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Gender Equity and Land: the Role of Corporate Social Responsibility in Niger Delta, Nigeria

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Abstract

We examine the impact of multinationals oil companies' (MOCs) corporate social responsibility (CSR) on enhancing land rights for rural women. A total of 1,200 women were sampled across the Niger Delta region of Nigeria. Results from the use of a combined propensity score matching and logit model show that MOCs' CSR using global memorandum of understanding (GMoU) model recorded significant success in various policy mechanisms to improve gender equality in land access. The linkages include joint-titling modalities, land leasing, land use certificate issuances, community and territorial land delimitation interventions for both agricultural production and security in Nigeria's oil host communities.

Keywords: Gender equity, corporate social responsibility, multinational oil companies, land, sub-Saharan Africa

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.

1. Introduction

As it concerns land property, women have equal rights with men. This is well covered in core human rights instruments, including the International Covenant on Economic, Social and Cultural Rights, Universal Declaration of Human Rights, International Covenant on Civil cum Political Rights, and the Convention for the Elimination of all Forms of Discrimination against Women (UNHR, 2017). However, being driven by a global gust for land and mined resources as well as unparalleled urbanization, in addition to the growing challenge of climate change and incidence of natural disasters, women have been at the core of human rights abuses worldwide concerning their rights and ability to use land (Agarwal, 2003). From extensive land acquirements that put communities out of place without due return, to the infringement of extractive industries on lands individually and collectively owned, to the unintended urbanization and forceful eviction of people living in casual settlements, to the effects of climate change and natural tragedies on the use of land and productivity, to land and property denial by kin or State, women are more severely affected by land tenure uncertainties due to direct and indirect bigoted laws and practices at the national, communal and even family levels (UNHR, 2017). In sub-Saharan Africa, land rights are made bias by property and family law, comprising both statutory and customary law as well as the prevalent tenure system. Property law and land law ascertain the formal rights that one may have over land. On the other hand, family law touches how property is held within marriage and the rules of heirloom; then, formal law covers customary practices which may be similar or conflicting (Yingstrom, 2002). The 1978 Land Use Act, in Nigeria, nationalized all land so that it will get rid of the customary tenure system. Statutory law state that both sexes(men and women) have similar rights of heirloom, the law is only applicable to women married under statutory law; customary laws also favours men by discriminating against women. Women can only obtain the right to use land through their husbands which has to be registered in men's names (Ajala, 2017).

Yet, the Nigerian economy seriously depends on the oil sector, and the Niger Delta where the multinational oil companies (MOCs) hold a weighty presence has become a marked out place for continual violent conflicts (Boele *et al,* 2001). The federal government of Nigeria (FGN) is in workable agreements with the MOCs operational in the oil and gas sector in Nigeria (Watts, 2004). The FGN possesses and manages the land as well as its natural resources in the subsoil. This is a main cause of conflict in the Niger Delta (Asgil, 2012). Land can be taken over by the government for various public commitments by the virtue of the Land Use Act 1978. The negative effects of the undertakings of the MOCs in the oil and gas industry in Nigeria includes oil spillage, gas flaring, environmental pollution, conflict and violence, negative social impacts

amongst others (Eweje, 2006). Conventionally, the people of the Niger Delta are into farming and fishing, but decades of gas flaring and oil spillage, as well as a fast growing population, has meant this old-cherished sources of income are either no longer feasible or have experienced significant drop (NDDC, 2001). However, MOCs partake in a plethora of corporate social responsibility (CSR) activities in the Niger Delta as well as other parts of Nigeria (UNDP, 2006). Yearly, MOCs put money into social projects and programmes in communities predominantly in the Niger Delta. Such projects include the building of markets, hospitals, schools and provision of good water via pipe borne water (Francis *et al,* 2011; Chevron, 2017).

MOCs, over the years, have got better in their engagement with local communities to deliver these projects. In 2006, MOCs brought into existence a different way of working with communities called the global memorandum of understanding (GMoU). The GMoUs stands for an essential shift in CSR approach, emphasizing the need for more open and liable processes, steady communication with the masses, sustainability and conflict avoidance (SPDC, 2013).In line with the agreement of GMoUs, the communities indicate the development they want, while MOCs make available safe funding for 5 years, seeing to it that the communities have sure and unswerving financing as they carry out the execution of their community development plans (Chevron, 2014). This system substitutes the previous CSR method whereby MOCs approved hundreds of distinct development projects with individual communities and handled them straight and discretely(PIND, 2017). MOCs signed agreements with 33 GMoU clusters in 2012. Thus, they cover 349 communities around their business set-ups in the Niger Delta (Slack, 2012). Yet, the degree to which the CSR initiatives of MOCs have helped in the community development in the region continue to be contested (Ekhator, 2014; Frynas, 2009; Idemudia, 2014). Differing, others proposed that CSR initiatives of MOCs have really helped in community development in the region when the extent to which the government gets involved is considered (Lompo and Trani, 2013; Ite, 2007; Renouard and Lado, 2012; Merchant, 2014).

Succeeding the previous divergent points of view of the CSR initiatives in the Niger Delta, this paper is a plus to gender discourse in line with the diffident land rights for women that impend progress on gender equity and sustainable development from the CSR standpoint, by looking at empirical facts in four areas that have been greatly considered in literature. The paper seeks to ascertain the level of CSR investment that the MOCs have made in the area of positively affecting women's land rights to leverage gender equality and evolvement. These four areas of emphasis similarly epitomise four key questions, notably:

i. What degree of MOC's GMoU involvement is aimed at empowering women in the Niger Delta?
ii. How are the genders made to partake in the MOCs GMoU interventions in the Niger Delta, Nigeria?
iii. Do MOCs' GMoU contributions prompt changes on issues that hinder women from accessing lands in the Niger Delta, Nigeria?
iv. What are the implications of striking a balance in access to land by both gender in the Niger Delta, Nigeria?

1.1 Study hypothesis

Women in the Niger Delta region of Nigeria own less land and have less secure right over land than men. Due to the fact that women are usually not considered as land-owners, they are left out in MOCs' GMoU involvements in extension, agricultural support programmes, financial credit and loans which are essential for effective use of land in host communities. With the lack of secure tenure rights, the women are evicted from their home when their husband dies; lack option when an abusive partner sends them packing; left out of the decisions about the sale or hire of their land; have no claim to reparation when the land is taken by an investor, oil companies, or the government, and also have no access to firewood, food, fibres or medicine from forests which are labelled as conservation areas. Because these women do not have the power to control the land they depend on, they are less likely to partake in decision-making about land and are more liable to dislodgment and mistreatment. Thus, we hypothesize as follows:

i. CSR of MOCs using GMoU has not prompted progressive changes on prejudiced laws and social norms that weaken women's access to the transformative power of land in the Niger Delta.
ii. CSR of MOCs using GMoU has no heavy influence on gaining ground for women's land rights to bring about gender equality and progress in the Niger Delta, Nigeria.

