ASPROWORDA

Working Paper 12/2024

Gender Dynamics in Palm Oil Value Chain: the Role of Corporate Social Responsibility in Nigeria's Niger Delta

Joseph I. Uduji,
Nduka V. E. Okolo-Obasi
&
Joy U. Uduji

Gender Dynamics in Palm Oil Value Chain: the Role of Corporate Social Responsibility in Nigeria's Niger Delta[1]

Forthcoming: Journal of Agribusiness in Developing and Emerging Economies

Joseph Ikechukwu Uduji
(Corresponding Author)
Department of Marketing,
Faculty of Business Administration, Enugu Campus,
University of Nigeria, Nsukka, Nigeria
E-mails: joseph.uduji@unn.edu.ng; joseph.uduji@gmail.com;
joseph.uduji@yahoo.com

Nduka Vitalis Elda Okolo-Obasi
Institute for Development Studies, Enugu Campus,
University of Nigeria, Nsukka, Nigeria
E-mail: eldanduka@yahoo.com; ndukaelda@yahoo.com;

Joy Ukamaka Uduji
Department of Human Kinetics and Health Education
Enugu State University of Science and Technology
Agbani, Enugu State, Nigeria
E-mail: udujijoyukamaka@gmail.com

1 The views expressed in this working paper are those of the authors and do not necessarily represent those of the ASPROWORDA, its Executive Board, or its management.

Abstract

Purpose – The purpose of this paper is to critically examine the multinational oil companies' (MOCs) corporate social responsibility (CSR) initiatives in Nigeria. Its special focus is to investigate the impact of the global memorandum of understanding (GMoU) on gender in the facets of palm oil value chain in the Niger Delta region of Nigeria.

Design/methodology/approach – This paper adopts an explanatory research design using both descriptive and inferential statistics to answer the four research questions. We generated cross-sectional primary data from a sample of 1200 women selected from the nine states of Niger Delta region using multiple sampling techniques.

Findings - Results from the estimation of a logit model and use of propensity score matching to determine the mean difference between variables in the treatment and control show that significant efforts have been made by the MOCs' through their CSR in the areas that will help the women compete favourably in the oil palm value chain.

Research limitations/implications – This study implies that MOCs' CSR interventions that enhanced women acquisition of improved mechanised meals, accompanied by awareness creation and demonstration of value of improved processing technologies and practices to female processors will lift many women out of poverty in the Niger Delta.

Social implications – This implies that fostering gender access to credit through GMoU interventions will improve extraction efficiency of female primary processors and enhance linkages between women producers/processors and large mills in palm oil value chain deliveries in the Niger Delta.

Originality/value – This research contributes to gender debate in the agricultural value chain from a CSR perspective in developing countries and rationale for demand for social projects by host communities. It concludes that business has an obligation to help in solving problems of public concern.

Keywords – Gender dynamics, palm oil value chain, corporate social responsibility, multinational oil companies, sub-Saharan Africa.

Paper type Research paper

1. Introduction

Palm oil is one product that is very important in Nigeria's market. It is useful for food and as raw material for industries in the making of vegetable oil, margarines, seasoning for noodles, confectionary as well as personal care product (DFID, 2020). In the year 2012, the demand for palm oil in Nigeria was as high as 1.4 million tons which costs about 406 billion naira (PIND, 2020). Nevertheless, in-country production is below the total demand at about 878, 000 metric tons with 80% coming from small scale producers and processors (Okolo-Obasi and Uduji, 2021). Roughly as much as 440,000 metric tons, half of national production, came from the Niger Delta region of Nigeria of which four-fifths (380,000 metric tons) came from small holders (PIND, 2022). This made jobs available for about 954,000 palm fruits bunch and palm oil producers (owners of plantation and smallholders), processors operating in small scale, wholesalers and retailers (Obot et al, 2022). Approximately 498,000 men partake in leasing and harvesting of wild groves, production and processing of oil in small scale with about 157,000 women playing a role in processing and marketing (PIND, 2011).

As it were, Nigeria's economy is heavily dependent on the oil and gas sector, which contributes 95% of export returns, 80-85% of government proceeds and about 32% of gross domestic product (FGN, 2017). Nigeria remains the biggest oil producer in Africa and is also among top ten worldwide; her recoverable reserves were put at 36.2 billion barrels in January, 2007. All in all, despite of the country's relative oil fortune, per capita GDP is still 2400 USD, and impoverishment is prevalent –- about half the populace live on less than $1.25 per day (Francis et al, 2011). Reserves for oil and gas are located in the Southern part of the country (the Niger Delta); and this expanse is marked by lack and poor development. The extraction of oil being a capital rather than labour-intensive industry, thus, makes little jobs available for the masses (NDDC, 2001). To worsen matters, same expanse is further badly off by the difficult geographical terrain that makes infrastructure more expensive as well as the effects of environmental degradation which in part is due to the consequences of oil extraction (oil spillage, gas flaring and such) on traditional industries -- fishing and agriculture (NDDC, 2004).

Multinational oil companies (MOCs) in service in the region partake in a surfeit of corporate social responsibility (CSR); and every year MOC invest in social projects and programmes in communities located in the Niger Delta. As time passed on, MOCs bettered on how they got into

deals with local communities towards delivering these projects. In 2006, they ended up introducing a novel way of engaging with communities called the Global Memorandum of Understanding (GMoU). Under its terms, the communities decide the project(s) they want delivered, while MOCs provide finance that will cover for five years in ensuring availability of stable and dependable financing while implementing their community development plans (SPDC, 2013). The GMoUs is a key shift in line of engagement, emphasizing on the need for more transparent and responsible processes, sustainability, regular communication with the grassroots and avoidance of conflict (Chevron, 2014). As 2012 came to a close, MOCs was able to have signed agreements with 33 GMoUs clusters, cutting across 349 communities, which is roughly 35% of the local communities around their business operation in the expanse (SPDC, 2018). This is a replacement of the previous method of operation in which MOCs agreed to hundreds of distinct development projects with individual communities, executing them directly and independently (Chevron, 2017).

All in all, the rise of GMoU model of MOCs' CSR has largely been seen as a way oil companies try to deflect public criticisms of their method of operation as well as avoid government regulation (Frynas, 2009). As an ideology, it has been heavily disparaged. As it were, there is fierce disputation over its usefulness and practical implications. While promoters view it as a means for potentially bolstering an old dynamic in business-community relations, criticizers see it as a policy aimed at demanding new functions from old institutions. This variance in perceptions unvaryingly sets the context for the GMoU deliberation, pitting those for the preservation of an already entrenched business-community relationship against those insisting that business-community relationships must become accustomed to changing community values (Okolo-Obasi et al, 2021; Renouard and Lado, 2012; Tamuno, 2020; Uduji et al, 2020, 2023; Asongu et al, 2018; Egbon et al, 2018; Ekhator, 2019, 2020; Eweje, 2006; Idemudia, 2014; Ite, 2007; Lompo and Trani, 2013; Kalama and Asanebi, 2019). Ensuing the presiding contrary points of view of the GMoU initiatives in the Niger Delta, this paper is advantageous to gender discourse in the agricultural value chain developments and comprehensive growth literature from the viewpoint of CSR. The paper seeks to institute the level of CSR venture that the MOCs have made in the area of palm oil value as well as ascertain the level of gains from such venture that accumulate for the rural women and the effect it has on their trade. The four areas of emphasis given below similarly represent four main questions:

i. How intense is MOCs CSR investment in palm oil value chain line of attack in the expanse of Niger Delta of Nigeria?
ii. What can be established from the involvement of genders in the GMoU activities of the MOCs in the host communities?
iii. Can it be said that MOCs' GMoU undertakings prompt positive changes on rural women in palm oil value chain in the expanse of Nigeria's Niger Delta?
iv. Do MOCs' GMoU activities have effect on palm oil value chain strategy among women in Nigeria's Niger Delta expanse?

