the execution area. The birds are hung upside down on the overhead shackles where they remain for the length of steps in the butchery area, (approximately 6-7 minutes total). The birds are shocked using electrical stunning machine (water troughs), passing a current of 10-20 Ampere through the head and body. Immediately after stunning, the birds are killed either physically or mechanically using automated kill device. After the neck is cut, exsanguinations (i.e. bleeding) take approximately two minutes. It is followed by scalding where the birds are flooded in hot water which assists in feather removal. In a small plant, scalding can be performed manually in a large bucket. i.e., placing the carcasses in and removing them from a tank. In large plants, it is done in a nonstop manner employing a single stage or multistage scalding bath while the birds are hanged from a moving shackle line. Feathers are being plucked either manually or using a defeathering equipment. The defeathering device is equipped with rubber fingers that rub the feathers off the carcass. After feather removal, the heads, oil glands, crop and feet are detached. On-farm and small processors usually cut the head off while large plants have machines that pull heads off so that the esophagus is also removed, followed by the feet at the knee joint. After all the offal of the cavity is removed, the bird is carefully washed inside and out. The edible byproducts including heart, liver, and gizzard (collectively called giblets) are usually separated and cleaned. After dressing, the remains are cooled as soon as possible. The most common methods of chilling include water-immersion chilling, air chilling and spray chilling.

Secondary processing typically refers to further processing of the raw carcass into value-added product forms, such as: Cut-ups, deboning and portioning. There are many ways to cut up a poultry carcass. Depending on market demand, poultry can be sold as a whole, ready-to-cook bird, split into two halves, divided into different parts (wings, legs, breasts) and sold with/without skin and bones (e.g., boneless breast). In elevated markets, a large percentage of carcasses are cut into portions for retail sale, for use in restaurants and catering outlets and as a raw material for an increasingly wide range of fast-food products. In low throughput plants, carcasses can still

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be cut manually. In most medium and high throughput plants, birds are cut automatically by modular systems able to operate at hourly throughputs of 5000 carcasses or more. The cut-up-parts of poultry (usually 8 in number) include breast, back, legs (2 thighs and 2 drumsticks) and 2 wings.

Additional processing is the addition of ingredients, and/or heat action to poultry meat to create a range of value added products. Poultry companies involved with the processing have developed hundreds of processed products. Some processed forms include marinated, chopped and formed, breaded, glazed, oven roasted, fried and char-grilled varieties. Chief meat product forms include patties (breaded or roasted), nuggets, tenders, fillets, wings, drums, and thighs, prepared and either par-fried (partially cooked in oil for less than a minute) or cooked in many special possible forms (Anjaneyalu et al., 2012).

These stages of processing and packaging birds take place in commercial poultry industries before marketing the products. Every stage has its own technical tasks and challenges and may hinder or discourage participation. The study is therefore channeled to assess women participation in processing and marketing of poultry products in selected Local Government Areas (LGAs) of Rivers State. The study specifically seeks to

- i. examine the level of women participation in processing of poultry products in the study area;
- ii. ascertain the level at which women participate in marketing of poultry products in the area; and
- iii. identify the challenges to women participation in processing and marketing of poultry products in the study area.

Research Questions

- i. What is the level of women participation in processing of poultry products in the study area?
- ii. What is the level at which women participate in marketing of poultry products in the area ?and
- iii. What are the challenges to women participation in processing and marketing of poultry products in the study area?

Research Hypotheses

The following hypotheses were formulated to direct the study, such as:

H₀₁ : There is no significant difference among the women participating in processing of poultry products in various LGAs of Rivers State.

H₀₂ : Women participation in marketing of poultry products do not differ significantly among the various LGAs of Rivers State.

H₀₃ : Constraints to women participation in processing and marketing of poultry products do not differ significantly among the various LGAs of Rivers State.

Methodology

Rivers State consists of three (3) senatorial districts namely: Rivers East; Rivers South East and Rivers West was the centre of this study. The State is blessed with rich natural endowments that exceedingly support the Nigerian economy, the crude oil and gas, rainforest and mangrove lands for agriculture, rivers, creeks and seas for fishing operations. From the National Population Commission (2006), Rivers State has a population of 5,198,716. A sizable population that could encourage consumption of any agricultural produce like poultry products, without fear of market failures within the State before the surrounding States. Descriptive survey design was engaged to study the cross-section of women in poultry enterprises, especially in processing and marketing. A simple random technique was used to select one (1) local government area from each Senatorial District to make a total of three (3) Local Government Areas. It was also employed to select six (6) communities from each of the selected three LGAs to have a total of eighteen (18) communities in all and from which 6 women (poultry dealers) were selected