In the light of the above, the main objective of this research is to determine the level of CSR investments of MOCs in the area of positively affecting women's land rights to leverage gender equality and evolvement in host communities. The paper contributes to the inequality debate in land rights in sub-Saharan Africa and inclusive growth literature from the CSR perspective. The study uses a quantitative approach and applied survey research technique. The positioning of this research departs from contemporary African gender inequalities literature in ownership and control of land, which has focused on, *inter alia:* gender equality in agriculture: what are really

the benefits for sub-Saharan Africa? (Adamon and Adeleke, 2016); gender and land rights revisited: exploring new prospects via the State, family, and market (Agarwal, 2003); gender discrimination in land ownership and the alleviation of women's poverty in Nigeria: A call for new equities (Ajala, 2017); environmental and gender impacts of land tenure regularization in Africa: Pilot evidence from Rwanda (Ali *et al,* 2011); women's land rights and rural social movements in the Brazilian Agrarian Reform (Dere, 2003); gender inequalities in ownership and control of land in Africa: myth and reality (Doss *et al,* 2015); protecting and promoting women's rights in Nigeria: constraints and prospects, in Michael Addaney (ed) (Ekhator, 2019);tenure insecurity, gender, low-cost land certificate and land rental market participation in Ethiopia (Holden *et al,* 2011); the ambiguity of joint asset ownership: cautionary tales from Uganda and South Africa (Jacobs and Kes, 2015); land pressures, the evolution of farming systems, and development strategies in Africa: A synthesis (Jayne *et al,* 2014); are laws the appropriate solution: the need to adopt non-policy measures in aid of the implementation of sex discrimination laws in Nigeria (Okongwu, 2020); access to justice for Nigeria women: a veritable tool to achieving development (Olusegun and Oyelade, 2021); widowhood and asset inheritance in sub-Sahara Africa: Empirical evidence from 15 countries (Peterman, 2012); understanding gender differences in agricultural productivity in Uganda and Nigeria(Peterman *et al,* 2010); the gender gap in agricultural productivity: the role of market imperfections (Palacios-Lopez and Lopez, 2015);insecure land rights for women threaten progress on gender equality and sustainable development (UNHR, 2017); and women, wives, and land rights in Africa: Situating gender beyond the household in the debate over land policy and changing tenure systems (Yingstrom, 2002).

Accordingly, other contents of the paper can be adumbrated as follows: section 2 –a brief literature and theoretical underpinnings; section 3 — describing the materials and method; section 4 – presenting the results and corresponding discussion; section 5 -- concluding the paper with policy implications, caveat and future research directions.

2. Literature and theoretical underpinnings

2.1 Literature

According to Dere (2003), the ability to access land is crucial because it is necessary for food production and a key factor for housing and community development in Africa, there is still a lack of sufficient provisions for women to have right to lands independently (Adamon and Adeleke, 2016). Statutory law time and again fails to arrange for women's independent rights and when such legislation does exist, instruments to enforce it are often lacking (Jane *et al,* 2014). In traditional African societies, women do not directly have the power to purchase or become heir to lands, yet their right may be higher than that of men in management and use (Ali,*et al,* 2011). Since women are recurrently the main household food producers, there are generally customary provisions for gaining lands indirectly in terms of use rights attained through kinships and their status as mothers, wives, sisters, or daughters (Yingstrom, 2002). Gender dissimilarities in land tenure should be acknowledged if land objectives, such as growing land productivity, providing inexpensive housing, or encouraging sustainable resource maintenance are to be met (Agarwal, 2003). It is necessary to have land tenure policy and frameworks that overtly address gender inclusive access to land (Palacios-Lopez and Lopez, 2015). Without a deliberate effort towards gender inclusiveness, significant segments of the society may end up not benefitting from land management, supervision, and development schemes (Doss *et al,* 2015). In sub-Saharan Africa, land rights are often influenced by property and family law, including both statutory and customary law as well as prevailing tenure system (Ali *et al,* 2011). Property and land identify the formal rights that people may have over land (Peterman, 2012). Family law affects how property is owned within marriage and the rules of inheritance (Holden *et al,* 2011). The formal law interacts with customary practices, as they may be similar or contradicting to each other (Jacob and Kes, 2015).

However, in Nigeria, the 1978 Land Use Act nationalized all land in other to remove the customary tenure system. When the Act emerged, Nigeria women and men could apply for two types of land to Land Use certificates (customary and statutory), both of which were for a fixed term (Ajala, 2017). In general, they could be transferred, even within the linage, without government approval. The registration of the land certificates was costly and time-consuming and, therefore, limited in practice (Adamon and Adeleke, 2016). Moreover, the knowledge of the law remain low and customary practices continue to govern land transaction (Okongwu, 2020). The customary system offers flexible land rights including the rights to transfer land and

even through sales (Ajala, 2017). While statutory laws state that men and women have similar inheritance rights, the law only applies to women married under statutory law (Ekhator, 2019). For example, in Northern Nigeria, Islamic law guides inheritance practices and, women only inherit half of what their brothers inherit and often, under social pressures, relinquish even that land (Ajala, 2017). Customary law also discriminates against women and women can only obtain Use rights to the land through their husbands (Adamon and Adeleke, 2016). Furthermore, land is almost exclusively registered in men's names (Olusegun and Oyelade, 2021).

2.2 Conceptualization of land rights

Women's land right has been a prominent topic recently and has risen up the development agenda, as there is growing concern worldwide that insecure land rights for women threaten progress on gender equality and sustainable development. However, many different conceptualizations of land rights are used across the various disciplines that consider this issues. In this review, we focus on three types of land rights (UNHR, 2017) that are relevant for agricultural land, as oppose to forests or commons, and for which survey data would be available. First, is the ownership rights which are usually conceptualized as the full bundle of rights, including the right to animate, manage or make improvements, exclude others, and control the proceeds, with the right to alienate or transfer as the critical one (Agarwal, 2003). In this case, the strongest bundle of right possible in a particular context is often treated as ownership rights. Owners may be limited in the alienation rights, but it is usually the case that someone would not claim to be an owner if another individual had the right of alienation over that land (Yingstrom, 2002). Second, is the management rights, or the rights to make decisions on the use of the land for crop production or other agricultural use, including whether to plant crops or leave the land fallow, or what crops to plant, what inputs to apply, and when to harvest (Dere, 2003). Third, is the economic rights, or rights to derive economic benefits from the land in accordance with its use, including decision-making on the use of the output/ income derived from the use of the land (Ajala, 2017). In this research, we are quite aware that understanding land ownership rights is challenging, particularly in the context of Africa where much of the land ownership takes place under customary tenure system. However, in this paper, we would use conceptualization of ownership, which we term reported ownership, and is based on the respondents answer to questions regarding whether they or someone in their household owns the land.

2.3 Feminist theoretical perspectives

Although this study adopts quantitative methodology, we employ two theoretical perspectives, consistent with Baden and Goetz (1997) to explain our results; these feminism theories are the liberal and social feminism. First, some scholars maintain that gender theory and feminist perspectives are necessary to understand this phenomenon. Second, others argue that differences and similarities between men and women should be considered within the conventional theories relating to gender equity research field. Baden and Goetz (1997) maintain that contributions from both perspectives are needed to provide insights into this imbalances of gender equity. Feminist theoretical perspectives address the questions of women's subordination to men, how it arose, how and why it is perpetuated, how it might be changed and what life would be like without it. Each perspective of the theories (Social and liberal) offers different views. According to Fischer *et al* (1993),the liberal feminist theory goes back to feminism earliest days and argues for the necessity of social reform in other to give women the same status and opportunities as men. The fundamental basis of the liberal tradition assumes that men and women are equal and that rationality, not sex should be the basis for individual rights. The liberal theory emphasizes the existence of discriminatory barriers and systematic biases facing women which must be expunged. Liberal feminism is outgrown of political views of equality, entitlement, and individual rights. The liberal feminist perspective has been the basis for many legal changes that have been used to bring about greater equality for men. According to Unger and Crawford (1992), liberal feminist theory in the articulation of this theory in the context of women's entrepreneurship posits that if women had equal access to the opportunities available to men such as education, work experience, and other resources, they would behave similarly. On the other hand, social feminist theory, according to Ahl (2006), assumes that men and women are seen to be or have become different. Social feminism emphasizes that there are differences between male and female experiences through the deliberate socialization methods from the earliest moments of life that results in fundamentally different ways of viewing the world (Fischer *et al,* 1993). Female's socialization creates different perspectives, goals, and choices for women and they choose their business field accordingly (Brush and Bird, 2002). The relationship between and work has been stronger for women, rather than seeing their business as a separate economic unit in a social world. These differences in perception do not imply that women would be less effective in business than men, but only that they may adopt different approaches which may not be equally as effective as the approaches adopted by men. Thus, this study adopts quantitative methodology but views the outcome from the liberal feminist theory.