1.1 Study hypothesis

In the expanse of Nigeria's Niger Delta, women partake in all functions along palm oil value chain; they mostly dominate the marketing and processing segments rather than production segments (Uduji and Okolo-Obasi, 2020). In production, though, women hire wild groove so as to sell fresh fruits bunches (FFB) to processors. Aside that, they also function as FFB gatherers that relocated FFB from base of tree to a point of assembling of wild grooves and plantations. Each woman receives N20 per bunch or N1000 per day in some cases (PIND, 2020). Introducing semi-mechanised processing equipment transformed a commonly known female dominating, low matching, high level of effort function into a male dominated function in various states of the region, but for AkwaIbom (PIND, 2022). Men had the resources to invest in machines, which made more output possible in less time, thus, putting to the side the female dominated traditional processing. In semi-mechanised processing, about half of the labour requirements are dominated by females – filtering of palm fruits, stacking of fruits into drums, sorting out of fibre from pressed fruits (they use a manual comb) and also manual cracking of kernels. In addition, they have uneven access -- relative to men -- to productive resources and economic openings (Uduji et al, 2024). Thus, we postulated as follows:

- Utilizing GMoU in CSR of MOCs has not considerably contributed to the participation of rural women, in the palm oil value chain in Nigeria's Niger Delta expanse.
- Utilizing GMoU in CSR of MOCs has failed to meaningfully help in removing the key constrictions affecting women's participation across palm oil value chain strategy in Nigeria's Niger Delta expanse.

Based on the above, the main interest of this research is to ascertain the level of CSR investments of MOCs in palm oil value chain, and how such have influence on the living conditions of rural women in host communities. The paper adds to the disparity debate in the agricultural value chains development cum comprehensive growth literature from the standpoint of CSR in emerging countries and the good thinking behind for demands for social projects by host communities. Quantitative method and applied survey research technique were utilised in the research. The standing of this paper moves away from contemporary agricultural value chains literature, which has been directed at, *inter alia:* mapping the palm oil value chain (UNDP, 2020); optimization of sustainable oil palm value chain (Foong and Ng, 2022); women's performance in entrepreneurship development (Uduji and Okolo-Obasi, 2023); cassava flour value chains (Lamboll et al, 2018); an overview of palm oil industry (Maluin et al, 2020); mainstreaming gender sensitivity in cash crop market supply chains (Uduji et al, 2024); distribution of agricultural productivity gains (Moss and Schmitz, 2019); gender sensitive responses to climate change (Uduji and Okolo-Obasi, 2021); farmer's group and smallholder farm performance (Abdul-Rahaman and Abdulai, 2020); agricultural innovation and inclusive value chain development (Devaux et al, 2018); gender equity and land (Uduji and Okolo-Obasi, 2022); thresholds of external flows for inclusive human development (Asongu et al, 2019); cocoa production amidst economic diversification (Fawole and Ozkan, 2018); fighting African capital flight (Asongu et al, 2020); multi-stakeholder partnerships in value chain development (Mutebi Kalibwani et al, 2018); the value chain for sorghum beer (Orr, 2018); gender and food security (Uduji and Okolo-Obasi, 2023); smallholder value chains as complex adaptive systems (Orr et al, 2019); promoting gender-equality agricultural value chains (Uduji and Okolo-Obasi, 2020); women in sustainable agricultural development (Uduji et al, 2019); the palm oil global value chain (Pacheco et al, 2017), and palm oil value chain governance (Purnomo et al, 2018)

Other parts that make up the paper are presented thus: theoretical underpinnings (2); describing materials and method (3); empirical results and corresponding discussion (4), then, the last part (5) – policy implications and future research directions.

2. Theoretical underpinning

Granting that this study adopts a quantitative methodology, we still combined the liberal feminist theory (Fischer et al, 1993) and CSR in an African perspective (Visser, 2006) in generating a

framework for descriptive analysis. First, according to Fischer et al (1993), the liberal feminist theory stressed that the liberal feminist tradition is linkable to feminism's earliest days and argues for the need of social reform in providing same status and openings before men to women. The basic ground of the liberal theory takes on that men and women are equal with rationality, and not sex, being the basis for individual rights. It accentuates the presence of unfair barriers and systematic prejudice facing women (for example, their having limited access to resources, learning, business experience), which must be removed. Liberal feminism grew out from political views of parity, prerogative, and individual rights. The liberal feminist standpoint has been the reason for many legal modifications that have helped in bringing about greater equality for women. Liberal feminist theory in the voicing out of this theory in relation to women's entrepreneurship posits that if women had same access to the openings available to men such as learning (education), acquisition of skills while on the job, and other resources, they would behave just about the same way like men (Unger and Crawford, 1992).

Second, in line with the claims of Uduji et al (2023), the challenge of CSR in evolving country is framed by a vision distilled in 2015 into the sustainable development goals of a world with reduced impoverishment, hunger as well as diseases, and greater prospects of survival for mothers and their infants, better education of children, equal openings for women, and an environment thriving in health. As a result, this study as well explores the nature of CSR in an African context used as a framework for descriptive analysis. Carroll's (1991) CSR pyramid is most likely the highest recognised model of CSR, with its four levels showing the relative significance of economic, legal, ethical and philanthropic responsibilities correspondingly. However, exploring CSR in Africa (Visser, 2006) was used to challenge the correctness and applicability of Carroll's (1991) CSR pyramid. It argues that if Carroll's basic four-part model is accepted, it suggests that the relative priorities of CSR in Africa will likely vary from the classic, American ordering. Amaeshi et al (2006) is of the opinion that the Nigerian idea of CSR remarkably vary from the Western version. Uduji and Okolo-Obasi (2020) have also disputed that Carroll's CSR pyramid may not be the best model for having a grasp of CSR in general, and particularly in Nigeria. Accordingly, this research adopts quantitative methodology but assesses the result from the liberal feminist and African CSR standpoint.

3. Method and material

We embraced an experimental design (quasi-experiment) in this study. The quantitative method is incorporated due to the dearth of quantitative work on agricultural value chains in the expanse – Nigeria's Niger Delta (Uduji et al, 2024). We made use of an exploratory research method designed to gather cross sectional information from a sample of rural women in the region. It basically centres on going through, outlining as well as explaining the situations during the investigation.

3.1 Sample size

In determining the sample size for this study, we embraced the sample size determination formula proposed by Yamane (1967). This formula is fitting for determining sample size from a large known population. The formula, mathematically, is stated thus:

$$n = \frac{N}{1 + N(\alpha)^2} \qquad \text{Equation (3.1)}$$

Where,

n = Sample size

N= Total population size of the study area

α = level of precision, (in this case 0.05)

where the total population of women in the expanse is projected to be 21,744,914 according to NPC (2017), we filled in the formula thus:

$$n = \frac{21,744,914}{1+21,744,914(0.05)^2} = n = \frac{21,744,914}{21,744,915(0.0025)} = n = \frac{21,744,914}{54,362.3} = 399.9 \text{ approximately } 400.$$

Yet, because this study covers three geopolitical zones of Nigeria, we had to multiply the size by three to make sure that sample selection error is brought down to its minimum. Thus, the total sample size for the study is 1200.

3.2 Sampling

We took on a multi-stage sampling procedure in the work to make sure that the picked respondents were fairly distributed among the states of the region. Both purposive, quota and simple random samplings were put into use at various stages of the sampling. In the first stage, we assigned quota to all the nine states in the expanse in relation to state population as shown in Table 1. In the second stage, using purposively sampling, we chose two local government Areas (LGAs) out of each of the picked States on the grounds that the LGAs host, at least, an MOC facility. On this note, a total of eighteen (18) LGAs were chosen for the study. In the third stage, we also intentionally selected two communities from each of the picked LGAs on the basis of same hosting of MOC facilities by the communities. We also ascertained at this point that one community chosen for the work belongs to a cluster development board (CDB) while the other operates outside it. In the final stage, we involved the services of the community gatekeepers to arbitrarily select the final respondents from the chosen communities. Therefore, the gatekeepers assisted in selecting 600 respondents from the communities that belong to a CDB and same number of respondents from the communities not belonging to any CDB. In the end, it totalled up to 1200 respondents used for the assessment.

The circulation of the sample was done in the chosen rural communities based on the number of people in the state in which the community is situated (Table 1).