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from each of the communities making a total of one hundred and eight (108) respondents, as the sample size for the study. Data were collected through structured questionnaire and interviewed schedule appropriate to the specific objectives. The questionnaire was designed in a four point Likert type rating scales which gave a criterion mean of 2.50 and used for rational decisions. Both descriptive and inferential statistics were engaged to analyze the data that were assembled from the field. The descriptive tools include percentage, arithmetic means and weighted mean scores, while the only inferential tool used was the analysis of variance (ANOVA) for testing the hypotheses of the study. All the objectives were analyzed using weighted mean scores derived from a four point Likert - type rating scales. The four points were added together and divided by four ($4+3+2+1 = 10/4$) to give 2.50 as the critical mean used for the judgment of acceptance or rejection of findings.

Results and Discussion

Research Questions

i. What is the level of women participation in processing of poultry products in the study area

Table 1: Mean Distribution on the Level at which Women Participate in Processing of Poultry Products in Rivers State

Processing variables		Abua/Od	Mean	Oyigbo	Mean	Ikwerre	Mean	Grand	Grand	Remark
		Weighted Scores n = 36		Weighted Scores n = 36		Weighted Scores n = 36		Total scores N= 108		
Slaughtering and evisceration	44	1.22	77	2.13	125	3.48	246	2.28	Low	
Deboning and portioning	41	1.15	100	2.77	119	3.30	260	2.41	Low	
Cut-ups parts	45	1.25	96	2.67	59	1.65	262	2.43	Low	
Chilling/Frozen serv.	37	1.03	101	2.80	99	2.75	237	2.19	Low	
Smoking	41	1.13	111	3.08	87	2.42	239	2.21	Low	
Addition of ingredients and Packaging	36	1.00	109	3.03	86	2.38	231	2.14	Low	
Heat treatment of poultry	39	1.07	78	2.18	120	3.32	237	2.19	Low	
Cumulative Mean (CM)		1.12		2.66		2.76		2.26		

Source: Field Survey, 2021

Decision Mean = 2.50

The findings on the level to which women participate in processing of poultry products in Rivers State (Table 1), indicate that women participation in processing of poultry products in the study area were very low in the sampled variables including: Cut-ups parts with grand mean (GM = 2.43), Deboning and portioning (GM = 2.41), Chilling/frozen services; and Heat treatment of poultry with equal grand mean (GM = 2.19) among others, were generally low. Although, the result showed that women in Ikwerre LGA participate in processing of poultry more than the other two LGAs in a cumulative aggregate (CM = 2.76) and followed by Oyigbo LGA (CM = 2.66). These findings are in consonance with the facts that the nature of economic challenges and economic drive prone to an area, as well as the exposure to the technical skills required in processing may be more pronounced in one or two areas than in other areas like Ikwerre and Oyigbo LGAs. The general low participation in processing of poultry products implicated by the findings of this study, may have stemmed from inadequate experience, cost of processing equipment, inadequate storage facilities to store processed products and inadequate technical competences involved in processing these products. These findings were supported by Adubi and Jibowo (2006) who affirmed that these challenges of effective agricultural production, processing and marketing are sustainable

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through extension teaching for different groups which are the direct tasks of the Agricultural Development Programme (ADP).

Research Hypothesis

H₀₁: There is no significant difference among the women participating in processing of poultry products in various LGAs of Rivers State

Table 2: ANOVA Result on the Level at which Women Participate in Processing of Poultry Products in Rivers State

Source of Variance	SS	df	MS	f-cal	f-Critical	p-value	Remarks
B/W Group variance	10.17	2	5.08				
W/Group variance	2.57	105	0.17				
Total	12.74	107		29.68	3.68	6.11	S

Source: Field Survey, 2021

S – Significant at P > 0.05

ANOVA result (Table 2) showed an (f - calculated = 29.68) and (f – tabulated = 3.68) at P > 0.05 probability. The null hypothesis which states that ‘There is no significant difference among the women participating in processing of poultry products in various LGAs of Rivers State’ was rejected. Implying that women participation in processing of poultry products differed significantly among the various LGAs in Rivers State. This means that the differences in the mean scores of the three LGAs studied were significant, meaning that women in some local government areas, like Ikwerre and Oyigbo are participating in processing of poultry products more than the women in Abua/Odual LGA. These differences may have evolved from the nature of economic challenges and economic drives prone to an area and the exposure to the rudiment of a particular processing enterprise more than other areas, as earlier pinpointed.

Research Questions 3 iii. What is the level at which women participate in marketing of poultry products in the area ?