2.4 Conceptualization of CSR in African context

The challenge of CSR in developing countries is framed by a vision that was distilled in 2000 into the millennium development goals of a world with less poverty, hunger and disease, greater survival prospects for mothers and their infants, better educated children, equal opportunities for women and a healthy environment (UN, 2006). Unfortunately, these global aspirations remain far from being met in many developing countries today. However, Carroll's (1991) CSR pyramid is probably the most well-known model of CSR, with its four levels indicating the relative importance of economic, legal, ethical and philanthropic responsibilities. Nevertheless, there is a powerful argument that CSR in developing country is most directly shaped by the socio-economic environment in which firms operate and the development priorities this creates. For example, Frynas (2009) suggests that philanthropic initiatives as CSR by companies are prevalent in developing countries, due to the absence of government action in providing amenities for its citizens, which otherwise is not regarded as CSR in western countries. Muthuri (2012), relying on the extant literature on CSR in Africa, posited that the CSR issues prevalent in African include poverty reduction community development, education and training, economic and enterprise development, health and HIV/AIDS, environment, sports, human rights, corruption and governance and accountability. Furthermore, the exploration of CSR in Africa is also used to challenge the accuracy and relevance of Carroll's (1991) CSR pyramid. According to Visser (2006) if Carroll's basic four-part model is accepted, it is suggested that relative priorities of CSR in Africa are likely to be different from the classic, American ordering. However, it is also proposed by the exploration of the nature of CSR in an African context that Carroll's CSR pyramid may not be the best model in general, and CSR in Africa in particular. Amaeshi *et al* (2006) have argued that CSR in Nigeria is specifically aimed at addressing the socio-economic development challenges of the country, including poverty alleviation, health-care provisions, infrastructure development and education. This, they argue stands in stark contrast to many Western CSR priorities such as consumer protection, fair trade, green marketing, climate change concern, or socially responsible investment. However, this study adopts quantitative methodology but also views the outcome from the African CSR perspective.

3. Materials and methods

Research into CSR in Niger Delta is still relatively underdeveloped and tends to be adhoc with a heavy reliance on convenience-based case studies or descriptive accounts; the focus is often on high profile incidents or branded companies, with a general lack of comparable benchmarking data (Lompo and Trani, 2013). Hence, there is an urgent need for further research on CSR of multinational oil companies in this region, as well as on theoretical constructs. We utilized a quasi-experimental research design applying quantitative method in this study due to shortage of quantitative data on the convolutions of CSR impact in the Niger Delta region (Renouard and Lado, 2012). With the use of survey research method, we were able to source and document information from a demonstrative sample of women in Niger Delta Region. Cross-sectional data were put together using semi-structured interview questionnaire.

Figure 1: Constituent administrative states of the Niger Delta, Nigeria
Source: NDDC, 2004

3.1 Sample size

The study used Fisher (1998) formula to calculate the sample size used. Mathematically, the formula is represented as follows:

$$n = \frac{z^2 p(1-p)}{d^2} \qquad \text{Eqn 1}$$

Here, *n* stand for the sample size; while *z stand* for the standard normal deviation for a certain level of confidence, (95% confidence =1.96). Also *d* stand for margin of error at 0.05 for CI at 95%; *p* stand for proportion to be estimated. At any time the value of p is not known with cert, the assumption is that *p* is 0.5. Thus, in this our case we presumed that to calculate the sample size thus:

$n = \frac{1.96^2(0.5)(1-0.5)}{0.05^2}$ = $n = \frac{0.9604}{0.0025}$ = 384; approximated to 400. We also considered the size of the region and multiple this by 3 to further lessen the probable errors in the sample selection. As a result, the total sample size used was 1200 respondents.

3.2 Sampling procedure

We embraced a multi-staged sampling technique to arrive at the final respondents having in mind that we had to pick samples from communities where the MOCs have notable presence as well as those who have formed or become a part of a cluster development board (CDBs) and those who have not. Thus, we made use of purposive sampling to choose two (2) local government areas (LGA) from each of the nine(9) states of the region. The reason for this selection is as stated above i.e. on the basis of the MOCs maintaining a notable presence in the LGA. From the carefully chosen LGAs, we also picked 2 host communities on the same basis of strength of MOC presence. This is also purposive because we deliberately chose one community that belong to a CDB and another that does not. We, then termed the non-CDB communities "control group", while the CDB communities we took to be "treatment group". In the final stage, we involved the community gate keepers who assisted us to arbitrarily select 600 respondents from the treatment group and another 600 from the control group to sum up to the needed 1200 respondents. This assortment was spread according to the population of women in each of the states put into consideration as follows:

Table 1. Sample size distribution table

States	Total Population	Female Population	% of total population	State Sample	Community sample
Bayelsa	2,277,961	1,161,760	5	64	16
Abia	3,727,347	1,900,947	9	105	26
Cross River	3,866,269	1,971,797	9	109	27
Edo	4,235,595	2,160,153	10	119	30
Ondo	4,671,695	2,382,564	11	131	33
Imo	5,408,756	2,758,466	13	152	38
Akwaibom	5,482,177	2,795,910	13	154	39
Delta	5,663,362	2,888,314	13	159	40
Rivers	7,303,924	3,725,001	17	206	51
	42,637,086	**21,744,914**		**1200**	**300**

Source: NDDC, 2004/Authors' computation

3.3 Data collection

Data made use of in the study were collected via participatory rural appraisal (PRA) technique of written semi-structured interview (SSI) questionnaire. This technique was utilized because the outlook of the people being studied is very important in realizing the objectives of the study. The SSI was the main tool that made it possible for the survey to glean data from the 1200 respondents. We ordered the SSI directly with the support of research assistants because of difficulties the respondents may encounter in understanding the instrument. Also, we made use of local research assistants because the researchers could not speak the various local languages and dialects of the several ethnic groups in the sampled rural communities. The local research assistants in addition were of use in navigating the irregular and insecure terrain of the region.

3.4 Analytical framework

We put together the use of propensity score matching (PSM) and logit regression model to assess the impact of CSR of MOCs using GMoU on bettering the access and utilization of land by the women in the rural host communities in Niger Delta. What informed our making use of these methods were the needs to control the difficulties of selectivity and endogeneity.

In embracing the PMS, we first looked at the CDB communities' respondents as a "treatment" so that we can estimate an average treatment effect of CSR. An ideal assessment group was selected from a larger survey and then matched to the treatment based on set of perceived characteristics. As opined by (Rosenbaum, 2002), PSM takes in envisaging the effect of intervention on treatment based on perceived covariates for both the control and the treatment groups. This said observed features are those used in picking individuals not affected by the

treatment. Therefore, in this study, the choice to be treated (CSR intervention), although not arbitrary, hinges on the variables observed. Thus, in assessing the impact of CSR of MOCs using GMoU on women's access and utilization of land, we acknowledged treatment group and it is denoted as R_i =1 for woma$_i$ and R_i= 0 otherwise (control group). After, we matched the treatment to the control group in line with the propensity score: (Probability of receiving CSR of MOCs using GMoU given observed characteristics).

