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Changes in gender division of tasks in palm oil processing in delta north agricultural zone of delta state, Nigeria

¹Abushe O Precious, ²Ikenga V Uchechukwu, ¹Umehai M Chukwuemeka, ³Emenim R Onainor, ¹Ototoh Harry and ¹Ofuoku AU

¹Department of Agricultural Extension and Rural Development, Delta State University Abraka, Nigeria

²Department of Agricultural Economics, Delta State University Abraka, Nigeria

³Department of Agricultural Education, Delta State College of Education Mosogar, Nigeria

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Corresponding Author: Abushe O Precious

Abstract

Changes in gender division of tasks in palm oil processing in Delta North Agricultural Zone were examined. An overall of 6 rural communities were selected using multi stage sampling procedure. 150 processors were purposively selected. Data were collected by the use of focus group discussion, structured questionnaires and interview schedule and were analysed with the application of frequency counts and percentages, mean derived from a 4 point likert type scale and T-test. The result revealed a mean respondents age of 43 years and were mostly married (52.80%), about 60.70% were female while 39.3% were male, majority had secondary education (48.0%), with a mean household size of 5 person and mean processing experience of 7 years, with an average monthly income of N54,310. Economic opportunities in processing (mean=3.73) was identified to be the biggest drive for changes in the roles men and women play, and the challenge of accessing land and necessary resources was discovered to be the major constraint to women in palm oil processing. The t-test result revealed there was a significant difference ($T=16.12$) between the gender related tasks for men from 2010-2017 and in 2018 till date and there was a significant difference ($T=-16.41$) between the gender related tasks for women from 2010-2017 and in 2018 till date. The study recommends that government, through agricultural institutions should facilitate the transfer of appropriate technologies that are affordable and easy to use for women, and government should implement policies that ensure women have equal rights to own and access land.

Keywords: Changes, gender, task, division, palm oil and processing

Introduction

Gender is a fundamental aspect of human identity and social organization, influencing a wide range of experiences and interactions. Traditionally, gender has been dichotomised into male and female based on biological characteristics. However, contemporary understandings recognize gender as a complex spectrum that covers a range of identified roles beyond this binary framework. Gender involves interplay of biological, psychological and socio-cultural factors influencing how individuals perceive themselves and are perceived by others. These gender norms can impact various aspects of life, including personal relationships, education, career opportunities and access to resources.

The oil palm (*Elaeis guineensis*) is one of the tree crops that is vital to the economy in the tropics. The oil is derived from the fleshy fruit. Oil palm belongs to the family of Palmae, and sub family Cocoideae which is the most important member (Ibitoye, 2021) ^[1]. It is a monocotyledonous crop with fibrous roots which grows up to lengths of 15 meters as a single unbranched tree. The oil palm is a versatile tree crop with almost all parts of the tree being useful for economic and or domestic value. In Nigeria, oil palm serves as a crucial livelihood resources for many rural families, particularly small holder farmers who cultivate it as a

communal cash crop. In southern Nigeria, the oil palm industry is a major driver of foreign earnings and provides livelihood opportunities for numerous rural households, the by-products like the palm kernel can be used for kernel oil and cake which serves as animal feed while the palm fronds are used in making sweeping broom, fire wood and thatch house and roofs and the slurry is used for the production of soap and fertilizer Oyaide *et al*, (2021) ^[16]. There are over 2,600 species of oil palm (Adeyemo, 2021) ^[2]. Its importance outside to the economy of Nigeria ranges from production of food, employment, income to farmers and raw materials for industries.

In Nigeria the processing of palm is an economically significant activity, particularly in Delta North Agricultural Zone. Traditionally the process of producing palm oil involves distinct gender roles with women primarily responsible for task, such as carrying harvested bunch, processing and marketing. While men typically engage in activities related to land preparation and maintenance and harvesting of bunches. The palm fruit is the main product which undergoes processing to yield a range of valuable products such as palm oil, brooms and kernel cake (Ibitoye, 2021) ^[11]

In Nigeria, female farmers are often among the voiceless—particularly when it comes to influencing agricultural policies and projects. It was reported that 41.4% of women at Imo state, Nigeria, were actively involved in palm oil processing at various stages, and perceived palm oil processing as a source of income and employment Ajaero, *et al* (2021) [3]. Women traditionally produce the bulk of palm oil in Akwa-Ibom State using local techniques, and despite being faced with challenges of child bearing and domestic chores; there has been a steady increase in women participation in production and processing because of the increase urban demand for the product (Esu and Akam, 2023) [8].