Table 1. Sample size determination table

States	Total Population	Female Population	% of total population	State Sample	CDB Sample	Non-CDB Sample
Abia	3,727,347	1,900,947	9	105	52	53
Akwaibom	5,482,177	2,795,910	13	154	77	77
Bayelsa	2,277,961	1,161,760	5	64	32	32
Cross River	3,866,269	1,971,797	9	109	55	54
Delta	5,663,362	2,888,314	13	159	79	80
Edo	4,235,595	2,160,153	10	119	60	59
Imo	5,408,756	2,758,466	13	152	76	76
Ondo	4,671,695	2,382,564	11	132	66	66
Rivers	7,303,924	3,725,001	17	206	103	206
	42,637,086	**21,744,914**		**1200**	**600**	**600**

Source: NPC, 2007/Authors' computation

3.3 Data collection

We made use of participatory research technique in gathering together the data for the research work. The technique was used so as to achieve the desired direct interaction with the women being studied: their opinion is highly needed in realising the aim of the study. The technique helped us in gathering data to actualise having correct answer for the research questions. The main instrument utilised in the participatory appraisal was a structured questionnaire (SQ) that enabled us get a cross sectional data used. The local research assistants helped in administering the SQ directly to the respondents for two major reasons. Firstly, there is multiplicity of language and dialects which the assistants helped in resolving. Secondly, the rough (rugged and hostile) terrain of the study area, due to militant actions, made it necessary for us to engage one who is conversant with the area as a research assistant.

3.4.0 Analysis Technique

This study looked at the roles corporate social responsibilities of the MOCs play in encouraging gender involvement in palm oil value chain among the host communities in Nigeria's Niger Delta expanse. We used both descriptive and inferential statistics in proffering solution to the research question and actualizing the set objectives of the study. In achieving objectives one and two, we made use of descriptive statistics while objectives three and four were accomplished using inferential statistics anchored on logit and propensity score matching (PSM) model. These models were used to evade the problems of endogeneity and selectivity.

In making use of propensity score matching (PSM), two sets of respondents were picked from two dissimilar types of communities. They are: communities having Cluster Development Boards (CDBs), tagged "the CDB communities", and the ones not belonging to any CDB, tagged "the non- CDB communities". The final respondents for the CDB communities formed the "treatment group", while those for the Non-CDB formed the "control group". We did this because, according to Uduji and Okolo-Obasi (2023), PSM requires computing the possibility of a treatment based on observed covariates comprising both treatment and control. PSM sums up pre-treatment qualities of each subject into a single index variable that is in turn used to match comparable individuals. So, PSM is, as it were, choosing from a larger survey an ideal comparison group and matching it to

a treatment group based on a set of observed qualities in order to compute the effect of a certain handling on one group (treatment) not extended to the other (control).

The assumption in a study of this nature is that the treatment decision (taking part in or belonging to a cluster development board), although not random, end up hinging on the variables observed. The proclivity to match on variable X in reality means that one can as well match on probability of X (Rosenbaum & Rubin 1983). Thus, the treatment group is represented by R_i =1 for woman$_i$, and R_i = 0 otherwise, in matching the treatment group to the control group on the basis of propensity score. Accordingly, the mathematical equation is:

$$P(X_1) = Prob(R_2 = \frac{1}{X_2})(0 < P(X_2) < 1) \qquad \text{Equation (3.2).}$$

In the equation, X_1 represents a vector of Pre-CSR intervention control variables, if all the R_1s are independent over all 1's and the outcomes are independent of CSR intervention given X_1, while the results are also independent of CSR intervention given $P(X_1)$, as will happen if CSR intervention is received arbitrarily. To arrive at clear conclusions on the effect of the CSR intervention on women's involvement in oil palm value chain, we side-stepped the biasness in choosing observables by matching on the probability of the treatment (covariates *X).* Hence, the propensity score of Vector X was defined thus:

$$P(x) = P_r\left(Z = \frac{1}{X}\right) \qquad \text{Equation (3.3)}$$

Where, Z = the treatment indicator being =1 if the chosen woman is from the treatment group (CDB community) and 0 if not. Nevertheless, even though PS is a balancing score, the observables *X* was disseminated same for the women from CDB communities as well as those not from such communities (non-CDB communities) and the differences are seen as the trait of treatment.

To obtain balanced impact evaluation of this treatment, we followed two steps projected by Uduji and Okolo-Obasi (2022) with some modification. First, because we know that the treatment is forecast by a binary response model with pertinent observable features; we projected the logit model of treatment as a duty of some socio-economic trait including individual, family and community variables as follows:

$$P_x = log\ \frac{P_i}{1-P_1} = log0_i = \alpha_i + \beta_i x_i \ldots\ldots\ldots + \ldots \beta_n x_n + \mu \qquad \text{Equation (3.4)}$$

Secondly, we fashioned value for the likelihood of treatment from the logit regression allocating individual respondent a separate propensity score. At this point, the respondents from the control groups with propensity score that are really poor (outside the range found for treatment) were dropped. Thus, for each woman in the treatment, another woman in the control with the closest low propensity score was picked. We then put out the statistics for the mean values of the result of indicators for the nearest neighbours. The discrepancy between the mean and actual value for treatment is the valuation of the gains due to CSR intervention of the multinational oil companies. This gain is valued by the average treatment effect on the treated (ATT) which is a difference that can be expressed mathematically as shown below:

$$ATT_{PSM} = \sum_{P(X)}\{\sum(\frac{y_i}{z} = 1, P(x) - \sum\frac{y_0}{z} = 0, P(x)\} \qquad \text{Equation (3.5)}$$

Where, EP(X) = anticipation with respect to how the propensity score is distributed among the people (population). The ATT shows the mean variance in boosting gender equity in participating in agricultural value chain.

3.4.1 Propensity Score Matching and Entropy Balancing

Both Entropy Balancing (EB) and Propensity Score Matching (PSM) are methods targeting facilitation of accurate causal inference by regulating variances in covariates amongst two observational groups (treatment and control) in a studies. While we acknowledge that EB may have some advantages over PSM achieving excellent balance on covariates and possibly leading to more acceptable control of confounding, we also noted that PSM have some advantages of EB and

such advantages are more useful in this study. We noted that EB is good in a fully randomized control trails but this our study is a quasi - experimental design, not a full randomized control trail and PSM is best when it comes to mimicking a randomized control trial to be able to balance the distribution of observed covariates between the treatment and control groups.
Our study would have adopted EB had it been that the main issue is to get the exact balance on covariate distributions, but the context of our study places more emphasis on well-understood method because the detailed one on one matching of the respondent women using nearest neighbour kennel based and radius matching method is important to us as we are matching individual respondent women.

While EB assigns weights to each observation instead of creating matches, it is less intuitive and harder to explain to non-experts compared to PSM. PSM is comparatively easy for the large readership of the journal to understand, it is widely used and accepted with widespread literature and empirical claims backing up the use, PSM in quasi experimental design enhances peer acceptance and wider readership with understanding.
Similarly, the data set in use play a major role in determining the method to be adopted. While EB is preferable with a very large size of sample, the sample we have selected in this study is near perfect for PSM. In the follow-up to this study where the respondents size and area of coverage will be enlarged and randomized control trail carried up, we definitely will adopt entropy balancing.

3.5 SCOTDI

To add more to the analytical framework above, it is crucial to note that MOCs operative in the Niger Delta still face the difficulty of how to ascertain the success or failure of their CSR inventiveness in relationship to its effect on community development or its impact on corporate – community relations. In giving this problem a proper view, Shell Petroleum Development Company (SPDC) in 2013 brought into functioning the Shell Community Transformation and Development Index (SCOTDI). SCOTDI is an inventiveness presented in a way that is accessible to local content (SPDC, 2018). The framework is utilized in this study to access and give placement to the percentage of circulation of women facing the key difficulties inhibiting access to land in the region.

4. Results and discussion

4.1 Descriptive characteristics

We will commence the analysis with elucidation of some of the respondent's social (healthcare access, level of intellectual exposure, marital status etc), economic (key means of survival, estimated earnings, projected per capita income of other members of the household etc), and demographic (age, size of family, experience etc) traits. These traits are critical in understanding the dissimilarities in the socio-economic and demographic status of both the treatment and control groups.

Table 2 Socio- economic Characteristics of the Respondents.