To this, we have: $P(X_1) = Prob(R_2 = 1/X_2)$ $(0<P(X_2) < 1)$ Eqn 2

Where X_1 is a vector of pre CSR control variables, if R_1's are independent over all 1 and the outcomes are independent of CSR given X_1 then results are also independent of CSR given $P(X_1)$ just as they would do if CSR are received arbitrarily. For us to draw exact suppositions on the impact of CSR activities on the subject matter, we side-stepped the assortment bias on observables by matching on the probability of the treatment (covariates *X).* Therefore, we defined the PS of Vector X as:

$P(X) = Pr (Z = 1/X)$, Eqn 3

Where the Z represents the treatment indicator equating to 1 if the selected individual woman has received direct CSR empowerment targeted and land access, and zero otherwise. Since the PS is a balancing score, the observables *X* will be distributed same for both treatment and control and the differences are seen as to the attribute of treatment.

We adjusted the four steps from the literature to enable us get this fair impact estimates (Rosenbaum, 2002). Firstly, we were cognizant that the probability of receiving CSR is predicted by a binary response with suitable observable characteristics. Thus, we pulled two individual group, (one treatment and one Control). We then assessed the logit model of receiving or not receiving CSR as a function of some socio- economic characteristics variables that includes singular (individual), household and community variables as thus:

$P(x)=Pr(Z=1/X)=F(\alpha_1X_1.....+....\alpha_nX_n)=F(x\alpha)=e^{x\alpha}$ Eqn 4

From this, we made up value of the probability of receiving CSR from the logit regression allocating each woman a propensity score. The women in the control group with very low (poor)

PS outside the range found for Treatment were dropped at this point. For each woman getting CSR, a non-receiving woman that has the closest propensity score as measured by absolute variance in score referred to as nearest neighbour was gotten. This informed our using the nearest five neighbours to make the valuation more laborious. The mean values of the result of indicators for the nearest five neighbours were calculated. The dissimilarity between treatment and control groups is valued by the average treatment effect on the treated (ATT). The true ATT, based on PSM is written thus:

$$ATT_{PSM} = E_{p(x)}\{E(y_1/Z = 1, P(x) - E(y_0/Z = 0, P(X)\}, \quad \text{Eqn } 5$$

Where EP(X) stands for anticipation with respect to the dispersal of PS in the population. The true ATT shows the mean variance in capability of the youths. In this, we attain a passable match of a partaker with his counterfactual in as much as their observable characteristics are alike.

Three different matching methods (nearest neighbour matching, radius matching, and kernel-based matching) were used in gaining this matched pair. These methods differ in terms of bias and efficiency.

Thirdly, we checked the matching estimators' feature by standardized variances in observables' means between treatment and control. Representing variance in percent after matching with X for the covariate X, the difference in sample means for treatment as ($\acute{X}_1$) and matched control as ($\acute{X}_0$). In line with Fisher (1998), the sub-samples as a percentage of the square root of the average sample variances is written as: $(\int_1^2 and \int_0^2.)$.

Therefore:

$$|SD = 100 * \frac{(\acute{X}1 - \acute{X}0)}{\left(.05 \int_1^2 and \int_0^2.)1/2\right)} \quad \text{Eqn } 6$$

Accepting a remaining bias below 5% after matching, we appropriated as an indication that the balance among the varying observable characteristics between the matched groups is satisfactory. Generally, while considering the quasi-experimental design of the CSR of MOCs using the GMoU, there might be a likelihood that unobservable factors like women' intrinsic motivation and specific abilities or preferences had influenced the decision to be in treatment or control. We skirted the issue of hidden bias using bounding approach. To this, we complemented equation 3 the logit model to estimate propensity score by a vector U containing all unobservable variables and their effects on the probability of receiving CSR and captured by γ:

The equation is therefore put thus:

$P(x)=Pr(Z=1/X)= F(X\alpha +U\gamma) = e^{X\alpha^{U}\gamma}$ Eqn 7

We looked at the strength of the influence of γ on receiving CSR with sensitivity analysis in order to attenuate the effect of receiving CSR on potential outcomes. In a simply term, the assumption is that the unobservable variable is a binary variable taking values 1 or 0. Accordingly, the treatment probability of both women is applied in line with the bounds on the odds ratio as stated thus:

$$:\frac{1}{e\gamma} \leq \frac{P(Xm)(1-P(Xn))}{P(Xn)(1-P(Xm))} \leq e\gamma \quad \text{Eqn 8}$$

To this, Rosenbaum (2002) could claim that both individual women have the same probability of receiving CSR , provided that they are identical in X, only if$e$□□□1

3.5 Explanatory variables

In modelling the impact of multinational oil company's CSR activities using GMOU on gender equity and access to critical factors of production (land) we included ten important in the model. These variables are: The *peoples' perception of the MOCs' CSR using GMoU,* which happens to be our main variable of interest in line with Ite (2007), Idemudia (2007), Lompo and Tranni (2013), and other scholars have identified that the CSR of the MOCs have played a major role in Niger Delta region's development. We measured the CSR as total receipt of direct receipt by the rural women valued in Nigeria naira (NGN). The real variable we measured here is investment in access enhancing women's equitable access to land as carried out by the MOCs and acknowledged by the women. We included also the *off farm income of the respondents,* specified as total income less income from farming related activities and receipts from the GMoU expressed in Nigeria naira (NGN). This means that other sources of income were excluded from the measure of income of the rural women from farming and included as a separate covariate. We did this so as to properly disentangle the impact of the off-farm income on women access to land from those of other income sources. *Per capita income of other household members* coded (HHcom) was also included in the say bases of the reason adduced for off-farm income. *Farm size* is another covariate that was included, as Adamon and Adeleke (2016); and Agarwal (2003) agree that it is an important factor in productivity as well as demand for land. On the *age of respondent* included, Palacious-Lopez and Lopez (2015) suggests that age of the respondent plays a major role in accepting or rejecting changes; hence it was included as a covariate to

ascertain its reaction to access to and receipt of CSR as it concerns gender equity. Also, we included a *primary occupation dummy* to account for the differential effects of being either in full-time or part-time farming business on the demand and access to land, as NDDC (2001) suggests that most farm products processing in the Niger Delta are performed by women, either in their own household or as a wage labourer in small-scale farms. *Household size* as a major determinant of family consumption pattern was also included as a covariate (Yingstrom, 2002). Other variable used is *highest educational qualification* of the respondent measured in total number of years spent in attending formal schooling; which plays a major role as literature suggests that, the higher the level of education, the higher the tendency to accept changes and make concrete demand (Dere, 2003; Doss *et al,* 2015). Another covariant included is *farming experience of the respondent* which some strand in the literature argued to have a high influence on investment in the business (Ali *et al,* 2011).Finally, is the *marital status* which can go a long way in determining whether a woman will have access to land or farm under her husband or totally denied access in the absence of husband (UNHR, 2017).

3.6 SCOTDI

In addition to the above analytical framework, it is essential to note that MOCs functioning in the Niger Delta continue to face the problem of how to ascertain the success or failure of their CSR initiatives either with regards to its effect on community development or its impact on corporate – community relations. To put this problem into perspective, Shell Petroleum Development Company (SPDC) in 2013 launched the Shell community Transformation and Development Index (SCOTDI). SCOTDI represents an innovative framework that incorporates and adapts a number of international principles into a composite index in a way that is receptive to local content (SPDC, 2018). The framework is used in this study to access and rank the percentage dispersal of the women under key problems deterring access to land in the region.