When research priorities are set, women are brushed off and their needs are not taken into consideration. The attitude of ignoring such an essential resource limited the capacity of many women to participate in fruitful and productive activities (Adejo *et al.*, 2019) [4]. Women contribution to economic development and food security of any nation seems not to gain much recognition because; data on women's socio-economic and agricultural activities that lead to food production are scanty especially in Nigeria. Women play a multifaceted role that cuts across various sectors in agriculture like fisheries, livestock and also cash crop like oil palm processing. On the basis of the aforementioned, the need arose to understand the magnitude of changes in gender task for the enhancement of agricultural extension service delivery via this study. In doing so the specific objectives were to:

- Identify the traditional gender related tasks in palm oil processing from 2010-2017,
- Identify the changes in gender related tasks in palm oil processing from 2018-2024,
- Ascertain the reason for changes in gender related tasks and
- Determine the constraints faced by women palm oil processors

Research Hypotheses

H0₁: There is no significant difference between the gender related tasks for women from 2010-2017 and in 2018-2024.

Materials and Method

The Study area

The study was carried out in Delta North Agricultural zone of Delta State, Nigeria. The state was divided into three agricultural zones by the Delta State Agricultural and rural development authority (DARDA) and is a region in Niger Delta, Nigeria. Delta State is located between latitude 5°00' and 6°30' North and longitude 5°00' and 6°45' East. Oshimili South and North, Aniocha North and south, Ndokwa East and West, Ika South, Ika North East, and Ukwuani are the nine Local Government Areas (LGAs) that constitute Delta North. According to the National Population Commission in 2022, it was estimated that Delta North agricultural zone has a total population of 1,293,074 (30.07% of Delta State's total population). A lot of farming activities are carried out, which includes arable crop farming, livestock and fish farming. Its climate and soil encourage farming.

Sampling Procedures and sample size

The population for the study comprises of rural household heads who engage in the processing of palm oil in the study area. Multi-stage sampling procedure was used in the selection of respondents; the first stage involved a random selection of 20% from the 9 local government areas in Delta North Agricultural Zone, giving an aggregate of 3 local governments' areas. The second stage involved a random selection of two rural communities resulting to a total of 6 rural communities. The third and final stage involved a purposive selection of a total of 150 processing households identified by key informants in the 6 communities to ensure that only families carrying out the activities of processing were sampled.

Analysis of Data

Primary data was obtained from rural household heads through interview schedule, structured questionnaire and focus group discussions and were administered by the researcher and trained enumerators that were chosen from agricultural science teachers within the community selected. Data were statistically treated with frequency count, percentage, and mean derived from a 4-point Likert scale of; strongly agree (4), agree (3), disagree (2), and strongly disagree (1) and decisions on likert-type scale was taken on a cut-off point of 2.50. Hypothesis was tested with t-test.

Results and Discussion

Socio-economic characteristics of rural household heads

Gender of respondents

The result on gender shows that majority (60.70%) of processors were female while 39.30% were male. This implies that female dominated the sector (processing, marketing, sorting and cleaning) in area under study. This result is in consonance with Abushe, *et al* (2023) [1] who stated that women are gradually taking over agricultural production in the state. This result is also in line with Banji and Okunade (2024) [7] who found that across the nation, Nigerian women are playing a pivotal role in the agriculture value chain, as strategic drivers for food processing and preservation, in addition to ensuring a food secured nation, and lifting up their families and communities at large.

Age

The result in table 1 shows that about (36.70%) were within 40-49 years old, 27.30% were about 30-39 years of age, about 26.0% were above 50 years, while 10.0% were in the age bracket of 19-29 years. The mean age was 43 years. This suggests that a substantial number of household heads were in their youthful age, energetic and economically active. This is in contrast with Ayinde (2021) [5] who reported a moderate involvement of youth in palm oil processing activities.

Primary Occupation

The results in table 1 show that majority (61.33%) of respondents are full-time palm oil processors and 38.67% are part time processors. This highlights that a large number of farmers are fully dedicated to the processing activities, which indicates its importance in the local economy. Despite not being large scale operators, substantial number play a vital role in palm oil processing sector Ogunsola *et*

al, (2022) ^[17]

Processing Experience

The results reveals that majority (51.30%) have above 5 years of processing experience, 27.30% have 2-3 years of processing experience, 17.30% have 4-5 years of processing experience, while 4.0% have 1 year or less of processing experience. The mean years of processing experience is 7 years. Implying the bulk of them has considerable years of experience in the sector. This is in consonance with Mukaila et al (2022) ^[14] who stated that the years an individual spends in a business influences the skills acquired.