	Treatment Group			Control Group		
Variables	**Freq**	**%**	**Cum**	**Freq**	**%**	**Cum**
Age of Respondents						
Less than 20 years	10	2	2	24	4	4
21-25 years	110	18	20	86	14	18
26-30 years	139	23	43	113	19	37
31 - 35 years	109	18	61	121	20	57
35 - 40 years	96	16	77	102	17	74
41 - 45 years	62	10	88	71	12	86
45 - 50 years	48	8	96	51	9	95
Above 50 years	26	4	100	32	5	100
	600	**100**		**600**	**100**	
Level of Education						
None	27	5	5	97	16	16
FSLC	273	46	50	282	47	63
WAEC/WASSCE	222	37	87	143	24	87
Degree and above	78	13	100	78	13	100
	600	**100**		**600**	**100**	
Primary Occupation						
Fishing	165	28	28	178	30	30
Trading	74	12	40	46	8	37
Farming	222	37	77	241	40	78
Paid Employment	58	10	87	38	6	84
Handicraft	43	7	94	62	10	94
Others	38	6	100	35	6	100
	600	**100**		**600**	**100**	

Marital Status						
Single	102	17	17	110	18	18
Married	348	58	75	420	70	88
Widow	63	11	86	23	4	92
Divorced/Separated	87	15	100	47	8	100
	600	**100**		**600**		
Household Size						
1-4 Person	315	53	53	292	49	49
5-9 Person	198	33	86	214	36	84
10-14 Person	75	13	98	72	12	96
15 Person and above	12	2	100	22	4	100
	600	**100**		**600**	**100**	
Estimated Annual Average Income						
1000 - 50,000	19	3	3	92	15	15
51,000 - 100,000	85	14	17	105	18	33
101,000 - 150,000	125	21	38	155	26	59
151,000 - 200,000	128	21	60	97	16	75
201,000 - 250,000	119	20	79	73	12	87
251,000 - 300,000	82	14	93	56	9	96
Above 300,000	42	7	100	22	4	100
	600	**100**		**600**	**100**	
Value of receipts Through CG						
1000 - 50,000	32	5	5			
51,000 - 100,000	53	9	14			
101,000 - 150,000	79	13	27			
151,000 - 200,000	90	15	42			
201,000 - 250,000	95	16	58			
251,000 - 300,000	211	35	93			
Above 300,000	40	7	100			
	600	**100**	**200**	-		

Source: Computed from the field data by authors

The analysis (Table 2) makes it clear that while the age of respondent in the treatment group is an average of 32 years, for control group, it is 36 years. Also, while only about 5% of the treatment group are not exposed to education, as much as about 16% of the control are in the same category. It means that on average, about 89% of the respondents can read or write. This implies that illiteracy is likely not a serious challenge among women in the region. In the area of key means of survival, while 10% of the respondents in the treatment group have a job made available by others

(government or private), only 6% of the control have similar kind of employment. With these, it is obvious that the employment status of the respondents is alike as an average of about 92% of the respondents have something doing on their own (self-employment). Meaning that, for women, entrepreneurship in the region is strong. On the other hand, regardless of being in CDB community or not, the projected average annual earnings of both the treatment and control groups is still really low. Among the treatment group (the CDB communities), the projected average earnings are NGN200,000 (about 200 USD) yearly, while that of the respondents in the control (the non-CDN communities) is NGN120,000 (about 120 USD) yearly. What it implies here is that impecuniousness in the study area is high.

4.2 Level of CSR investment in oil palm value chains in the Niger Delta Nigeria

In providing answers to the first research question, we first had to look at the range of general interventions of the multinational oil companies using CSR in various sectors of development of the expanse of the Niger Delta. Before this, we designed in a chart the main glitches women encounter in partaking in the oil palm value chain to be sure that the CSR undertakings of the MOCs are pertinent towards boosting women's involvement in the oil palm value chain.

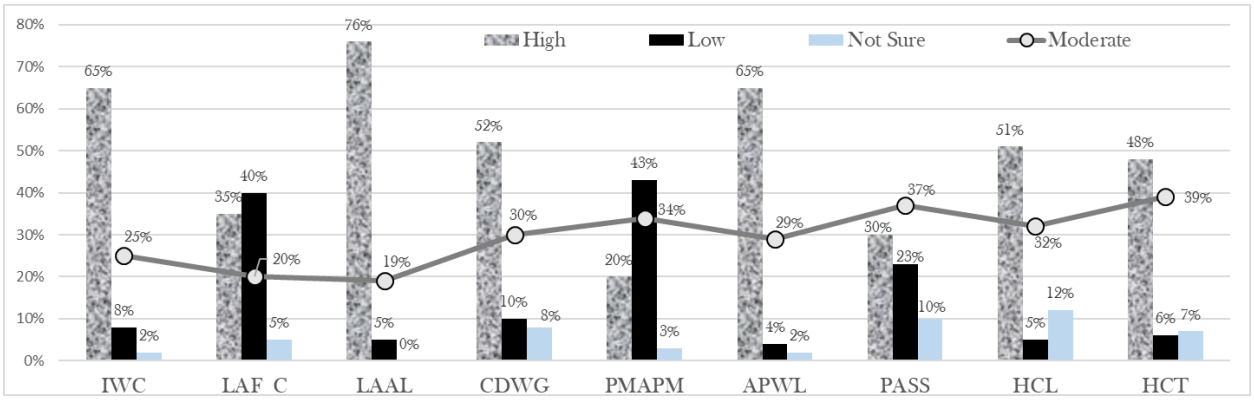

Figure 1. Percentage distribution of respondents by major challenges in palm oil production[2]

Source: Authors' computation based on field survey.

From the analysis (Figure 1), it is noticeable that on the part of production of oil palm, lack of access to arable land (rated 76%) is a key constraint to women's involvement in the value chain.

[2] IWC = Inadequate Working Capital, LAF_C = Limited Access to Fertilizer/chemicals, LAAL = Limited Access to arable Land, CDWG = Continuous Destruction of Wild Grove, PMAPM = Poor Managerial Ability and Plantain Maintenance, APWL = Aging Palms Without Replacement, PASS = Poor to Seeds and Seedlings, HCL = High Cost of Labour, HCT = High Cost of Transportation

This is followed by, insufficient working capital (rated 65%), and the palms really aging without any appreciable replacement (rated 65%). Any CSR undertaking directed at this area of the value chain will have a huge effect in bettering female involvement. Others are, incessant destruction of wild grove (rated high 52%), high cost of labour (placed at 51%), and huge money that goes into transportation (rated 48%).

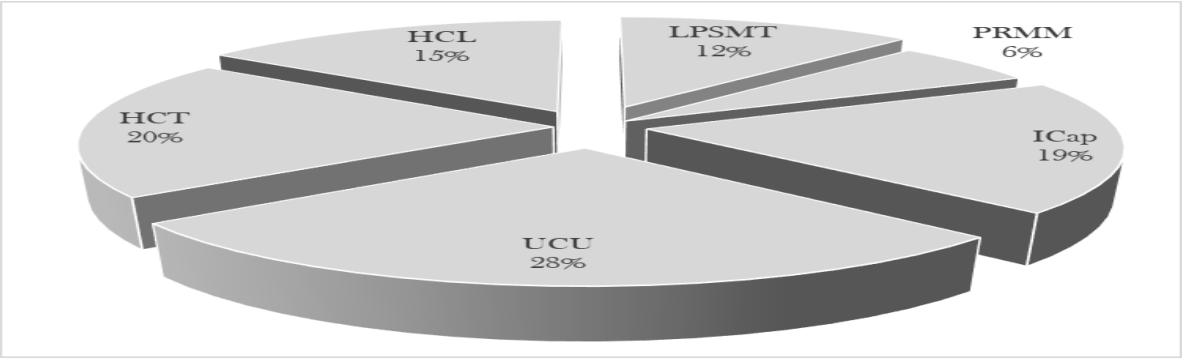

Figure 2. Percentage distribution of respondents by major challenges in oil palm processing[3]
Source: Authors' computation based on field survey.