Table 3: Mean Distribution on the Level at which Women Participate in Marketing of Poultry Products in Selected LGAs in Rivers State

Source: Field Survey, 2021

Decision Mean = 2.50

Variables	Abua/Od Weighted Scores n = 36	Mean	Oyigbo Weighted Scores n = 36	Mean	Ikwerre Weighted Scores n = 36	Mean	Grand Total scores N= 108	Grand Mean	Remark
Marketing of life chicks	49	1.37	95	2.65	104	2.88	248	2.30	Low
Marketing of life table birds of any type.	91	2.53	103	2.86	106	2.94	300	2.78	High
Marketing of chicken (Breaded or Roasted)	94	2.61	124	3.44	120	3.33	338	3.13	High
Marketing of eggs of any type (scrambled or poached)	91	2.53	101	2.81	91	2.53	283	2.62	High
Marketing of poultry droppings	62	1.73	102	2.83	75	2.07	239	2.37	Low
Selling of parts of chicken (legs, heads, thighs etc.)	81	2.25	104	2.89	101	2.81	286	2.65	High
Cumulative Mean		2.17		2.91		2.76		2.49	

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The findings on the level at which women participate in marketing of poultry products in Rivers State (Table 3), showed that Marketing of chicken (breaded or roasted with GM = 3.13); Marketing of life table birds of any type (GM = 2.78); Selling of parts of chicken (GM = 2.65) and Marketing of eggs of any type (GM = 2.62) were the aspects of marketing of poultry products that women in the three LGAs participated highly. This is possible because these aspects: especially, marketing of table birds and eggs are traditional to every area in Rivers State, though in subsistent quantities and could be carried out without much expertise in turning produce into money for further exchange in the market. This finding is in consonant with Gómez et al (2020) who observed that women constitute irresistible population of those who are involved in agricultural produce marketing as against the men who focus more on artisan, peasant farming and civil service occupations. Other aspects of marketing in poultry recorded, such as: marketing of poultry droppings (GM = 2.37); marketing of chicks (GM = 2.30), supplies of feeds and drugs (GM = 2.12) and supplies of equipments (GM = 2.08) recorded low participation, though with some degrees of variation among the three LGAs in favour of Oyigbo LGA. These aspects of marketing in poultry as identified by the study are technical in nature and may require some competences that women are not in a hurry to acquire; hence they resort to marketing of table birds and eggs that are traditional to them, as blatant consumers rather than producers or value chain adders. This claim is in agreement with Amugo and Odinwa (2022) who reported that women are concerned as great supporters of household nutritional requirement of diets, management and cheap income generation.

Research Hypothesis

H₀₂ : Women participation in marketing of poultry products do not differ significantly among the various LGAs of Rivers State

Table 4: Summary of ANOVA Result on the Level at which Women Participate in Marketing of Poultry Products in Rivers State

Source of Variance	SS	Df	MS	f-cal	f-Crit	p-value	Remarks
B/W Group variance	2.31	2	1.12				
W/Group variance	3.37	105	0.19				
Total	5.68	107		6.16	3.55	0.01	S

Source: Field Survey, 2021

S – Significant at P > 0.05

Test of significance on the level at which women participate in marketing of poultry products in the study areas (Table 4), showed an (f – calculated = 6.16) and (f – tabulated = 3.55) at P > 0.05 significant level, leading to the rejection of the null hypothesis H₀₂ which states that ‘Women participation in marketing of poultry products do not differ significantly among the various LGAs of Rivers State’. This means that the difference in the mean scores of the three LGAs studied was significant, which also implies that women participation in marketing of poultry products are not the same in the three LGAs and will call for serious attention to encourage women participation in poultry enterprises in those areas where there are low involvement.

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Research Question 3

iii. What are the challenges to women participation in processing and marketing of poultry products in the study area?

Table 5: Mean Distribution on the Constraints Facing Women Participation in Poultry Processing and Marketing in Selected LGAs of Rivers State