4. Results and discussion

4.1 Descriptive analysis

Table 2, which we use to begin the analysis of the respondents in the study, describes their demographic (marital status, age, household size), economic (occupation, household revenue) and social (education) characteristics. These qualities (characteristics) are essential in understanding the variances in the socio-economic and demographic status of the women in the

treatment group (from the CDB communities)in comparison to their counterpart in the control group (non-CDB communities) in the region of Niger Delta.

Table 2. Socio-economic characteristics of women in the Niger Delta Region.

	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**	
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**	
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	
Annual 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 CSR						
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

Study confirms that the average age of the respondent in the treatment group is 32 years, while that of the control is 36 years. About 43% of the respondent are less than or 30 years of age in the treatment group, but in the control it is about 37%. In continuation, while about 10% of women are employed by others (the government or private sector) in the treatment group, only 6% are in the same category in the control group. Further examination of this shows that the treatment group has about 12% as trader, 28% as fishers, 7% as handicraft and 37% as farmers. The counterpart has about 8%, 30% 10%, and 40% respectively. This indicates that, due to the women in the treatment group having more access to fund, a large percentage of them have moved into their own handicraft business. Nevertheless, employment status of the respondent is as good as the same. In the acquisition of education, only about 5% of the respondent from the treatment lack formal education, but for the control group, it is about 16%. Conversely, regardless of being in treatment or control, the average annual income of both groups is still poor (very low). For the treatment, the average income is NGN200, 000 (about 400 USD) per year; while that of the control is NGN90, 000 (about 180 USD). This finding is in harmony with Watts (2004), in that the rate of impoverishment in the study area is still in the high, despite how successful the MOCs in this oil producing region have been (Chevron, 2014; SPDC, 2013).

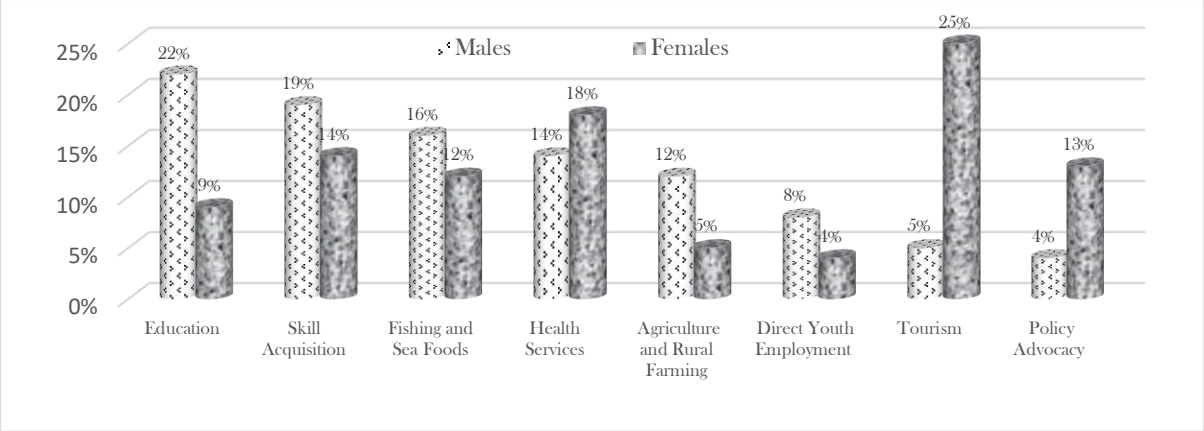

Figure 2. Percentage distribution MOCs' CRS using GMoUs by sectors as they affect men and women in the Niger Delta.

Source: Computed from the field data by author.

Analysis (Figure 2) reveals that MOCs have been involved in several CSR activities using the GMoUs in several sectors that affect both genders; yet, access to these interventions vary because of some reasons. From this examination, we noted that in the several interventions in line with education (bursary, scholarships and overseas training)men gained as much as 22% while women received 9%. Another sector impacted by the intervention is skill acquisition in which the men got 19% while the females got 14%; then, in making provision for fishing and sea food, men got 16%while the women got 12%. However, in health services, women were favoured more with 18% while men got14%. Others include agriculture and rural development which gave men 12%, with women getting 5%; youths with direct employment – men 8%women 4%. Women recorded their highest in tourism development and empowerment, getting 25% while men got5%. Also more of the policy supports were funded to favour the women as they recorded 13% while men recorded 4%.

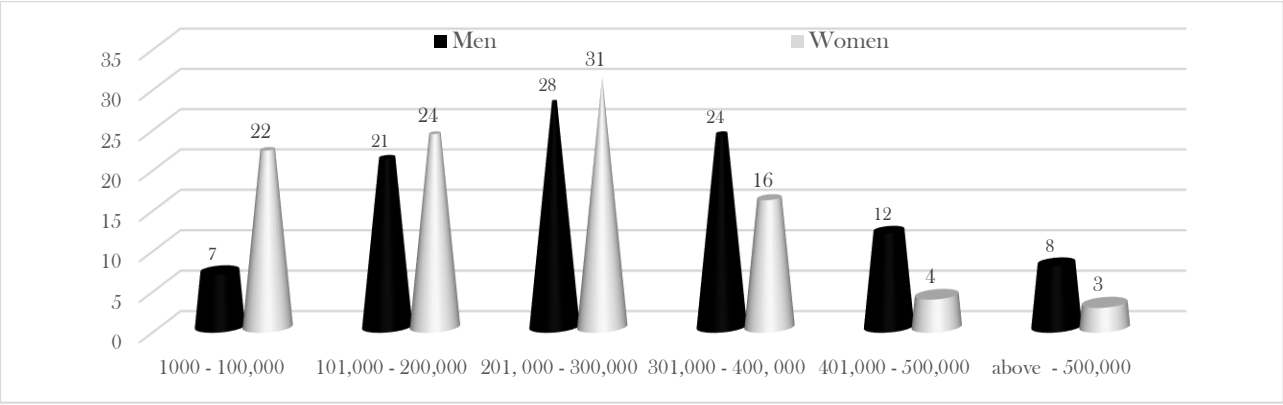

Figure 3. Rate of receipt of direct CSR intervention by gender from MOCs in the Niger Delta.

Source: Computed from the field data by authors

In continuation, Figure 3 indicates that from the primary and secondary data examination, every respondent in the treatment has received, at least, one form of CSR intervention or the other from the MOCs. It reveals that while 22% of the women got between ₦ 1,000 – ₦ 100,000 ($2 -$200) as direct CSR intervention, only 7% of men were given the same amount. About 24% of the women, in their own circle, received between ₦101,000 – ₦ 200,000 ($202 -$400). On the other hand, men recorded 21%. Also about 31% of the women got between ₦ 201,000 to ₦ 300, 000($402 -$600) as against the men that registered 28%. 16% of the women were given ₦ 301,000 to ₦ 400,000 ($602 -$800), while about 24% of the men are in similar category. While 4% of the women got between ₦ 401,000 to ₦ 500, 000 ($802 -$100), the men who got same were about 12%. To wrap it up, only about 3% of the women got above ₦ 500,000 ($1000) as the percentage of men with similar amount is 8%.This finding agree with the postulation of Renouard and Lado (2012), in that men receive bigger intervention than women, yet, women have significantly gained from the he intervention.