As it concerns primary and secondary processing along the value chain, analysis (Figure 2) makes it known that while insufficient capital accounts for about 19% of the glitches faced by the people in processing, under-capacity utilization of amenities had as much as 28%. This shows that either the producers lack the aptitude to produce enough that will feed the processing plants, or the processing arm lacks the finance to take enough delivery from the producers. Also to be noted is that the respondents identified high cost of transportation as responsible for 20% of the key challenge in their business. This is because most of the roads to the plantations are scarcely in a good condition that will aid vehicles to easily convey the raw materials.

[3] LPSMT = Lack of Proper Scaling of Milling Technology, PRMM = Poor Repair and Maintenance of Mills, ICap = Inadequate Capital, UCU = Under-Capacity Utilization, HCL = High Cost of Labour, HCT = High Cost of Transportation

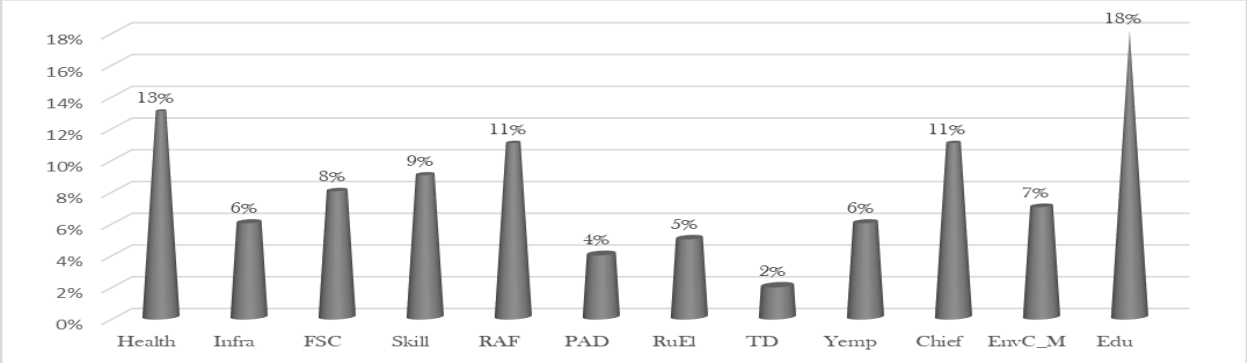

Figure 3. Percentage distribution of CSR intervention by nature of empowerment in the Niger Delta[4]

Source: Authors' computation based on field survey.

Analysis (Figure 3) highlights the nature of enablement that the MOCs make available in their CSR undertakings in the region. This shows that, while putting resources into intellectual enlightenment (18%) tops the interventions, it is followed by health (13%) which shows that both the MOCs and the host communities believe that exposure to knowledge and working towards better health will go a long way lowering the level of impecuniousness in the land. This issue of discourse falls under rural agriculture and farming (accounting for about 11% of the CSR investment). This shows that significant interventions are carried out in rural farming and agriculture that provide jobs for over half of the people directly and indirectly. The issue of concern in the undertakings is why spending about 11% on chieftaincy matters is on the list.

Table 3. Percentage rating of MOCs' CSR in promoting gender participation in oil palm value chain

Activities	Chevron	Exxon Mobile	Agip	Shell	Total E&P	Others	Average
Acquiring, recovering and distributing arable land for expansion to female farmers	9	12	10	11	11	10	**11**
Providing women with soft loans and grant to enhance access to working capital	14	12	13	11	14	12	**13**
Providing high yielding seeds and seedling for women to replace aging plantations	12	11	14	13	10	10	**12**
Reduction in high cost of labour by sponsoring women cooperatives	5	6	7	8	4	6	**6**

[4] Health = Health Services, Infra = Infrastructural Development, FSC = Fishing and Sea food collection, Skill = Skill Acquisition, RAF = Rural Agriculture and Farming, Edu = Education, PAD = Policy advocacy and Dialogues, RuEl = Rural Electrification, TD = Tourism Development, Yemp = Youth Employment, Chief = Chieftaincy Matters, EnvC_M = Environmental control and management

Reduction in high cost of transportation by improving road and transport infrastructures	16	17	14	18	18	15	**16**
Subsidizing the cost of fertilizer/chemicals (herbicides, insecticides, etc)	12	10	11	12	10	11	**11**
Organising training to improve plantation maintenance	4	2	1	2	3	3	**3**
Subsidizing the scaling of milling technology for women entrepreneurs	7	6	7	5	8	5	**6**
Organizing business management training for women to increase their managerial abilities	10	11	12	10	13	14	**12**
Encouraging inclusive business among the women in oil palm value chain	8	8	9	8	6	10	**8**
Advocacies to change cultural taboos and barriers restricting women involvement in the value chain	3	5	2	2	3	4	**3**
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Source: Authors' compilation based on field survey.

Analysis (Table 3) makes it obvious that MOCs have in their CRS undertakings towed towards encouraging women (especially the rural ones) in their host communities to contribute in the oil palm value chain of the Niger Delta Expanse. The areas MOCs covered include:

a) Obtaining, recovering and allotting arable land for expansion to female farmers for the enhancement of their access to lands. It accounted for an average of 11% of the total undertakings by the main line MOCs.

b) Making available soft loans and grant to women better their access to working capital (13%).

c) Providing high producing seeds and seedling for women to replace aging plantations (12%).

d) Bringing down high cost of labour by funding women cooperatives (6%).

e) Lowering high cost of transportation by making roads and transport infrastructures better (16%).

f) Supporting the cost of fertilizer/chemicals (herbicides, insecticides, and such) – 11%.

g) Arranging for training to enhance on plantation maintenance (3%).

h) Subsidizing the scaling of milling technology for women entrepreneurs (6%).

i) Organizing business management training for women to better their managerial aptitudes (12%).

j) Boosting inclusive business among the women in oil palm value chain (8%).

k. Advocacies to change cultural taboos and barriers limiting women's contribution in the value chain 3%.

This simply entails that the MOCs have been engaged in many areas that will assist women's participation in the oil palm value chain. The strength of influence of this intervention is evaluated using the PSM, as revealed below.

4.3 Level of gender participation in the CSR intervention of the MOCs

To actualize the second aim of this study, we attempted to establish the equity in involvement of the women in CSR undertakings of the Niger Delta expanse as made available by the MOCs. We looked at the opinion of the women and how they felt using SCOTDI. SCOTDI, as a composite index, weighs, scores and ranks the performance of GMoU clusters based on five key criteria (i.e. limpidity and accountability, inclusiveness and input, governance and democracy, business climate, and progress towards sustainability). SCOTDI, as a result, does not essentially capture results associated with GMoUs but also seeks getting insights into how GMoUs functions as well as the degree the essential principles are embedded in their procedures. In this valuation, the opinion of the respondents (women) were obtained on how gender is mainstreamed in the CDBs governance, limpidity in the management, continuity of the CDBs after MOCs' CSR undertakings, result of the GMoUs in the Niger Delta expanse, and collective inclusiveness in policy making. The rating reveals that the respondent saw their participation and inputs into the CDBs and GMoU management as being as low as: governance (14.8%), inclusiveness (15.8%), transparency (11%), participation (7.6%), continuity (8.6%), and outcome (10.4%). For men, their rating in the secondary data were: 36.4%, 48.4%, 8.3%, 29.5%, 9.2%, and 13.2% respectively.