Monthly Income (Naira)

Table 1 reveals that (39.30%) had a monthly income of 51000-100000, 27.30% had 10000-30000, 24% had 31000-50000 and 9.40% had above 100000 monthly. The mean monthly income was 54,310. This indicates that palm oil sector is a profitable business in the area under study.

Table 1: Distribution of Socio-economic characteristics of respondents

Variables	Frequency (n=150)	Percentage	Mean
Sex			
Female	91	60.70	
Male	59	39.30	
Age			43 years
19-29	15	10.0	
30-39	41	27.30	
40-49	55	36.70	
50 and above	39	26.0	
Educational Level			
None	12	8.0	
Primary	48	32.0	
Secondary	72	48.0	
Tertiary	18	12.0	
Primary occupation			
Full time	92	61.33	
Part time	58	38.67	
Processing experience			7 years
0-1	6	4.0	
2-3	41	27.30	
4-5	26	17.30	
Above 5	77	51.30	
Household size			5 persons
1-2	9	6.0	
3-4	60	40.0	
5-6	50	33.30	
Above 7	31	20.70	
Monthly income(N)			N54000
10,000-30,000	41	27.30	
31,000-50,000	36	24.0	
51,000-100,000	59	39.30	
Above 100,000	14	9.40	

Source: Field Survey 2024

Traditional Gender Related Tasks for Men and Women in Palm Oil Processing from the Year 2010-2017

Table 2 showed the distribution of respondents according to the traditional gender related tasks performed by men and women from the year 2010-2017. It revealed that traditionally, men exclusively performed the harvesting of

palm fruits with 100% of interviewees indicating so. This gender specific role is a result of the traditional beliefs that female are not supposed to climb palm tree as it is regarded traditionally as a taboo for woman to do so. The physical demand of harvesting often requires significant strength and endurance. Also about 87.3% of men and 12.70% of women were involved in the operation of heavy machinery in this time frame. This indicates that similar to harvesting, the operation of heavy machinery was mostly performed by men. This could be associated with the fact that the machines utilized within this time period were usually crude and required more strength to start and operate. The result also reveals that a greater number of individuals in the transportation of harvested fruits were men (91.30%) while women contribute the other 8.7%. This significant gender disparity here may be as a result of the physical strength required for transporting large quantities of harvested oil palm fruits. However the small percentage of women involved suggests that they may be taking on this role in situations where male labour is insufficient or unavailable. Processing of the harvested fruits was done by 62.70% men and 37.30% women. While men still dominate this task, women have a notable presence. This mixed-gender involvement indicates that while physical strength is important, other skills and technical know-how also plays a role in determining who participates in this part of the production process. The result also showed that 84.70% of individuals in marketing and sales of products were women while 15.30% were men. This indicates that more female are involved in marketing and sales of the product This agrees with Pelalawan, (2024) ^[18] who reported that management of marketing and sales in the palm oil industry is largely dominated by women. This pattern is congruent with extensive research indicating that women frequently assume marketing responsibilities in agricultural contexts, leveraging their communication abilities and market insight. The substantial participation of females in these positions emphasizes their crucial contribution to the business success of the sector. The picking of fallen fruits shows a slight predominance of female participation as the results shows that 53.30% of all palm fruit collectors were women while 46.70% were male indicating that this task may be traditionally perceived as less physically demanding and hence more suitable for women. Nonetheless, the nearly equal engagement implies that both genders possess equal capabilities to accomplish this task. Women exclusively performed the task of sorting and cleaning the harvested fruits. Women also entirely handled the turning of extracted oil into finished products like soap, cooking oil etc, this could be related to traditional beliefs of women being place in charge of domestic duties. In managing household finances, men slightly outnumber women with 52.70% while women contribute the other 47.30%. This near-equal split might reflect evolving gender roles, where both male and female are increasingly sharing financial responsibilities within the home. This result agrees with Hartman and Barber, (2020) ^[10] that found that women are an ever-growing demographic in the labour force, and more than ever are defying stereotypes and achieving financial independence and wealth.