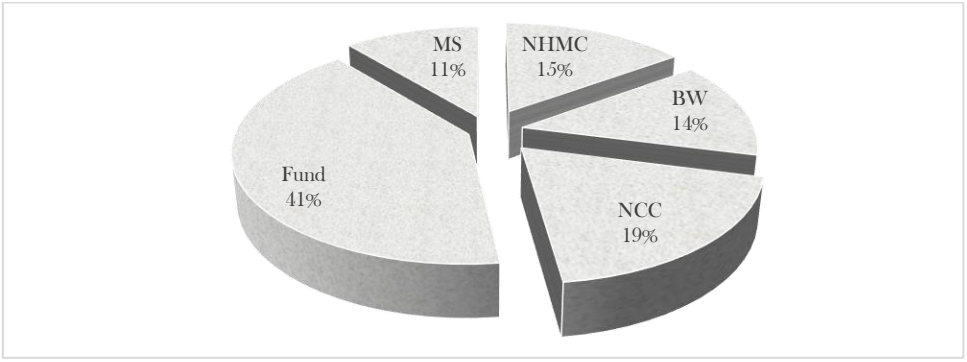

Figure 4: Percentage distribution of the women under major challenges hindering access to land[2]
Source: Computed from the field data by authors.

Figure 4indicates that while 11% have little or no access for not being married, about 15% are having same challenge for not giving birth to male children. Others include 14% for widows without grown up children, and 19% for those who refuse to give consent to customary norm like marrying any of their late husband's relatives cum swearing an oath of innocence of killing the husband or such. Most significant, however, is unavailability of money to buy land, which is the highest at 41%. This may be because if there is fund, the widows as well as the unmarried, those without male children and even those who refused to give consent can buy land.

[2]Ms = not Married, Fund = Lack of Funds, NCC = not consenting custom, BW = being a widow NHMC = Not having a male child

Table 3. Percentage rating of MOCs' CSR in helping women with access to and usage of land in the Niger Delta.

Activities	Agip	Chevron	Total E&P	Shell	Exxon Mobil	Others	Average
Advocacy for changes in laws and norms	16	18	15	15	17	15	16
Acquisition of land for women farmers	0	0	4	0	3	5	2
Encouraging eco-friendly farming.	25	26	28	22	23	24	25
Skill training for women on efficient use of available lands	18	20	21	19	20	22	20
Provision of seed grant for women to acquire Land	19	11	14	20	20	18	17
Provision of high yielding crops	22	25	18	24	17	16	20
	100	100	100	100	100	100	100

Source: Computed from the field data by authors

Analysis (Table 3) reveals that, in general, average of 16% of CSR intervention to raise women's access to land and boost efficient usage of the existing lands were directed towards advocacy visits and engagement with appropriate stakeholders. Only 2% on average went into obtaining lands by the MOCs and making such lands accessible to female entrepreneurs (farmers). About 25% on average went into backing eco-friendly farming. Furthermore, about 20% went into giving the women satisfactory training on effective use of the insufficient lands available. Then, 17% went into providing grants for women to purchase lands. Adding more to the above, 20% went into making available high yielding crop varieties to improve maximum production with the existing little lands. This finding coincides with Yingstrom (2002), in that the gender gaps in access to varied types of assets, such as livestock or land affect women's and men's productivity in agriculture. Control over and possession of assets is a critical component of welfare; like income, assets can be changed to cash, but they are multi-dimensional too. Who controls these assets within the family is critical to household and individual welfare, and how these assets are situated within households has vital implications for a range of results.

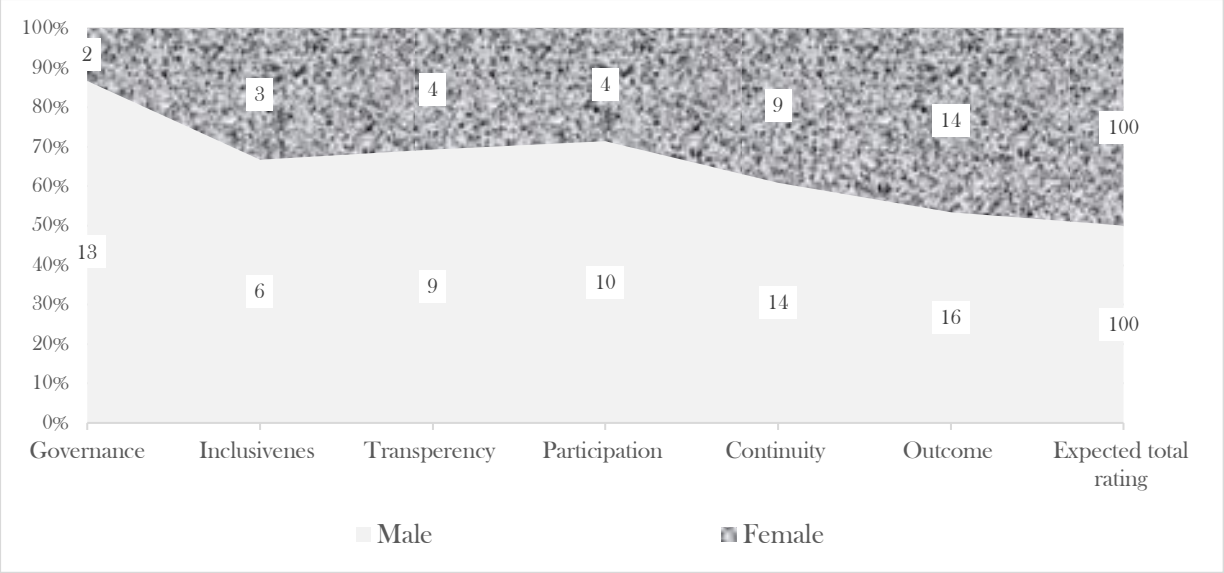

Figure5: Percentage distribution of the women under major challenges hindering access to land

Source: Computed from the field data by authors

To acquire information on the feelings of the rural women on gender disparity in GMoUs interventions, we sought their opinions in six most imperative criteria developed from SCOTDI. The check was carried out to uncover the outlook of the women on issues of partaking, continuity, governance, inclusiveness, pellucidity, and result of the CSR of MOCs using GMoUs in the Niger Delta region. Analysis (Figure 5) expresses the circumstances and the variables, rating them either none, very low, low, moderate, significant or soaring. Overall, the rating of the interventions of the CSR in rural women's access to land in Niger Delta is poor (very low). While the men rated governance 13%, the women took note of the fact that very few of them participate in governance of the CDBs, therefore, they rated it 2%. Inclusiveness got 3%, though men rated it 6%. Also as men rated openness 9%, women rated it 4%. In continuation, participation for men got 10% but for women, it was 4%. Continuity for men got 14% but for women, it was 9%. Finally, outcome for men got 16% but for women, it got 14%.The way the women handled their rating agrees with Lompo and Trani (2013), in that like all other socio-economic undertakings, men have shown total control in the CDBs thereby taking upper hands in determining projects that MOCs will direct their intervention. Also, this result concurs with Ajala (2017), in that inability to own lands significantly cuts the chances of women to access fund because of the requirement of collateral.