4.4 Econometric estimations for GMoU participation.

Table 4. Mean score and observable characteristics across treatment and control for encouraging gender participation in oil palm value chain (N = 1200)

Score in Percentage of Maximum Score	Treatment %	Control %	Difference %
Increase in access to arable land for expansion	27.72	14.65	13.07**
Increase in access to working capital	36.94	16.34	20.6**
Increase in access to seedling to replace aging	19.68	8.32	11.36**

plantations			
Changes in proliferation of adulterated seeds and seedlings	24.29	12.16	12.13**
Reduction in high cost of labour	13.78	21.32	-7.54**
Reduction in high cost of transportation	15.43	29.76	-14.33**
Increase in access to fertilizer/chemicals (herbicides, insecticides, etc)	26.64	8.34	18.3**
Improved plantation maintenance	13.23	9.75	3.48**
Increase in scaling of milling technology	18.27	14.16	4.11**
Increase in managerial ability of entrepreneurs	21.21	17.89	3.32**
Education	17.34	15.21	2.13*
Age	14.31	13.45	0.86
Sex	15.17	9.68	5.49
Marital Status	12.98	16.14	-3.16*
Primary Occupation	17.32	10.26	7.06**
Household Size	9.04	12.78	-3.74
Income of Other Household Members	13.06	9.82	3.24*
Estimated Annual Income	32.64	20.03	12.61***
Observation	600	600	

*= significant at 1% level; ** = significant at 5% level; and * * * = significant at 10% level

Source: Authors' compilation based on household survey

The figure in Table 4 shows the discrepancies in basic scores of independent observable traits between the treatment group and the control group. The discrepancies were measured for the areas that the MOCs have taken action on using the GMoUs. This shows that the scores on upsurge in access to arable land for expansion got better by about 13% on the part of treatment, while scores on upsurge in working capital was also a positive of about 21%. Then, scores on increase in access to seedling to replace aging plantations was made better by about 11%. We also noted that scores on changes in proliferation of adulterated seeds and seedlings enhanced by about 12% after treatment. Furthermore, scores in bringing down the high cost of labour recorded about (-8%), as score on lowering high cost of transportation also recorded about (-14%) -- showing that, due to the CSR interventions, cost of transportation dropped by about 14% while cost of labour got lower by about 8% for both production and processing. Others include scores on rise in access to fertilizer/chemicals (herbicides, insecticides, etc) which got better by about 18%; scores on improved plantation maintenance (rose by about 4%), scores on increase in scaling of milling technology (got better by 4%), and scores on increase in managerial ability of entrepreneurs (improved by 3%).

In addition to the differences recorded in the other socio-economic variable, the implication of the discrepancies is that the corporate social responsibilities of the multinational oil companies in line with the GMOUs has made noticeable impact on inspiring women to actively partake in the oil palm value chain of the Niger Delta expanses. In this study, we captured the pertinent observable discrepancies between the treatment and control groups and estimated the likelihood of treatment (obtaining the MOCs' CSR interventions) for the women.

Table 5. Logit model to predict the probability of treatment conditional on selected observables

Variables[5]	Coefficient	Odd Ratio	Marginal Effect	Std. Error
EduLev	0.521	1.442	.023**	0.024
Age_Res	-0.092	0.313	0.0203	0.018
MS_Res	0.112	0.281	0.0021	0.131
M_OccP	0. 321	1.352	.0120*	0.142
Y_Res	-0.0312	1.414	0.0036**	0.202
Y_HM	-0.136	1.021	0.042**	0.032
Ben_Res	0.521	1.052	.0012***	0.034
CDB_Com	0.201	2.224	0.021**	0.048
Farm_Tp	0.873	0.921	0.024	0.022
Ch_Stg	0.421	0.651	0.022**	0.037
Constant	5.143	3.143	0.0361	0.423
GMoU Perception	1. 456	5.134	0.0724*	0.314
Observation	1200			
Likelihood Ratio - LR test (ρ=0)			$\chi 2$ (1) =1433.421**	
Pseudo R^2	0.34			

*= significant at 1% level; ** = significant at 5% level; and * * * = significant at 10% level

Source: Authors' compilation based on household survey.

Analysis (Table 5) makes obvious both the estimated coefficients, the marginal effect, standard error as well as the odd ratio rated in terms of odds of Z=1. From the single observation examined, highest academic attainment, CDBs composition and control system, key means of survival, how GMoUs is seen by the respondents, gains of those involved, and stage of involvement in the chain were the factors that favourably influence seeking direct CSR intervention by women

[5] Edu = Highest level of education of respondent, Age_Res = Age of respondent, MS_Res = Marital status of respondent, M_Occp = Main occupation of respondent, Y_Res = Income of the respondent, CDB_Com = Composition and Management system of the CDB leaders, Ben_Res = Evidence of benefit of participants, Y_HM = Income of other household members, Ch_Stg = Stage of participation in the value chain, GMoU Perception = How respondents perceives the GMoUs of the MOCs, Farm_Tp = Farming type of the respondents.

in the GMoU programmes. Then, on the other hand, annual earnings of respondents, age, and average per capita returns of other family members negatively influence the desire to access CSR of the multinational oil companies. This, thus, means that if more effort is made to expedite the positive factors to accessing CSR, more women will hopefully gain from the interventions directly. Also noted in the examination is that the marginal effect of CDB composition and control practices is 0.021 showing that any unit upsurge in including women in the CDB management has the capacity of bettering women contribution in the oil palm value chain by 2.1%.

In line with this likelihood of obtaining CSR intervention as projected in the model, we assessed the effect of using CSR to boost women's involvement in oil palm value chain of Niger Delta using the variables of concern. The average treatment test (ATT) was calculated after fully confirming that the observations were arbitrarily ordered and that there were no large dissimilarities in the circulation of propensity scores. To this, we made use of the three matching algorithm of Kernel based matching method (KBM), nearest neighbour matching (NNM), and Radius matching (RM). The NNM ended up giving out the most significant average treatment test (ATT) after we looked at the effects in line with: upsurge in access to arable land for expansion, rise in access to working capital, increase in access to seedling to replace aging plantations, changes in proliferation of infected seeds and seedlings, drop in high cost of labour, decrease in high cost of transportation, rise in access to fertilizer/chemicals (herbicides, insecticides, etc), enhanced plantation maintenance, increase in scaling of milling technology, and upsurge in the managerial skill of entrepreneurs. The analysis reveals an average NNM estimate of women's involvement in the oil palm value chain to be about 14%. For check of sturdiness, we also exposed this to both KBM and RM as we thought that the NNM estimate had produced poor matches. We noted that the valuation of RM algorithm yielded about 10% while Kernel-based matching algorithm yielded about 8%. It, thus, becomes very clear that the CSR of MOCs have considerably stimulated women's participation in oil palm value chain of Nigeria's Niger Delta expanse.

For the sensitivity analysis, we took to note that KBM in comparison to NNM and RM yielded more robust treatment effect in line with the valuations of hidden bias in the respondents' scores. Because of this, there exit a possibility that matched pairs may be dissimilar by up to 100% in unobservable traits. And the impact of CSR of multinational oil companies as monitored by the CDBs based on variables considered would still be substantial at a level of 5%. Same

classifications of knowledge score are vigorous to hidden bias up to an effect of $e^{\gamma} = {}^{2}$ at a significance level of 10% in line with the RM method. The implication here is that the CSR of the MOCs are considerably reinforcing the support for women involvement in the oil palm value chain of the Niger Delta expanse.

In all, the outcomes of this study arrive at the same opinion with PIND (2011), in reemphasizing that women are found in all functions along the palm oil value chain, and that majority of the women dominate the marketing and processing segments rather than production segments. For example, in clusters like Emohua and Elele in Rivers State, few women are owners of mills. In Ogba, Bayelsa State, there is a cogent gender balance in ownership of mills as opposed to Oria/Erho in Delta State where no female has a mill. Rather, women purchase fresh fruits bunches or loose fruits to process at mills for a fee. As a form of revenue breeding activity within their homes, women in Delta and Akwa Ibom States make low great soap from two main ingredients – palm oil from the enhanced variety and from caustic soda. The low grade soap manufacturing is said to be made by women only. These soaps are used at home for bathing, washing of plates and clothess or are sold in houses, kiosks and open markets. They are cheaper than conventional soaps (being sold for N50 against N100 or more which is the price for conventional soaps; initial set up cost is between N10,000 – N15,000). The outcomes give support to liberal feminist theory (Fischer et al, 1993; Unger and Crawford, 1992), in that if women are made to enjoy the same access to the openings available to men such as schooling, acquiring work experience, and other resources, they would most likely behave in a similar way. The findings put forward that the relative priorities of MOCs' CSR interventions in the Niger Delta should vary from the classic, American ordering proposed by Carroll (1991). Placing significance on a cultural context in the determination of apposite CSR priorities and programmes, as suggested by Visser (2006), is crucial in the context of the rural Niger Delta. Flexibility is also a need in addressing the distinctiveness of the socio-economic problems in the region as suggested by Amaeshi et al (2006), which involves closing the gender cavity in palm oil value chain. But in terms of extension and input, if we are to contribute on how CSR undertakings can advance gender equality in palm oil value chain in the Niger Delta, we would maintain that MOCs' CSR can play an essential role in achieving gender equality when investment in palm oil value chain deliveries is designed for the intricacies of real life. It is our contention that the private sector generally, is well placed to address some of the logistical and cultural glitches that face women's access to production segments in the palm oil

value chain in the Niger Delta. MOCs, are particularly well positioned for the transfer of accountable business practices and standards, technologies and infrastructure that expedites knowledge creation and encourages gender diversity cum more equal access to economic opening as well as human capital development in the palm oil value chain deliveries. Such will include introduction of the female-friendly mechanised mills, followed up by awareness creation as well as demonstration of value of enhanced processing technologies cum practices to female small-scale processors. The supply of mills can be handled by local fabricators and will use secondary processors as a point of leverage to stimulate gender in the facet of palm oil value chain in the Niger Delta. Thus, taking on gender equality in palm oil value chain deliveries should be prioritised in CSR practices in the Niger Delta because it can better the environment for doing business in the region.