Table 2: Traditional gender related tasks in palm oil processing from 2010-2017

Tasks	Men (frequency/percentage)	Women (frequency/percentage)
Harvesting of ripe oil palm fruits	150 (100)	0
Operating heavy machinery	131 (87.30)	19 (12.70)
Transportation of harvested fruits	137 (91.30)	13 (8.70)
Processing of the harvested fruits into oil	94 (62.70)	56 (37.30)
Marketing and sales of oil palm products	23 (15.30)	127 (84.70)
picking of fallen oil palm fruits	70 (46.70)	80 (53.30)
Sorting and cleaning harvested fruits	0	150 (100)
Processing extracted oil into finished products (e.g. soap, cooking oil)	0	150 (100)
Managing household finances related to oil palm processing	79 (52.70)	71 (47.30)
Supporting with administrative tasks	0	150 (100)

Figures in parenthesis are percentages

*frequency (n=150)

Source: Field Survey 2024

Changes in Gender Related Tasks from 2018 to 2024

The results show the changes in gender related tasks in palm oil processing from 2018-2024 (table3). The table revealed that 78.30% of men carried out the harvesting , while women contributed the other 20.70%. This indicates that while men still dominate this area of task as a result of physical strength, endurance needed to carry out this work, and traditional beliefs playing a vital role, women now actively involve themselves in the harvesting process as there are now modernized varieties of palm trees that grow closer to the ground and can be harvested without climbing the tree. It was also revealed that 70.70% men and 29.30% women participated in the operation of heavy machineries since 2018 till date. This indicates that though men still play a major role in this segment, women now show a higher level of participation in this task. This could be as a result of using improved machines in recent years that are no longer laborious and physically tasking to operate. Women have also acquired skills and technical know-how in the operation of these machineries in recent times. This is in line with Marwardati *et al* (2022) [13] who reported that women playing a vital role in the palm oil industry, contributing significantly to every stage of the production process. Thus, females are making waves and breaking barriers in traditional male dominated industry of heavy equipment, demonstrating that determination, expertise and resilience spirit does not have gender boundaries. The research findings indicate that women comprised the bulk of individuals engaged in the transportation of these harvested bunches (54.70%) while men were 45.30%. this indicates a contrast to the past seven years (2010-2017) where men dominated this area of production with an aggregate of 91.30%, women are now playing the major role and overtaking men in this task since 2018 till date though men still play a significant role. Palm fruit Processing was undertaken by a significant proportion of women (92.0%) and 8.0% men. Unlike the past seven years (2010-2017) women have massively taken over this task. The table also shows that a substantial number of the individuals who engaged themselves in the marketing and sales of palm oil were women (79.30%) and 20.70% were men. About 72.0% women and 28.0% men also participate in the collection of fallen fruits. It also revealed that 82.70% of women and 17.30% men were into sorting and cleaning of harvested palm fruits. About 84.0% women and 16.0% men carry out

the task of extracting oil into finished products like soap and cooking oil. Table 3 also revealed that 90.0% women and 10.0% men were in the management of household finance. This shows that compared to old times, women of today have started getting involved more in decision related to family, society and business. This is in consonance with Gebre (2020) [9] who concluded from his study that whether a women is married or not it does not make any impact on their knowledge about finance, which means that there is no difference between single women and married women in reference to financial knowledge. Also, Kabupaten (2024) [12] stated that women have control over their household finance like purchasing things and all decisions related to household finance management activities and investment related decisions. About 93.30% women are involved in supporting with the task of administration and male contribute the other 6.70%. The table 3 shows that since 2018 till date, women have taken over a larger amount of the tasks in the processing activities even participating in tasks like harvesting of fruits and operating of heavy machineries in which they were not previously involved. Though women now play a major role, men still play a significant role in the industry.

Reasons for Changes in Gender Related Tasks for Men and Women in Palm Oil Processing

The result (table 4) revealed that these changes in gender related tasks were driven by economic opportunities in processing of palm oil (mean= 3.73), social norms and cultural shifts (mean= 2.13), government policies (mean= 2.05), technological advancement (mean= 3.40) and a voluntary choice to get engaged in the processing activities (mean= 3.67). This indicates that among all the reasons for changes in gender related tasks, respondents agreed that economic opportunities, technological advancement and voluntary choice to get involved in the activities of processing were the major reason for changes in gender division of task, in palm oil processing because their mean is higher than the mean cut-off point of 2.50, which implies that people go into business (male or female) due to its economic benefits, financial sustainability and if they have the technical know-how. Based on the monetary benefits attached to it, more money can be made by carrying variety of tasks in the processing of palm oil.