4.2 Econometric analysis

In brief, we express the average dissimilarities in the six basic scores and independent observable qualities(characteristics) between the treatment group and control group. In all, the dissimilarities in means shows that Score on farm enterprise management, enhanced productivity, access to land, usage of land, discriminatory laws cum social norms, and improved welfare of women, in the sample are all rationally significant at 5% significant level with average variance of 6%, 12%,8%, 14%, (-23%) and 14% respectively. Score on discriminatory laws and social norms is the only one with negative sign as the treatment recorded substantial reduction in that area. On the other hand, the selected observable characteristics show significant positive variances in annual income, 8.16; means of education of the women, 5.62; primary occupation, 2.62; and income of other household members, 2.01. Likewise, the treatment group, the CDB women recorded also negative significant mean in Marital Status (4.21), Age (0.22), Sex (0.96), Household Size (1.76). On farm characteristics, the women from the CDB communities (treatment group) recorded substantial increase in land ownership type with mean difference of 7.15, farm type with mean difference of 5.03, source of input with mean difference of 1.34, number of transportation means with mean difference of 0.63, and farming experience with mean difference of 0.74. For this reason, observable participation inducements can be identified, which underlines the likelihood that selective placement subsists and, therefore, the need to put to use propensity score matching.

Table 4. Comparison of mean knowledge score and observable characteristics across participants and non-participants (N = 1200)

Access and Knowledge Score in Percentage of maximum score	Treatment	Control	Difference
Score on access to land	27.42	19.35	8.07**
Score on usage of land	33.08	19.56	13.52**
Score on Farm enterprise Management	20.73	14.68	6.050**
Score on enhanced Productivity	28.32	16.78	11.54**
Scores on discriminatory laws and social norms	12.34	35.62	-23.28 **
Scores on enhanced welfare of women	32.42	18.65	13.77**
Socio-Economic Characteristics			
Age	20.23	20.45	-0.22
Sex	12.51	13.47	-0.96
Education	25.83	20.21	5.62*
Marital Status	21.1	25.31	-4.21**
Household Size	8.32	10.08	-1.76
Primary Occupation	16.28	13.66	2.62*

Annual Income	42.32	34.16	8.16**
Income of Other Household Members	8.25	6.24	2.01**
Farm Characteristics			
Farm Type	14.31	9.28	5.03**
Land ownership type	26.8	19.65	7.15**
Source of Input	11.75	10.41	1.34*
Farming Experience	3.67	2.93	0.74***
Number of Transportation means	6.91	6.28	0.63
Observation	600	600	

Source: Authors' compilation based on household survey.

Following the designated characteristics (Table 4) which capture the treated and control's significant observable differences, we projected the possibility of receiving CSR. We used the Logit model as built in equation 3. The account of it is shown in (Table 5) whose examination, the estimated coefficients; and the odd ratio are expressed in terms of odds of *Z=1, the marginal effect and standard error.* Probing the single observables, we observed that educational level of the women, view of the MOC's CSR utilizing GMoU, primary occupation, and farm size are factors that are in the plus for rural women's ability to access and use land. On the other side, farming experience amazingly affects it in the negative. Others with similar negative influence include age, annual income, and the revenue of other family(household) members.

Table 5. Logit model to predict the probability of receiving CG conditional on Selected observables

Variables	Coefficient	Odd Ratio	Marginal Effect	Std. Error
Constant	1.816	5.131	.00261	.667
Age	.-037	.983	.009	.019
MS	.-013	1.930	.00135	.130
Edu	.007	1.017	.051**	.012
PriOcc	.319	.962	.120*	.142
Inpsou	.451	1.31	.0521	.013
Exp	.-021	1.810	-.054**	.132
AY	.-016	.908	.00114	.042
HHcom	-.319	.562	.0012	.205
Farm size	.017	.954	.0511**	.053
Perception of CSR	1.241	11.143	.061*	.052
Observation	1200			
Likelihood Ratio - LR test (ρ=0)	□□2 (1) □1135.23*			
Pseudo R^2	0.21			

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

Source: Authors' compilation based on household survey.

In line with the possibility of receiving CSR projected in the model, the effect of the CSR on rural women's access to and usage of land is put to value by the average treatment effect (ATT) in line with equation 4. We carefully made sure that the observations are ordered arbitrarily and that there are no large differences in the spread of propensity scores. The result (Table 6) reveals that nearest neighbour matching (NNM) produced the highest and most substantial treatment effect assessed in all the six outcome categories of access to farm enterprise management, improved productivity, discriminatory laws cum social norms, land, usage of land, and enhanced welfare of women.

Table 6. Estimated impacts of CSR interventions of the MOCs using GMoUrural women's access to and usage of land using different matching algorithms

Description	**Access and Knowledge Score in Percentage of Maximum Score**		**Average Treatment effect on the treated**
	Receivers	Non- Receivers	
Nearest neighbor matching	Using single nearest or closest neighbor		
Score on Access to Land	27.42	19.35	8.07**
Score on usage of land	33.08	19.56	13.52**
Score on Farm enterprise Management	20.73	14.68	6.05**
Score on enhanced Productivity	28.32	16.78	11.54**
Scores on discriminatory laws and social norms	12.34	35.62	(23.28) **
Scores on enhanced welfare of women	32.42	18.65	13.77
Observations	600	600	
Radius matching	**Using all neighbors within a caliper of 0.01**		
Score on Access to Land	32.14	30.12	3.02**
Score on usage of land	41.16	32.34	8.82**
Score on Farm enterprise Management	27.41	23.13	4.28**
Score on enhanced Productivity	31.43	25.22	6.21**
Scores on discriminatory laws and social norms	20.42	25.53	-5.11
Scores on enhanced welfare of women	22.42	8.66	3.78
Observations	600	600	
Kernel-based matching	**Using a bi-weight kernel function and a smoothing parameter of 0.06**		
Score on Access to Land	32.02	21.14	10.88**
Score on usage of land	29.23	24.31	4.92**
Score on Farm enterprise Management	26.35	23.14	3.21**
Score on enhanced Productivity	18.33	16.44	1.89**
Scores on discriminatory laws and social norms	17.16	23.61	- 6.45*
Scores on enhanced welfare of women	21.32	19.34	1.98

Observations	600	600

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

Source: Authors' compilation based on household survey.

The NNM evaluation of the ability of women to access land due to receiving CSR is about 8%. But, in as much as NNM approach yields poor matches as a result of the limitation of information, we moved attention to the other two matching methods (KM and RM). The assessment of impact using radius matching algorithm is about 3%, while Kernel-based matching algorithm produces a substantial average treatment effect on the treated of approximately 11%, which is the highest impact assessment for the women's access to land. Accordingly, it can be established that the CSR of MOCs using the GMoU create room for significant gains in rural women's access to land, and if invigorated and enriched will lift many out of paucity line.

In step 3, with regard to equation 5, we tested the imbalance of single observable characteristics and observed that the quality of kernel-based matching and radius matching is much higher than that of the simple method of selecting the only closest neighbour in line with the propensity score. The summary, Table 7, which is the statistics for the complete balance of all covariates (treatment group and control) confirms the higher quality of kernel-based matching and radius matching. Both the mean and the median of the absolute standardized variance after matching are below the threshold of 5%.

Table 7. Imbalance test results of observable covariates for three different matching algorithms using standardized difference in percent

Covariates X	Standardized differences in % after		
	Nearest neighbor matching	Radius matching	Kernel-based matching
Constant	41.6	2.8	4.7
MS	21.5	4.9	2.6
Edu	31.4	6.4	8.8
AY	9.5	3.8	2.1
PriOcc	11.6	5.3	3.4
Exp	31.4	2.4	4.3
Age	15.7	3.3	2.1
Farm size	12.6	2.7	0.5
Inpsou	22.5	4.1	1.9
Perception of GMOU	86.4	5.5	6.3
HHcom	19.4	5.4	2.1

Mean absolute standardized difference	27.60	4.24	3.53
Median absolute standardized difference	19.4	4.1	3.4

Source: Authors' compilation based on household survey.