5. Conclusion and policy implications

Matters connected to gender equality in palm oil value chain deliveries have been the subject of much debate during the past decades and have grown into a huge topic of debate in Nigeria. In the Niger Delta region, there are large discrepancies in gender dynamics and the role of women in the value chain. Women are seen involved in all functions along the palm oil value chain, and most women control the marketing and processing segments rather than production segments. Men had the wherewithal to invest in machines, which ended up yielding more output in less time; thus, pushing women away from their area of domination in traditional processing. Despite the MOCs' CSR interventions in agriculture, most of the labour supplies are female dominated which include: filtering of palm fruits, loading of fruits into drums, sorting out of fibre from pressed fruits and cracking of kernels via manual methods. Thus, we gave ourselves into accessing the effect of MOCs' CSR interventions in gender in the facet of palm oil value chain in the Niger Delta. We made use of explanatory research design, working with both descriptive and inferential statistics to answer the four research questions. We generated cross-sectional primary data from a sample of 1200 women picked from the nine states of Niger Delta region using multiple sampling techniques. Outcomes from the assessment of a logit model and use of propensity score matching to determine the mean variance between variables in the treatment and control shows that significant efforts have been made by the MOCs' via their CSR in the areas that will assist women in favourably competing in the oil palm value chain. The results suggest that a raise in the gender

sensitive CSR aimed at enhancing women's involvement in oil palm value chain will lift many women out of impoverishment and better productivity of women.

The study increases the literature on gender equality in palm oil value chain openings in five notable ways. Firstly, we identified the key gender cavities in the facet of palm oil value chain in the Niger Delta expanse of Nigeria. Secondly, the research makes available insight into how CSR undertakings can better gender equity in agricultural development in the rural areas of the Niger Delta expanse of Nigeria. Thirdly, moving away from previous studies, this research employed the quantitative methodology to proffer solution to the problem of lack of quantitative materials on the relevance of CSR in agricultural development in the region. Fourthly, the investigation tried employing the nature of an African CSR model in rural women's inclusion in palm oil value chain deliveries. Fifthly, we made available policy suggestions that would assist MOCs to successfully handle the problems of gender dissimilarities programmes in the expanse of Nigeria's Niger Delta.

Declaration of conflicting interests

The authors declared n potential conflicts of interest with respect to the research, authorship and/or publication of this article.

References

Abdul-Rahaman, A. and Abdulai, A. (2020). Farmers groups, collective marketing and smallholder farm performance in rural Ghana. *Journal of Agribusiness in Developing and Emerging Economies,* 10(5): 511-527.

Amaeshi, K., Adi, B., Ogbechie, C. and Amao, O. (2006). Corporate social responsibility in Nigeria: Western mimicry or indigenous influence? *Journal of Corporate Citizenship,* 24, 83-99.

Asongu, S.A., Uduji, J.I. and Okolo-Obasi, E.N. (2018). Transfer pricing and corporate social responsibility: arguments, views and agenda. *Mineral Economics,* 32(3): 353-363, https://doi.org/10.1007/s13563-019-00195-2

Asongu, S.A., Uduji, J.I. and Okolo-Obasi, E.N. (2019). Thresholds of external flows for inclusive human development in sub-Saharan Africa. *International Journal of Community Well-Being,* 2(2-4): 213-233, https://doi.org/10.1007/s42413-019-00037-7

Asongu, S.A., Uduji, J.I. and Okolo-Obasi, E.N. (2020). Fighting African capital flight: trajectories, dynamics and tendencies. *Financial Innovation,* 6: 14, https://doi.org/10.1186/s40854-020-00179-0

Carroll, A.B. (1991). The pyramid of corporate social responsibility: Towards the moral management of organizational stakeholders. *Business Horizons* 34, 39-48.

Chevron. (2014). *Corporate responsibility report of Chevron in Nigeria.* Lagos: Policy, Government & Public Affairs (PGPA) Department of Chevron in Nigeria.

Chevron (2017). *Roots of change: Chevron's model community empowerment programme in the Niger Delta.* Lagos: Policy, Government & Public Affairs (PGPA) Department

Devaux, A., Torero, M., Donovan, J. and Horton, D. (2018). Agricultural innovation and inclusive value-chain development: a review. *Journal of Agribusiness in Developing and Emerging Economies,* 8(1), 99-123.

DFID (2020). *Agenda for reforms in Nigeria's oil palm sub-sector: An advocacy brief.* Abuja: Department for International Development (DFID).

Egbon, O., Idemudia, U. and Amaeshi, K. (2018). Shell Nigeria's global memorandum of understanding and corporate-community accountability relations: a critical appraisal. *Accounting, Auditing & Accountability Journal,* 31(1):51-74.

Ekhator, E.O. (2019). Protecting and promoting women's rights in Nigeria: Constraints and prospects. In Michael Addaney (ed) Women and Minority Rights Law: Approaches and perspectives to inclusive development, pp.17-35 Netherland: Eleven International Publishing.

Ekhator, E.O. (2020). Women and access to environmental justice in Nigeria. *SSRN Electronic Journal,* https://doi.org/10.2139/ssrn.3719831

Eweje, G. 2006. Environmental costs and responsibilities resulting from oil exploration in developing countries: The case of the Niger Delta of Nigeria. *Journal of Business Ethics,* 69(1), 27-56.

Fawole, W.O. and Ozkan, B. (2018). Revisiting the profitability and technical efficiency of cocoa production amidst economic diversification program of the Nigerian Government: A case study of Ondo State. *Journal of Agribusiness in Developing and Emerging Economies,* 8(1), 186-200.

FGN (2017). *Economic Recovery and Growth Plan: 2017-2020,* Federal Government of Nigeria, Ministry of Budget and National Planning, Abuja.

Fischer, E.M., Reuber, A.R. and Dyke, L.S. (1993). A theoretical overview and extension of research of sex, gender and entrepreneurship. *Journal of Business Venturing,* 8(2): 151-168.

Foong, S.Z. and Ng, D.K. (2022). A systematic approach for synthesis and optimization of sustainable oil palm value chain (OPVC). *South African Journal of Chemical Engineering,* 41:65-78.

Francis, P., Lapin, D. and Rossiasco, P. (2011). *Securing Development and Peace in the Niger Delta: A Social and Conflict Analysis for Change,* Woodraw Wilson International Center for Scholars, Washington, DC.

Frynas, J. (2009). *Beyond corporate social responsibility: Oil multinationals and challenges.* Cambridge: Cambridge University Press.

Idemudia, U. (2014). Corporate-community engagement strategies in the Niger Delta: Some Critical reflections. *The Extractive Industries and Society,* 1(2), 154-162.

Ite, U.E. (2007). Changing times and strategies: Shell's contribution to sustainable community development in the Niger Delta, Nigeria. *Sustainable Development,* 15(1), 1-14.

Kalama, J. and Asanebi, D.H. (2019). United Nations Environment Programme (UNEP) assessment report and the question of environmental justice in Nigeria: the Ogoni community experience. *Education & Science Journal of Policy Review and Curriculum Development,* 9(2): 207-221.