Table 3: Tasks performed by men and women from 2018 till date in palm oil processing

Tasks	Men (frequency/percentage)	Women (frequency/percentage)
Harvesting of ripe oil palm fruits	119 (79.30)	31 (20.70)
Operating heavy machinery or equipment	106 (70.70)	44 (29.30)
Transportation of heavy machinery	68 (45.30)	82 (54.70)
Marketing and sales of oil palm products	31 (20.70)	119 (79.30)
Processing of the harvested fruits into oil	12 (8.0)	138 (92.0)
Collection of fallen oil palm fruits	42 (28.0)	108 (72.0)
Sorting and cleaning of harvested fruits	26 (17.30)	124 (82.70)
Processing extracted oil into finished products (e.g. soap and cooking oil)	24 (16.00)	126 (84.00)
Managing household finances related to oil palm processing	15 (10.00)	135 (90.00)
Supporting with administrative tasks	10 (6.70)	140 (93.300)

*Figures in parenthesis are percentages

*frequency (n=150)

Source: Field survey 2024

Table 4: Distribution of Respondents According to Reasons for Changes in Gender Related Tasks for Men and Women in Palm Oil Processing

Reasons for Changes	Mean	S.D	Remark
Economic opportunities in palm oil processing	3.72	0.45	Serious
Social norms and cultural shifts	2.13	0.99	Not serious
Government policies	2.05	1.01	Not a serious
Technological advancement	3.40	0.53	Serious
Chosen by choice	3.67	0.55	Serious

Cut-off score= 2.50 (>2.50= Serious reason; <2.50= Not serious reason)

Source: Field Survey 2024

Constraints Faced by Women Palm Oil Processors

Table 4.5 shows women challenges in palm oil processing. These challenges include; challenges in accessing land and

necessary resources for processing (mean= 3.86), traditional, social and cultural restraints (mean = 1.11), limited access to credit, loans, or financial resources for investment in processing activities (mean= 3.56), government policies and interventions (mean= 2.69), and inadequate technology (mean= 3.56). The implication of these findings is that challenges in accessing land, inadequate technology and limited access to credits, loans and financial resources were the major constraints of female who were involved in palm oil processing because they have a mean higher than the mean cut-off point of 2.50. This is in line with Nwalieji and Ojike (2018) [15] who said that worldwide, business inadequate capital has been noted to be the stumbling blocks of potential growth of small and medium enterprises.

Table 5: Challenges faced by women palm oil processors

Constraints	Mean	S.D	Remark
Challenges of accessing land and necessary resources for processing	3.86	0.35	Constrained
Traditional, social and cultural norms	1.11	0.32	No constraints
Limited access to credit, loans and financial resources	3.52	0.50	Constraints
Government policies and interventions	2.69	0.94	Constraints
Inadequate technology	3.56	0.51	Constraints

Source: field survey 2024

Estimations of the difference in gender related tasks for women in palm oil processing from 2010-2017 and 2018-2024

There was a significant difference ($P = 0.008 < 0.05$) in the gender related tasks for women in processing from 2010-2017 and 2018 to 2024 (table 6). The implication is that women now perform different tasks apart from those that were traditionally ascribed to them and are gradually

outperforming men in this field as they are now taking on a substantial portion in the activities of processing of palm oil and even previously exclusive male roles like harvesting and operation of heavy machinery. This can be related to the economic opportunities in the industry and advancements in the technology and machines used in the processing of palm oil (Awofolaju, 2017) [6].

Table: Mean difference in gender related tasks for women from 2010-2017 and 2018-2024.

Mean 2010-2017	Mean 2018-2024	Mean Difference	T	Sig.	Remark
37.57	47.21	-9.64	-16.41	0.008	Significant

Conclusion

In recent years there have been changes in the different tasks men and women carry out in palm oil processing industry as shown in the study. Women are gradually outperforming men as they are now playing a major part in the palm oil processing industry and even previously exclusive male roles like harvesting and operation of heavy

machinery. This can be related to the economic opportunities seen and advancements in the technology and machines used. As concluded there is a significant difference between the gender related tasks for both men and women in palm oil processing from 2010-2017 and in 2018 to 2024.

Recommendations

Based on the findings, the following recommendations were made:

Government, through agricultural institutions should facilitate the transfer of appropriate technologies that are affordable and easy to use.

Advocate for gender-sensitive policies that support women in agriculture, ensuring they benefit from governmental support programmes

Government should implement policies that ensure women have equal rights to own and access land

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