In the final stage, following equation 7 stated above, we looked at the sensitivity of significance levels. Taking cognizance that it is the duty of a suitable control strategy for hidden bias, we made comparison of the sensitivity of treatment effects on scores of farm enterprise management, enhanced productivity, access to land, usage of land, discriminatory laws cum social norms, and improved welfare of women among the three introduced matching algorithms. In all, vigorous results produced by Rosenbaum's bounds look alike.

Table 8. Sensitivity analysis with Rosenbaum's bounds on probability values.

	Upper bounds on the significance level for different values of e^{γ}				
	e^{γ}= 1	e^{γ}= 1.25	e^{γ}= 1.5	e^{γ}= 1.75	e^{γ}= 2
Nearest neighbor matching	Using single nearest or closest neighbor				
Score on access to land	0.0001	0.0223	0.0231	0.0241	0.0411
Score on usage of land	0.0001	0.0012	0.0321	0.231	0.621
Score on farm enterprise management	0.0001	0.0041	0.0634	0.418	0.871
Score on enhanced productivity	0.0001	0.0021	0.0031	0.0521	0.143
Scores on discriminatory laws and social norms	0.0001	0.0017	0.0012	0.2121	0.2101
Scores on enhanced welfare of women	0.0001	0.0016	0.0021	0.321	0.211
Radius matching	Using all neighbors within a caliper of 0.01				
Score on access to land	0.0001	0.0015	0.002	0.0312	0.0732
Score on usage of land	0.0001	0.0018	0.0021	0.141	0.026
Score on farm enterprise management	0.0001	0.0011	0.0031	0.121	0.036
Score on enhanced productivity	0.0001	0.0002	0.0009	0.0081	0.0436
Scores on discriminatory laws and social norms	0.0002	0.0012	0.0032	0.021	0.0731
Scores on enhanced welfare of women	0.0004	0.0214	0.1634	0.628	0.091
Kernel-based matching	Using a bi-weight kernel function and a smoothing parameter of 0.06				
Score on access to land	0.0001	0.0011	0.0001	0.005	0.0218
Score on usage of land	0.0001	0.0071	0.0231	0.213	0.012
Score on farm enterprise management	0.0001	0.0016	0.0012	0.0026	0.0114
Score on enhanced productivity	0.0001	0.0184	0.164	0.485	0.034
Scores on discriminatory laws and social norms	0.0001	0.0315	0.012	0.0421	0.0432
Scores on enhanced welfare of women	0.0001	0.0015	0.0013	0.0021	0.0134

Source: Authors' compilation based on household survey.

Analysis (Table 8) demonstrates that KM generated more robust treatment effect than NNM and RM with regards to estimates to hidden bias, especially for farm enterprise management,

enhanced productivity, access to land, usage of land, discriminatory laws cum social norms, and enhanced welfare of women. There is a possibility that matched pairs may vary by up to 100% in unobservable characteristics; while the impact of CSR on farm enterprise management, enhanced productivity, access to land, usage of land, discriminatory laws cum social norms, and improved welfare of women would still be significant at a level of 5% (p-value = 0.0114, p-value = 0.034, p-value = 0.0218, p-value = 0.012,p-value = 0.0432, and p-value = 0.0134, respectively). The same classifications of knowledge score are robust to hidden bias up to an influence of e^{-2} at a significance level of 10% in line with the radius matching method.

Holistically, the finding of this study shows that, driven by the urgency of a global rush for land cum extracted resources and unprecedented urbanization, made worse by the growing effect of customs and tradition, oil spillage and gas flaring, climate change and frequency of natural disaster, women have been at the heart of human right abuses regarding their rights and ability to access land in Nigeria's Niger Delta region. The results show that increasing the chances for women to acquire land to leverage gender equality and advancement is key for the discussion on the role of assets because it is basic to both agricultural production and security. The discoveries suggest several policy mechanisms that can be used by MOCs CSR through GMoUs to better gender equality in land access in host communities. This mechanism includes community and territorial land delimitation programs, land law reform advocacy, joint-titling modalities, land leasing, land use certificate issuances, and other forms of land interventions. The results also climax the social and cultural factors that are vital to consider in GMoU clusters when selecting among CBD policy options to overwhelm women's disadvantage position in gaining access to land in the region. These factors might include uneven access to existing social protection mechanisms, dissimilarities in bargaining power, and other forms of social control and gendered social sterotypes in the rural communities. Therefore, the result implies that the relative priorities of CSR in Nigeria's oil region ought to vary from the classic (Carroll, 1991) American ordering; instead, it should be focused on addressing the uniqueness of the socio-economic development problems of the rural Africa (Amaeshi *et al,* 2006; Visser, 2006). Hence, if MOCs are to focus on an ideal CSR in Nigeria's oil host communities, we would argue that it should be towards bettering land rights for women in the region. In addition, and contribution, it is our disputation that MOCs' CSR via GMoU holds the key to discourage discriminatory laws and social norms that weaken women's access to the transformative power of land in Niger Delta which subsequently will create the enabling environment for more comprehensive and extensive accountable businesses in Africa.

5. Policy implications, caveat and future research directions

In the region referred to as Niger Delta in Nigeria, women seldom own land and have less secure rights over land than men. Because women are normally not taken to be land-owner, they are generally left out in MOCs' GMoU interventions in extension and agricultural support programmes cum fiscal credit and loans which are crucial for effective use of land in host communities. With secure tenure rights lacking, the women are evicted from their home upon the death of a husband; lack an alternative when an abusive partner kicks them out; get excepted from the decisions about the sale or lease of their land; have no claim to recompense when the land is taken by an investor, oil companies, or the government, or access to food, fibres, fire word or medicine from forests which are chosen as conservation areas. As a result of these women lacking control over the land they depend on, they are less likely to be involved in decision-making about land and are more predisposed to displacement and manipulation. Hence, we hypothesize as follows:

i. CSR of MOCs using GMoU has not prompted progressive changes on prejudiced laws and social norms that weaken women's access to the transformative power of land in the Niger Delta.
ii. CSR of MOCs using GMoU has no heavy influence on gaining ground for women's land rights to bring about gender equality and progress in the Niger Delta, Nigeria

As a result, we set out to look at the effect of multinationals oil companies' (MOCs) corporate social responsibility (CSR) on bettering land rights for rural women. A total number of 1,200 women were sampled across the Niger Delta region of Nigeria. Outcomes from the use of a combined propensity score matching and logit model show MOCs' CSR using global memorandum of understanding (GMoU) model recorded substantial success in different policy mechanisms to enhance gender equality in land access. These include joint-titling modalities, land use certificate issuances, land leasing, community cum territorial land delimitation interventions for agricultural production and security in the oil host communities in Nigeria. The policy in line with them largely surround how MOCs' CSR via GMoUs can be consolidated by policy makers to act as gender influencer in agriculture development interface between the MOCs, government, traditional leaders and women's land right. Such consolidation can be made by the need for plasticity in methods to CSR policy and practice by multinationals operational in Africa, and the significance of cultural context in the determination of suitable CSR priorities and

programs. The main caveat of the study is its being limited to the scope of oil host communities in Nigeria. Therefore, the results cannot be widespread as it concerns other African countries with the same policy problems. Due to these shortcomings, replicating the analysis in other countries is worthwhile in order to find out if the established nexuses withstand empirical scrutiny in varying backgrounds in Africa.

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