Variables	Abua/Od		Oyigbo		Ikwerre		Grand Total scores N= 108	Grand Mean	Remark
	Weighted Scores n = 36	Mean	Weighted Scores n = 36	Mean	Weighted Scores n = 36	Mean			
Inadequate technology	89	2.47	85	2.37	120	3.32	294	2.72	Serious
Strict sanitary and phytosanitary norms	118	3.27	94	2.60	119	3.30	331	3.10	Serious
Lack of training	111	3.08	94	2.62	101	2.80	306	2.83	Serious
Inadequate extension services in processing	103	2.87	96	2.68	101	2.80	300	2.78	Serious
Inadequate Credit	126	3.5	107	2.98	109	3.02	342	3.17	Serious
Poor marketing systems for poultry products	75	2.08	126	3.50	131	3.63	332	3.07	Serious
Price fluctuation of poultry products	93	2.58	130	3.60	128	3.55	351	3.25	Serious
High import duty	131	3.63	103	2.87	114	3.17	348	3.22	Serious
Insufficient cold chain infrastructural facilities	110	3.05	103	2.85	118	3.28	331	3.06	Serious
Lack of processing facilities	113	3.15	94	2.62	114	3.18	321	2.97	Serious
Lack of storage facilities	118	3.28	107	2.97	109	3.02	334	3.09	Serious
Fluctuating export trade	125	3.48	104	2.90	104	2.90	333	3.08	Serious
Inadequate power supply	116	3.22	102	2.83	105	2.92	323	2.99	Serious
Lack of functional cooperatives.	101	2.80	121	3.35	102	2.83	324	3.00	Serious
Insecurity challenges	134	3.73	119	3.30	103	2.87	356	3.30	Serious
Poor government policies	131	3.63	115	3.20	102	2.82	348	3.22	Serious
Cumulative Mean (CM)		3.07		2.91		3.06		3.02	

Source: Field Survey, 2021

Decision Mean = 2.50

The findings on the constraints to women participation in processing and marketing of poultry, in the study areas (Table 5) recorded in their degree of seriousness that: insecurity challenges (GM = 3.30), price fluctuation of poultry products (GM = 3.25), inadequate credit (GM = 3.17), insufficient storage facilities (GM = 3.09), poor marketing systems for poultry products (GM = 3.07) and insufficient cold chain infrastructural facilities (GM = 3.06) among other challenges, were very serious constraints to women participation in the three LGAs. These findings agree with Desikan and Megarajan (2014) who identified: scarce cold chain infrastructure facilities, very poor marketing system, less domestic demand for value-added products, non-availability of ample technology, irregular export trade, high import duty and severe sanitary and phytosanitary standard by importing countries as the major limitation to processing and marketing of perishable agricultural goods in Nigeria. Also, in support of

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the findings, Babji (2001) indicated that lack of or insufficient refrigeration is most likely the single largest impediment to the marketing of many perishable foods, including meat and poultry products.

Research Hypothesis

H₀₃. Constraints to women participation in processing and marketing of poultry products do not differ significantly among the various LGAs of Rivers State.

Table 6: Summary of ANOVA Result on the Constraints Facing Women Participation in Processing and Marketing of Poultry Products in Rivers State

Source of Variance	SS	df	MS	f-cal	f-crit	p-value	Remarks
B/W Group variance	0.28	2	0.14				
W/Group variance	6.98	105	0.17				
Total	7.26	107		1.94	3.19	0.36	NS

Source: Field Survey, 2021

N S – Not Significant at P > 0.05

ANOVA results on the constraints facing women participation in processing and marketing of poultry products in the areas (Table 6) showed an (f – calculated = 1.94) and an (f – critical = 3.19) at P > 0.05 significant level. The null hypothesis which states that ‘The challenges to women participation in processing and marketing of poultry products do not differ significantly among the various LGAs of Rivers State’ was accepted. This means that the difference in the mean scores of the women in the three LGAs studied was not significant, implying that the challenges to women participation in poultry processing and marketing are the same in the three LGAs and will demand unified measures to deal with these important challenges in order to motivate the participation of women in processing and marketing of poultry products in Rivers State.

Conclusion

Findings showed a very low participation of women in processing of poultry products in Rivers State, though the women in Oyigbo and Ikwerre LGAs participated more than the women in Abua/Odual considering the few aspects of processing that they participated. In terms of marketing of poultry products, the study recorded high women participation since marketing is more closely related to consumption than production and processing. The major challenges identified include: insecurity challenges, price fluctuation of poultry products, inadequate credit, insufficient storage facilities, poor marketing systems for poultry products and insufficient cold chain infrastructural facilities among other challenges which are common to the three LGAs studied in Rivers State.

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Recommendations

Based on the findings, the study recommended the followings:

1. Women in Rivers State should not limit themselves to only marketing of poultry products, but should diversify to production, processing and supply of livestock feeds and equipment for more income.
2. Extension services on processing of poultry products should be delivered specially to women in livestock enterprises in Rivers State.
3. Agricultural credits should be made available and accessible to women in livestock enterprises by the State Government.
4. Women poultry farmers in Rivers State should be encouraged and guided to form and operate functional cooperatives that will attract interventions from government and non-governmental organizations to address their common challenges.

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