Lamboll, R., Martin, A., Sanni, L., Adebayo, K. Graffham, A., Kleih, U., Abayomi, L. and Westby, A. (2018). Shaping, adapting and reserving the right to play: Responding to uncertainty in high quality cassava flour value chains in Nigeria. *Journal of Agribusiness in Developing and Emerging Economies,* 8(1), 54-76.

Lompo, K., and Trani, J.F. (2013). Does corporate social responsibility contribute to human development in developing countries? Evidence from Nigeria. *Journal of Human Development and Capabilities,* 14(2), 241-265.

Maluin, F.N., Hussein, M.Z. and Idris, A.S. (2020). An overview of the oil palm industry: challenges and some emerging opportunities for Nanotechnology development. *Agronomy,* 10: 356, March.

Moss, C.B. and Schmitz, A. (2019). Distribution of agricultural productivity gains in selected feed the future African countries. *Journal of Agribusiness in Developing and Emerging Economies,* 9(1): 78-90.

Mutebi Kalibwani, R., Twebaze, J., Kamugisha, R., Kakuru, M., Sabiiti, M., Kugonza, I., Tenywa, M. and Nyamwaro, S. (2018). Multi-stakeholder partnerships in value chain development: A case of the organic pineapple in Ntungamo district, Western Uganda. *Journal of Agribusiness in Developing and Emerging Economies,* 8(1), 171-185.

NDDC. (2001). *The Niger Delta: A brief history.* Port-Harcourt: Niger Delta Development Commission.

NDDC. (2004). *Niger Delta regional development master plan: Draft 3.* Port-Harcourt: Niger Delta Development Commission. Nwankwo, O.O. and Nwosu, U.L. (2018). Marketing cost and value chain analysis of oil palm fruit processing in Imo State, Nigeria. *Journal of Agriculture and Food Sciences,* 16(1): 105-125.

NPC (2007). Report of Nigeria's National Population Commission on the 2006 Census. *Population and Development Review,* 33(1): 206-210.

Obot, A., Ozor, M. and Anunobi, C.P. (2022). Rural women involvement in oil palm value chain in Akwa Ibom State, Nigeria. *Canadian Journal of Agriculture and Crops,* 7(2): 105-111.

Okolo-Obasi, E.N. and Uduji, J.I. (2023). Government enterprise and empowerment programme (GEEP) and women's performance in entrepreneurship development in Nigeria. *Development in Practice,* https://doi.org/10.1080/09614524.2023.2178639

Okolo-Obasi, E.N. and Uduji, J.I. (2021). Does agri-business/small and medium enterprise investment scheme (AGSMEIS) impact on youth entrepreneurship development in sub-Saharan Africa? Evidence from Nigeria. *Journal of Economic and Administrative Sciences,* https://doi.org/10.1108/JEAS-05-2021-0094

Okolo-Obasi, E.N., Uduji, J.I. and Asongu, S.A. (2021). Strengthening women's participation in the traditional enterprises of sub-Saharan Africa: the role of corporate social responsibility initiatives in Niger Delta, Nigeria. *African Development Review,* 32:S78-S90, https://doi.org/10.1111/1467-8268.12484

Orr, A. (2018). Killing the goose? The value chain for sorghum beer in Kenya. *Journal of Agribusiness in Developing and Emerging Economies,* 8(1), 34-53.

Orr, A., Donovan, J. and Stoian, D. (2018). Smallholder value chains as complex adaptive systems: a conceptual framework. *Journal of Agribusiness in Developing and Emerging Economies,* 8(1), 14-33.

Pacheco, P, Gnych, S., Dermawan, A., Komarudin, H. and Okarda, B. (2017). *The Palm oil global value chain: Implications for economic growth and social and environmental sustainability.* Working Paper 220. Bogor, Indonesia: CIFOR.

PIND (2011). *Palm Oil Value Chain Analysis in the Niger Delta.* Abuja: Foundation for Partnership Initiatives in the Niger Delta (PIND).

PIND (2020). *Palm Oil Value Chain Strategy Brief.* Abuja: Foundation for Partnership Initiatives in the Niger Delta (PIND).

PIND (2022). *Palm Oil Intervention Justifications.* Abuja: Foundation for Partnership Initiatives in the Niger Delta (PIND).

Purnomo, H., Okarda, B., Dewayani, A.A., Ali, M., Achdiawan, R., Kartodihardjo, H., Pacheco, P. and Juniwaty, K.S. (2018). Reducing forest and land fires through good palm oil value chain governance. *Forest Policy and Economics,* 91:94-106.

Renouard, C. and Lado, H. (2012). CSR and inequality in the Niger Delta (Nigeria). *Corporate Governance: The International Journal of Business in Society,* 12(4): 472-484.

SPDC. (2013). *Shell in Nigeria: Global memorandum of understanding.* Port-Harcourt: Shell Petroleum Development Corporation in Nigeria.

SPDC. (2018). *The Ogoni issue.* Port-Harcourt: Shell Petroleum Development Corporation in Nigeria

Tamuno, T.S. (2020). Corporate social responsibility in the Niger Delta: Past, present and future challenges. *Journal of African Law,* 66(3): 391-417.

Uduji, J.I. and Okolo-Obasi, E.N. (2020). Promoting gender-equality agricultural value chains: the role of corporate social responsibility in Nigeria's Niger Delta. *Journal of Agribusiness in Developing and Emerging Economies,* https://doi.org/10.1108/JADEE-07-2022-0143

Uduji, J.I. and Okolo-Obasi, E.N. (2021). Gender sensitive responses to climate change in Nigeria: the role of multinationals' corporate social responsibility in oil host communities. *Journal of Global Responsibility,* https://doi.org/10.1108/JGR-05-2022-0040

Uduji, J.I. and Okolo-Obasi, E.N. (2022). Gender equity and land: the role of corporate social responsibility in Niger Delta, Nigeria. *Journal of International Development,* https://doi.org/10.1002/jid.3725

Uduji, J.I. and Okolo-Obasi, E.N. (2023). Gender and food security in Nigeria: the role of corporate social responsibility in the oil-producing communities. *Journal of Global Responsibility,* https://doi.org/10.1108/JGR-07-2022-0067

Uduji, J.I. and Okolo-Obasi, E.N. and Asongu, S.A. (2019). Corporate social responsibility and the role of women in sustainable agricultural development in sub-Saharan Africa: Evidence from the Niger Delta in Nigeria. *Sustainable Development,* 27(4), 692-703, https://doi:10.1002/sd.1933

Uduji, J.I., Okolo-Obasi, E.N, Onodugu, V.A., Nnabuko, J.O. and Adedibu, B. (2020). Corporate social responsibility and the role of rural women in strengthening agriculture-tourism linkages in Nigeria's oil producing communities. *Journal of Tourism and Cultural Change,* 19(6), 754-780, https://doi.org/10.1080/14766825.2020.1826500

Uduji, J.I. and Okolo-Obasi, E.N. and Asongu, S.A. (2023). Oil extraction and gender equality for social equity: the role of corporate social responsibility in Nigeria's coastal communities. *Resource Policy,* 81 (March), https://doi.org/10.1016/j.resourpol.2023.103346

Uduji, J.I., Okol-Obasi, E.N., Nnabuko, J.O., Ugwuonah, G.E. and Onwumere, J.U. (2024). Mainstreaming gender sensitivity in cash crop market supply chains: the role of CSR in Nigeria's oil producing communities. *Journal of Agribusiness in Developing and Emerging Economies,* https://doi.org/10.1108/JADEE-09-2023-0228

UNDP (2020). *Mapping the Palm Oil Value Chain: Opportunities for Sustainable Palm Oil in Indonesia and China.* New York City: United Nations Development Programme (UNDP).

Unger, R. and Crowford, M. (1992). *Women and Gender: A Feminist Psychology.* New York: McGraw-Hill.

Visser, W. (2006). Revisiting Carroll's CSR Pyramid: An African Perspective. In Pederson, E.R., & Huniche, M. (eds), *Corporate Citizenship in Developing Countries,* Copenhagen: Copenhagen Business School Press, 29-56.

Yamane, T. (1967). *Statistics: An Introductory Analysis,* 2nd Edition, New York: Harper and Row.